

**On-line communities: getting asynchronous discussions to work for DL students**

Sue King  
Curriculum Development Officer  
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**MSc case study**

- MSc Maintenance Engineering and Asset Management
- Taught modular course successfully run for 5 years
- Key characteristics : opportunities for networking
- Demand for on-line version
- Question: how to replicate the 'network' in an on-line course

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**MSc taught course**

- 10 modules
- 'short, fat' face-to-face delivery
- Taught by mix of lecturers and industrial consultants
- Existing lecture notes in handbook for each module

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### Challenge.....

- To convert the taught course to DL
- To develop the learning community to emulate this very successful aspect of the face to face course.

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### New course: definition

- Fully on-line
- Modular
- Networking opportunities
- Assessment
  - Course work including some group work
  - Examination
- Dedicated development staff (educational designer and web developer)

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### Student profile

- Engineers in FT employment
- Funded by employers
- UK, Malta, Iceland, Gulf States, Canada, France, Switzerland

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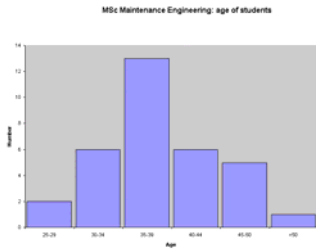
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## Student profile



Over 60 % between 5 and 15 years since previous study

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**Designer's point of view:** what features / characteristics would you include on a teaching website in order to develop a learning 'community'?

**Student's point of view:** what info/training would you want before starting an on-line course and what would you expect the site to be like

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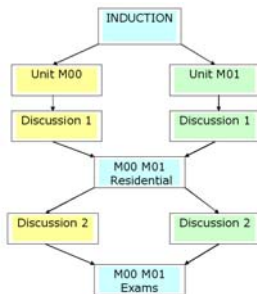
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## Course design



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## Course design principles

- Use VLE (WebCT)
- Simple, consistent layout, easy navigation, short interesting pages
- Variety of media
  - photos, video, audio, diagrams, text – first person, exercises, self-tests, readings etc.
- Lots of opportunities to communicate (and we would communicate a lot!)
  - discussion boards, email, web pages

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## Community design

- Communities of practice
- ‘Groups whose members regularly engage in sharing and learning, based on common interests’
  - Lesser, E.L. & Storck, J. (2001)

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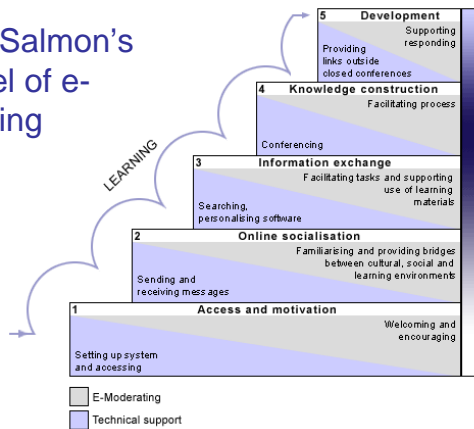
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## Gilly Salmon's Model of e-learning




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### Community Development: induction

- 5 stage model of on-line learning (Salmon)
- Access & training (one month period)
  - to all the tools and resources of the course  
e.g. library, WebCT
- Socialisation
- Information exchange
- Achievable tasks and exercises

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### Community Development: course content

- Themed discussions based on course content but ....
- made relevant to students' working practice
- involving
  - exchange of ideas
  - collaborative working
  - knowledge construction

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### Community development

- Would start from the very beginning!
  - induction
- involve whole course team
- use many modes of communication
  - letter/email/discussion
- send regular communications
  - the Friday email / reminders
- quick response time
  - daily website check
- the personal touch!
  - respond to individuals

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## Outcomes (we hoped)

- Development of higher levels of learning (Bloom)
  - e.g. critical evaluation of their own & others experience
- Collaborative working to develop skills and synthesise new ideas
- Extend community beyond the formal discussions to form true COP
- Motivated students who participate in the course at all levels, enjoy it and are successful.

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## Induction

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## Induction website



- ▶ **Professor's Welcome** Welcome to the Induction website for the MSc in Maintenance Engineering and Asset Management (via distance learning). The Induction will commence on July 4th 2008. The first three weeks will be a general induction including online study skills and how to access the library resources. The final week, week commencing 25th July, will be a WebCT Induction when you'll have the opportunity to familiarise yourself with the University's Virtual Learning Environment.
- ▶ **Meet the Team** Throughout the 4 week period there are various induction exercises to be completed plus an online pre-course pack to work through.
- ▶ **Student Handbook** Please begin the Induction by completing the [assessment for Week 1](#).
- ▶ **Induction Exercises** The teaching of the first two units (M01: Maintenance Strategy & M02: Maintenance Organisation) will begin on the 1st of August.



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## We introduced ourselves



I'm Mark Knight, the Distance Learning Writer for MScs in the School of Engineering. I am responsible for the organisation and structure of distance learning courses within the School and general liaison between unit leaders, students and other staff. I joined the School of Engineering six months ago from Manchester University Learning Centre and, prior to that, worked in industry as an instructional designer for several years. If you have any queries, problems or comments about the structure or content of the course, please contact me.

email: [mark.knight@manchester.ac.uk](mailto:mark.knight@manchester.ac.uk)



I'm Jeremy Kennedy, the Web developer for the Distance Learning version of MSc Maintenance Engineering and Asset Management. I am responsible for maintaining the Induction website and converting all the teaching materials for the course units into a format suitable for online delivery. I also provide WebCT support.

Before I moved to the School of Engineering in January 2003, I was employed by Delta, a central unit within the University providing support for the users of WebCT (the University's Virtual Learning Environment).

email: [jeremy.kennedy@man.ac.uk](mailto:jeremy.kennedy@man.ac.uk)

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## We asked students to introduce themselves

M01: Maintenance Strategy 2003  
Home > ... > Sean Cooney... > Gary Warner (Dr)... > Robin Blakey... > Robert Ables... > Nick Gill (only...  
Student Homepages

James Ball (Dr) Track Medicine

After leaving school in Manchester in 1999 I joined the EEMS for a career in aircraft maintenance. I completed a three year apprenticeship and was awarded an OISC in Aeronautical Engineering. Throughout my 13 year Army career, I held various positions

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## Quizzes

Are you a good time manager?

1. Do you regard yourself as someone who:  
(Select one answer)

(a)  often gets things done ahead of time  
(b)  often needs reminding to get things done on time  
(c)  leaves things to the last minute or doesn't complete them at all

Mark Flag Explain

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## Discussions - induction

- Aim: getting to know one another
- sets expectations and boundaries
  - 'netiquette'
- starts with simple discussion exercises
  - introduce self & reasons for following course
- uses student web pages
  - photos, further info
  - quick response to queries
  - html tips
  - £30 Amazon voucher prize

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## Induction discussions

### Message 1 (part only)

- I come from Lebanon, working in Saudi Arabia as a Service Engineer for medical equipment.

### Message 2 (part only)

- Currently employed by CERN (European Organization for Nuclear Research) in Geneva, Switzerland, I am in my sixth year and seriously looking around for a challenging study opportunity

### Message 3 (part only)

- I'm just getting over the shock of starting to study again so I'm off on holiday now for the next two week,

### Message 4 (part only)

- Hey - I take it all back this web stuff is fun - I am getting no studying done but ..... If anyone needs some pointers with this HTML stuff I found a good web site with helpfull tutorials on it <http://www.developingwebs.net/html/>

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## Course design

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## Use of templates

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## Discussion Topics

Topic	Unread	Total	Status
<a href="#">All</a>	172	345	
<a href="#">Main</a>	3	33	public, unlocked
<a href="#">'Ask the tutor'</a>	51	84	public, unlocked
<a href="#">KPI (Disc 1) Group A</a>	8	19	public, locked
<a href="#">KPI (Disc 1) Group B</a>	16	29	public, locked
<a href="#">KPI (Disc 1) Group C</a>	15	16	public, locked
<a href="#">RCM - Fishpond pump (Disc 2) Group A</a>	24	29	public, locked
<a href="#">RCM - Fishpond pump (Disc 2) Group B</a>	20	28	public, locked
<a href="#">RCM - Fishpond pump (Disc 2) Group C</a>	3	16	public, locked
<a href="#">Notes</a>	0	0	public, unlocked
<a href="#">WebCT/Technical problems</a>	2	31	public, unlocked
<a href="#">All postings up to 31.08.03</a>	26	40	public, locked
<a href="#">All postings from 01.09.03 - 30.09.03</a>	4	20	public, locked

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## Tutorial discussions

- 2 per course unit i.e. 4 per semester
- Each run over 2 week period
- Small groups (6-8 students)
- Private during discussion period
- Unlocked at end
- Moderated by support staff and academics
- Summarised by academic

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## Information exchange

Discussion messages: CBM Techniques  
Returns to [Discussion](#)

Compose Discussion Message Search Mark All As Read Update Listing

Select topic:  Show all / [Show unread](#) Threaded / [Unthreaded](#)

Select all Select none Apply to selected message(s) below Complete  Go

Status	Subject	Author	Date
▼ 01	<a href="#">Discussion 1.1</a>		
⊞	<a href="#">Discussion 1.1</a>	Alan Crawford (nhgsmc2)	August 2, 2004 8:42pm
▼ 01	<a href="#">Discussion 1.1</a>		
⊞	<a href="#">Discussion 1.1</a>	Colin Newson (nhgsmc2)	August 3, 2004 8:10am
▼ 01	<a href="#">Inward Analysis</a>		
⊞	<a href="#">Inward Analysis</a>	Richard Welch (nhgsmc2)	August 3, 2004 8:55am
▼ 01	<a href="#">Discussion 1.1</a>		
⊞	<a href="#">Discussion 1.1</a>	Gary Warner (nhgsmc2)	August 3, 2004 1:09pm
▼ 01	<a href="#">Discussion 1.1</a>		
⊞	<a href="#">Discussion 1.1</a>	Robert Akers (nhgsmc2)	August 3, 2004 6:22pm
▼ 01	<a href="#">CBM at Transit</a>		
⊞	<a href="#">CBM at Transit</a>	Dva Wright (nhgsmc2)	August 5, 2004 12:47pm

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## Discussion postings

MD1: Maintenance Strategy 2003  
Name: Discussion - KPI (Disc 1) Group B

Status: locked

Compose Discussion Message Search Mark All As Read Update Listing

Select topic:  Show all / [Show unread](#) Threaded / [Unthreaded](#)

Select all Select none Apply to selected message(s) below Complete  Go

Status	Subject	Author	Date
▼ 04	<a href="#">Discussion 1 now open un...</a>		
⊞	<a href="#">Discussion 1 now open un...</a>	Jennifer M Kennedy (nhgsmc2)	September 1, 2003 11:39am
⊞	<a href="#">Re: Discussion 1 now open...</a>	Paul McIlhatton (nhgsmc2)	September 2, 2003 3:14am
⊞	<a href="#">Re: Discussion 1 now open...</a>	Jennifer M Kennedy (nhgsmc2)	September 2, 2003 10:11am
⊞	<a href="#">Re: Discussion 1 now open...</a>	Paul McIlhatton (nhgsmc2)	September 3, 2003 11:28pm
▼ 06	<a href="#">KPI cereal plant</a>		
⊞	<a href="#">KPI cereal plant</a>	Anthony Jones (nhgsmc2)	September 3, 2003 1:07pm
⊞	<a href="#">Re: KPI cereal plant</a>	Colin Newson (nhgsmc2)	September 9, 2003 8:09pm
⊞	<a href="#">Re: KPI cereal plant</a>	Anthony Jones (nhgsmc2)	September 12, 2003 8:03am
⊞	<a href="#">Re: KPI cereal plant</a>	Sean Constantine (nhgsmc2)	September 18, 2003 4:52pm
⊞	<a href="#">Re: KPI cereal plant</a>	Robin Blakey (nhgsmc2)	September 19, 2003 8:48pm
⊞	<a href="#">Re: KPI cereal plant</a>	Anthony Jones (nhgsmc2)	September 20, 2003 3:17pm
▼ 03	<a href="#">KPI in the context of Ma...</a>		
⊞	<a href="#">KPI in the context of Ma...</a>	Janez Thatcher (nhgsmc2)	September 3, 2003 5:36pm
⊞	<a href="#">Re: KPI in the context of...</a>	Anthony Jones (nhgsmc2)	September 3, 2003 6:09pm
⊞	<a href="#">Re: KPI in the context of...</a>	Janez Thatcher (nhgsmc2)	September 4, 2003 11:05am
▼ 03	<a href="#">Maintenance challenges &amp;...</a>		
⊞	<a href="#">Maintenance challenges &amp;...</a>	Colin Newson (nhgsmc2)	September 9, 2003 7:56pm

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## Formation of groups

Discussion messages: RCM - Fishpond pump (Disc 2) Group A  
Returns to [Discussion](#)

Status: locked

Compose Discussion Message Search Mark All As Read Update Listing

Select topic:  Show all / [Show unread](#) Threaded / [Unthreaded](#)

Select all Select none Apply to selected message(s) below Complete  Go

Status	Subject	Author	Date
▼ 01	<a href="#">Discussion 2 exercise</a>		
⊞	<a href="#">Discussion 2 exercise</a>	Jennifer M Kennedy (nhgsmc2)	October 13, 2003 4:31pm
▼ 013	<a href="#">Factor needed!</a>		
⊞	<a href="#">Factor needed!</a>	Nick Gill (nhgsmc2)	October 19, 2003 9:38pm
⊞	<a href="#">Re: Factor needed!</a>	Robert Akers (nhgsmc2)	October 20, 2003 4:42am
⊞	<a href="#">Re: Factor needed!</a>	Paul Whitehouse (n01A)	October 20, 2003 3:18pm
⊞	<a href="#">Re: Factor needed!</a>	Robert Akers (nhgsmc2)	October 20, 2003 4:07pm
⊞	<a href="#">Re: Factor needed!</a>	Rennie Cuchta (nhgsmc2)	October 21, 2003 3:56am
⊞	<a href="#">Re: Factor needed!</a>	Robert Akers (nhgsmc2)	October 21, 2003 12:04pm
⊞	<a href="#">Re: Factor needed!</a>	Rennie Cuchta (nhgsmc2)	October 23, 2003 4:00am
⊞	<a href="#">Re: Factor needed!</a>	Nick Gill (nhgsmc2)	October 23, 2003 10:49pm

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## RCM Discussion

Message no. 204  
Posted by Paul McIlhatton (mbgumpcz) on Thursday, October 23, 2003 12:36pm

Hi Colin,  
Please see attached for combined worksheets for Function 1. I've included some secondary function failures, pump mechanical failure and added in some headings in the response column to your sheet, but feel free to change anything.



See Attached

If your happy with it then we can submit as it is.

Regards,  
Paul.

[Reply](#)   [Quote](#)   [Download](#)

Message no. 218  
Posted by Colin Newson (mbgumpcz) on Friday, October 24, 2003 4:48pm

Hi Paul. It looks good to see the only thing is the secondary function failure text boxes as these are covering the text on your attached version hopefully the attached should be better. If nobody can get round to compiling the three documents together then I will do it Monday night. Anyway hope you are all well and progressing with the revision and the assignments.  
Regards, Colin.



See Attached

## Completed Worksheet

G10		Condition Monitor		Visually monitor flow daily & clean filter regularly	
A	B	C	D	E	F
RCM Worksheet	Functional Failures (State of function)	Failure Mode (Cause of failure)	Failure Effect (What happens when it fails)	Consequence (How serious is the)	Response (What needs to be done)
1	To maintain water around loop @ 500 l per min.	1. Water flow below specified 5 l/s or less.	Filter partially obstructed.	Flow of water from general below normal rate.	Only critical if not addressed within one week. <b>Condition Monitor</b> Visually monitor flow daily & clean filter regularly.
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## Tutor summary

- **Message no. 269**  
Posted by Paul Wheelhouse (m01a) on Sunday, November 2, 2003 11:47am
- Dear all, many thanks for the enthusiasm with which everyone entered into this second discussion topic. Your solutions were both pertinent and imaginative!

Did we meet our objectives?

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**Student evaluation**

- *Both group discussions were very interesting and useful, particularly hearing different maintenance perspectives. (The second discussion suffered from clashing with the major assignment though).*
- *An excellent means of exchanging views and discussing experiences within different industries, particularly with regard to the first discussion topic (The Impact of TPM). The discussion topics were also a great way to get to know the rest of the group!*

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**Critical thinking**

At first glance, Total Productive Maintenance (TPM) sound(ed) like an attractive business proposition....

So where did we go wrong? The primary mistake was to view the exercise entirely in terms of the cost savings... The strategic aspects of maintaining the quality of the work were largely ignored and the possibility of.....

Whether it is possible to successfully introduce a full TPM programme to complex, interconnected plants, such as power stations, is highly debatable. Historically, TPM was introduced.....

**analysis/evaluation/use of comparative examples**

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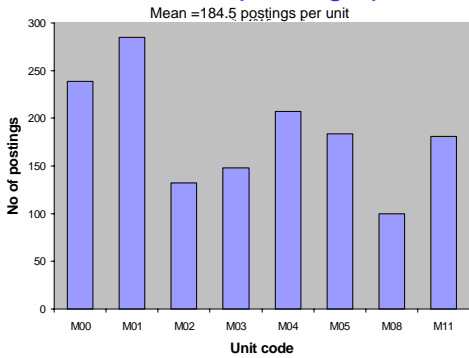
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### Total discussion postings per unit




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Table 1. Correlation table.

	Hits	Read	Post	Mark
Hits	/			
Read	M1: n.s. M2: n.s. M3: n.s. M4: n.s. M5: n.s. M6: n.s.	/		
Post	M1: n.s. M2: n.s. M3: n.s. M4: n.s. M5: r=.43 p=.08 M6: r=.48 p=.06	M1: r=.61 p<.01 M2: r=.43 p=.07 M3: r=.45 p=.06 M4: r=.49 p<.05 M5: n.s. M6: r=.52 p<.05	/	
Mark	M1: n.s. M2: n.s. M3: n.s. M4: n.s. M5: n.s. M6: n.s.	M1: n.s. M2: n.s. M3: n.s. M4: r=.45 p=.07 M5: r=.58 p<.01 M6: r=.54 p<.05	M1: r=.61 p<.01 M2: r=.42 p=.08 M3: r=.41 p=.10 M4: r=.43 p=.08 M5: r=.53 p<.05 M6: r=.41 p=.11	/

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### Content analysis

- Message coding – ‘quick & dirty’
- The whole message as unit of analysis
- 4 categories
  - Access / Course management
  - Socialisation
  - Knowledge construction
    - (Information exchange)
  - Knowledge development

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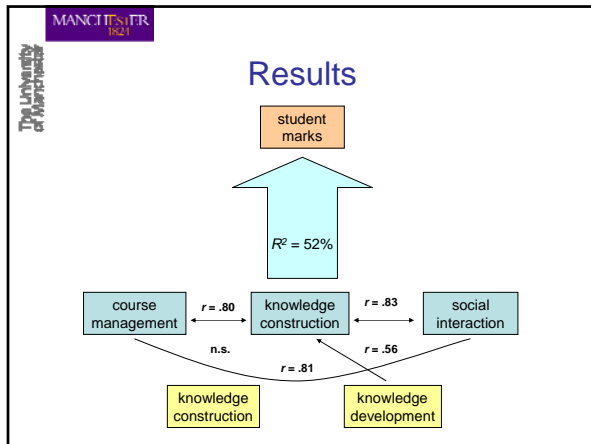
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- ## Further research
- Content analysis to improve instructional design and increase opportunities for knowledge development
  - 'Community of inquiry' model
    - Garrison, Anderson & Archer (2000) Critical enquiry in a text-based environment. *Internet & Higher Education* 2 (2-3): 87-105.
    - Garrison & Anderson (2003) *E-learning in the 21<sup>st</sup> Century: a framework for research and practice*. London, Routledge / Falmer.
  - Social presence
  - Cognitive presence
  - Teaching presence

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## Coding messages: example

267  
agent post S target post GST  
Hello everyone  
I was just wondering about the information we have been given on Bebin. I think the comparison between solo leader and team leader highlights very well how an individual's management style can influence the efficient formation/working of a team. But with regards to the list about the personality traits, I am struggling with its practicality. SEE I can see how they could roughly be divided into 'doing' roles such as the shaper or implementer, 'thinking' roles such as the plant or specialist and 'people' roles such as the coordinator and team worker, and that matching people with roles they may be good at will increase the effectiveness of a team, but is the purpose of such a list to recognise that your team lacks someone (and therefore may be unbalanced) and you should be looking to extend the membership? NGC  
So my question really is does this have any practical use, has anyone got any experience? NGC  
Thanks  
X

Elements	Categories	catCode	Instances
Cognitive presence in posting	Triggering event	cte	1
	Exploration	ce	
	Integration	ci	
	Resolution	cr	
Social presence in posting	Emotional expression	see	1
	Open communication	soe	
Teaching presence in posting	Group cohesion	sgc	2
	Instructional management	tim	
	Building understanding	tbu	
	Direct instruction	tdi	

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## Coding template: cognitive presence

Elements	Categories	CatCode	Indicators	Examples
COGNITIVE PRESENCE  Assign ONE CatCode with a message unit of analysis  † code up when certain if multiple categories code to highest  ‡ code down when in doubt (if not clear which phrase is being reflected)	Resolution (committed to solution—deductive by testing validity)  critically assessing the concept and indicating a commitment to a solution and deductively testing its validity	<b>cr</b>	Critically assessing solutions, application of idea(s) or hypothesis (s)	vicariously testing and applying new ideas using thought experiments and consensus building
	Integration (tentative connecting)  tentative connection or connecting of relevant ideas capable of providing insight into the dilemma	<b>ci</b>	connecting ideas, creating solutions, gaining understanding of information and knowledge, looking for insights, integrating into coherent idea or concept.	Assessing the applicability of ideas in terms of how well they connect and describing the issue or event under consideration.
	Exploration (inquisitive and divergent)  searching for ideas to help make sense of a problem or issue	<b>ce</b>	exchanging information, discussing ambiguities, in search of information and knowledge, seeking alternatives, search for clarification, trying to make sense of solution or problem	A divergent phase characterized by brainstorming, questioning, and information exchange.
	Triggering event (evocative & inductive)  conceptualizing a problem or issue	<b>cte</b>	identifying or recognizing a problem (perhaps resulting from an experience)	Expressing a sense of puzzlement or unease. Asking questions

## Coding template: social presence

Elements	Categories	CatCode	Indicators	Examples
SOCIAL PRESENCE  Assign a CatCode to each thematic.* ANCHOR: discuss syntactical unit of analysis within each message  No number and no occurrence of each instance of category identified  No hierarchy assigned to the categories	Emotional expression (affective)	<b>see</b>	emotions, autobiographical narratives, expressing humor, self-disclosure, sharing of feelings, experiences, attitudes and personal interests  expressing a willingness to maintain and prolong contact, and tacitly indicating interpersonal support, encouragement and acceptance of the initiator.	Conventional expressions of emotion, or unconventional expressions of emotion, includes, repetitive punctuation, conspicuous capitalization, emoticons. "Just can't stand it." "Where... SEE "ANYBODY GOT THEIR?"  Teasing, cussing, irony, understatement, sarcasm: the banana crop in Edmonston is looking good this year :)  Presents details of the outside of class, or expresses vulnerability. "Where I work, this is what we do..." "I just don't understand this question"
	Open communication (interactive)	<b>soic</b>	risk-free expression, acknowledging others, being encouraging recognition of each other's contribution, creating relevant and constructive comments based on prior contributions.  Referring explicitly to other's transcripts or quoting from others' script.	Direct references to contents of others' posts: "In your message, you talked about Nelson's distinction between..."  Students ask questions of other students or the moderator: "Anyone else had experience with VISE/CTT?"  Commenting others or contents of others' messages: "I really like your interpretation of the reading"  Expressing agreement with others or contents of others' messages: "I was thinking the same thing: 'You really hit the nail on the head'"
	Group cohesion (cohesiveness)	<b>sgc</b>	encouraging collaboration, helping and supporting, focused collaborative communication that builds participation and empathy  Ethics and solutions involves (i.e. addressing participants by name) and addressing the group as "we", "our" or "us".	Addressing or referring to participants by name: "I think John made a good point..." "John, what do you think?"  Addresses the group as we, us, our, group: "Our feedback refers to..." "I think we need off track..."  Communication that serves a purely social function, greetings, closes: "So all..." "That's it for now" "We're having the most beautiful weather here"

\* a single thought unit or idea unit that conveys a single item of information extracted from a segment of content (Bull, Troop and Donohue 1987)

## Conclusions so far I

- Coding is complex and time consuming
- Difficult to standardise
  - between researchers (inter-rater reliability)
  - and across subject areas
- Templates are imperfect objects!
  - Academic staff contribute to social structure of group
  - Academic's own concept of 'teaching' differs from person to person
  - Students contribute to teaching of their peers
- Garrison & Anderson model not always appropriate
  - Not all discussions are hierarchical

## Conclusions so far II

- For students, resolution phase may be when they write up an assignment and reconcile all their ideas.
- The task is crucial to the structure of the discussion
- These are not just 'theoretical issues of interest to researchers'
- We hope that further research will enable us to improve the instructional design of asynchronous communication tasks

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Thankyou

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