REPORT FROM UNIVERSITY OF MANCHESTER MEDICAL SCHOOL

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Are there common activities/features in different contexts that move people from novice to confident autonomous learners (and how can e-portfolios help?)

Our research indicates that people can move from novice to autonomous learners, but require careful preparation to do so. By making personal and professional development explicit, eportfolios can facilitate and emphasiise this preparation

Key finding from research
The nature and content of training, preparation and support for learners in online environments has a marked influence on their ability to develop as critical thinkers

REPORT OF RESEARCH

Research Question

We have introduced online learning in the form of small group discussions to support Personal and Professional Development (PPD) activities, as part of undergraduate media students' portfolios. In an innovative departure, these discussions are peer facilitated i.e. by students form the same year as the other group members. The role of student facilitator requires preparation and training, so our research question is:

How does the content of training and preparation for student facilitators influence the development of reflective learning in online discussion?

Context

In Year 1 and 2 (n = 380 students per year) in the University of Manchester Medical School, PPD, supported by portfolios, is delivered to student groups, which are tutor facilitated, in specific portfolio sessions. The students are

located on the main medical school site. In 2006-07 portfolio delivery was extended into Year 3 of the curriculum to include over 530 students per year. Students are located at a teaching hospital site over a 50 mile radius from the main University campus. Each hospital site follows a complex timetable and there is barely opportunity for students to hold face-face portfolio group meetings. Students in Year 3 were invited to volunteer to be a facilitator and we received over 60 responses. Student volunteers were subsequently trained in generic group facilitation techniques and how to facilitate discussions on professional issues. Based on problem based learning (PBL) groups the whole year was divided into 63 separate groups, each allocated with a student facilitator. A webpage was then established using WebCT as a platform with areas for resources and activities and provision for the whole year group and private group discussion areas. PPD activities were devised for the students focusing on professional issues relevant to Year 3 medical students and the students became accustomed to engaging in discussion online. Prompts, reading lists and useful web links provided further aids for discussion. The first online discussions focussed on persona and professional behaviour appropriate for undergraduate medical students.

The emphasis in the preparation and training of facilitators for the first year of the study was on the meaning of facilitation techniques by use of practical examples in the training session such as think, pair and share etc. These, however, were aimed at facilitating face-to-face situations. For the second year of the study although the meaning of facilitation by use of practical examples was demonstrated as previously,   training also included practical

examples of moderating online discussions. Students were shown actual examples of discussions and asked to comment on how they would initiate discussions, suggest strategies for dealing with 'awkward' group members, engage group members in discussion, summarise discussions and provide appropriate feedback to the group.

Existing theory and research on which the project builds

Current developments in medical education recognise the importance of building communities of practice (Bell, Boshuizen, Scherpbier, & Dornan, 2009; Lown, Newman, & Hatem, 2009; Ross & Stenfors-Hayes, 2008) among both learners and educators. The notion of sharing practice, knowledge, understanding and expertise among practitioners and learners is based on the theories developed by Wenger (Wenger, 2000), in which social learning and interactions have a significant role in acquiring expertise. Online learning has been recognised as providing a similar environment for developing communities of practice, both through formal in informal Interactions (Anderson & Garrison, 1995). The role of the tutor/facilitator is known to be key to successful implementation of group learning both in face to face (Austin & Braidman, 2008) and online (Sandars, 2006) environments and, furthermore, their training and preparation is of prime importance in encouraging participation in online activities (Sandars, Langlois, & Waterman, 2007).

The development of online communities of reflective learners has been described in detail by Garrison et al (Garrison, Anderson, & Archer, 2000, 2001). They recognise that reflective learning experience online results from

interaction between three "presences" namely Cognitive Presence, Social

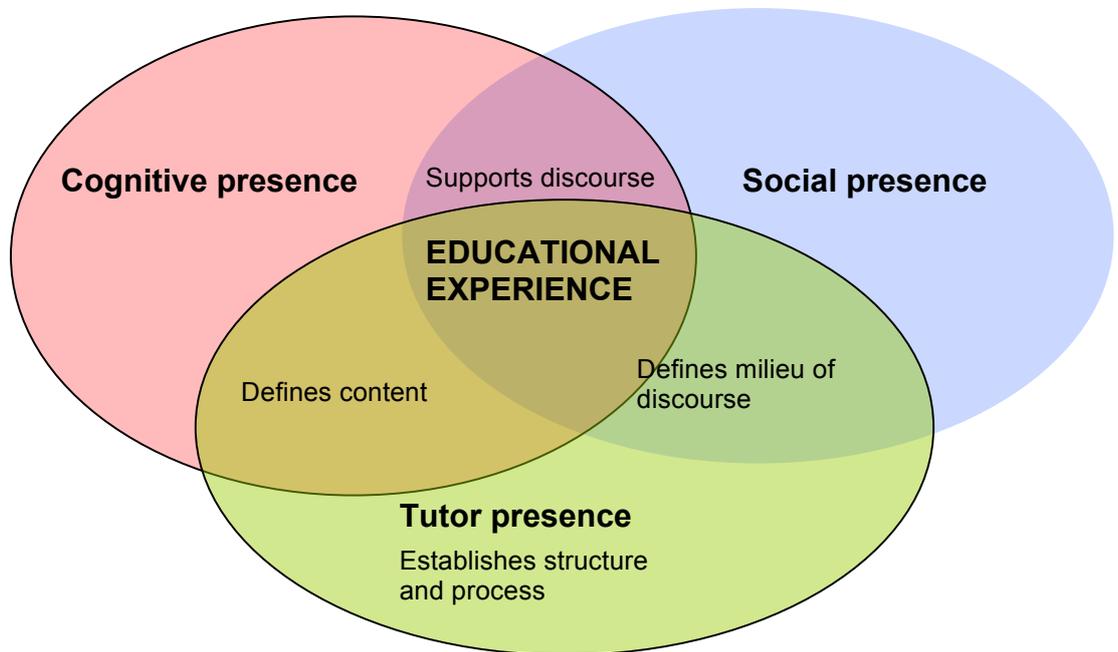Presence and Tutor Presence, as represented in Figure 1

Figure 1 Diagrammatic representation of Community of Enquiry Model, after Garrison et al, 2001

Cognitive Presence is comprised of 4 components, which are hierarchical in

nature, namely triggering, exploration, integration and resolution with

resolution at the highest level. Social Presence encompasses three elements,

i.e. emotional expression , open communication, and group collaboration ,

which are non hierarchical . Teacher Presence covers the three categories of

instructional management , direct instruction) and building discourses and

understanding, with the latter category at the highest level. Maximum overlap

between the three presences provides a learning environment conducive to

online reflective learning and critical thinking.

Reflective practice is an important feature of PPD in medicine both for undergraduates and after qualification as a medical practitioner, so it is now recognised that this must be made explicit in the undergraduate curriculum, to accustom students to critical thinking (Cruess & Cruess, 2006). Introducing the online activities, focussed on issues concerned with PPD, is one means of encouraging students to develop skills of reflective discussion and critical thinking. Garrison et al used the Community of Enquiry Model to formulate a means of analysing the text content of online group discussions for evidence of developing reflective learning (Garrison et al., 2000). We conducted a proof of concept study to establish whether it was feasible to introduce online discussions which were peer facilitated and whether the text output could be analysed by the Community of Enquiry \Model. The results demonstrated that such an approach to group learning could be introduced successfully and that the analysis of texts by the Community of Enquiry Model provided evidence for reflective learning (Braidman, Regan, & Cowie, 2008). We then proceeded to use this methodological approach to investigate our research question namely whether the content of training and preparation for student facilitators influences the development of reflective learning in online discussion

Methodology

a) Implementation of online discussions

The organisation of online discussions was based on that described previously (Braidman et al., 2008) Students within each year group (N=479) were divided into groups of approximately 8-10 students (N=63) and were then asked to focus their discussions on a specific topic and reflect collaboratively. For the period of the study this was entitled "*What are the*

issues surrounding professional behaviour in medical students – an activity which explores professionalism". To close the discussions, each group was asked reach a consensus view. of modern professional behaviour, suitable for them as medical students, based on the GMC's '*Good Medical Practice'* framework (GMC., 2003). The activity used WebCT as an online communication platform, and the web page included a specific location for suitable resources and web links together with prompts for discussion. Each group had its own private discussion area and there was also a general discussion board, accessible to the whole year. The portfolio support team could view the private group discussions, with the knowledge of the students, but did not intervene in any of the interchanges.

b) Training of student facilitators

Over the two years of the study 155 medical students volunteered as student facilitators. In the first year of this study (2006-2007) training emphasised generic skills of group facilitation and in the I second year (2007-2008) the introduction to group facilitation was condensed and online moderation was emphasised more. Further details can be found in the section on Context.

2. Origin of the data

a) Selection of discussion texts for the study

At the end of each academic year, discussion texts from all groups were archived and twenty groups were randomly selected from each of 2006/2007 and 2007/2008 respectively comprising of five from each of the four teaching hospital sectors. Although permission for the study was obtained from the University Ethical Committee (Ref 07026) each student in the groups selected was contacted by email to confirm that they allowed their contributions to

group discussions to be analysed. All students confirmed that they gave their permission

b) Use of the Web page
For each year of the study, the total use of the web page were obtained from the statistics facility within WebCT. The frequency with which the Web pages were used was derived from a randomly selected 24 hour period during March in 2006/07.

3. Analysis of the text
The number of contributions to each group discussion was recorded, the texts were entered into Microsoft Word format and were anonymised. Texts were analysed according to the Community of Inquiry model(Garrison et al., 2000). Only the complete responses of individual participants were included as text contributions (a sentence or paragraph), defined as 'a unit of meaning'. A template based on the Community of Inquiry Model was completed after each text posting. It include the three major components for reflective online learning, namely cognitive presence, social presence and tutor presence. In the model, key words or phrases or their synonyms within online texts, are grouped into categories, corresponding to different levels of the three presences. We used them to identify these levels, together with the meaning conveyed by the student's contribution to the discussion. The four levels of cognitive presence and three each for social and tutor presence were assigned a specific code, and. are detailed in Table 1.in Appendix 1. In the original Community of Inquiry template, group cohesion was identified as the third component of Social Presence. On preliminary analysis of the discussion texts, however, it became apparent that a cohesive group, may imply that

differences of opinion may not be accepted and group collaboration was a more appropriate descriptor. The original template was designed to analyse online discussions moderated by a member of teaching staff and this component was termed "Teacher Presence". As our discussions were peer facilitated by students, who adopted the role of a facilitating tutor, we decided that "Tutor Presence" was more appropriate.

4. Calculation of Data

The percentage of participants' contributions assigned to each component category cte, ce, ci and cr of Cognitive Presence, see, soc and sgc of Social Presence, and tim, tdi and tbu of Tutor Presence were calculated and the data from each year of the study were compared by Independent T tests using SPSS 16.0 software. For the analyses performed using the Community of Inquiry model one researcher (MR) coded all 20 discussion groups from both years of the study. A sample of these (33%) were then coded blind by a second researcher, LP for the texts from 2006/2007 and IPB for the texts from 2007/2008. For both these and the initial tests on the criteria in Tables 2 and 3, Cohen's Kappa was used to define the level of agreement

Findings

1. Use of the discussion fora

From November until mid July, online discussions were used vigorously; 98% of groups participated with 3,349 postings in 2006/2007 and 100% and 3,150 contributions in 2007-2008. Peak use of the discussion site was between 11 am and 11 pm, although some students posted contributions up to 4 am and others began at 7 am.

2. Analysis of students' contributions with the Community of Inquiry Model

The comparison of results obtained by analysing students' contributions for each year of the study with the Community of Inquiry Model are summarised in Figure 2. There were significant changes in one or more categories of each Presence. The most widespread differences were observed with the data for Cognitive Presence. In the first year of the study, the highest proportions of texts were in the "exploration" and "trigger" categories (51% and 37% respectively), a lower percentage were at the higher levels of "integration and resolution". By contrast, the proportion of texts in the "triggers" and "exploration" categories were markedly lower, in the groups sampled in the second year of the study, whereas percentages in the "integration" and "resolution" categories were significantly higher than in the first year. This indicated a shift from contributions at the lower level components of Cognitive Presence to those at a higher level in the second year of the study. With Social Presence, texts were evenly spread between the three components in 2006/2007. In the following year, there were small changes in proportions of texts in the categories of "openness" and "emotion", but the only statistically significant difference was in the small increase in percentage of texts that were classified as including evidence of group collaboration in 2007/2008. For Tutor Presence, the highest proportion of contributions was in the category of "direct instruction in the groups sampled in the first year of the study, but in the subsequent year, there was a significant decrease in the percentage of contributions from student facilitators at this lowest level category. Although the proportion of their texts allocated to the other levels was higher in
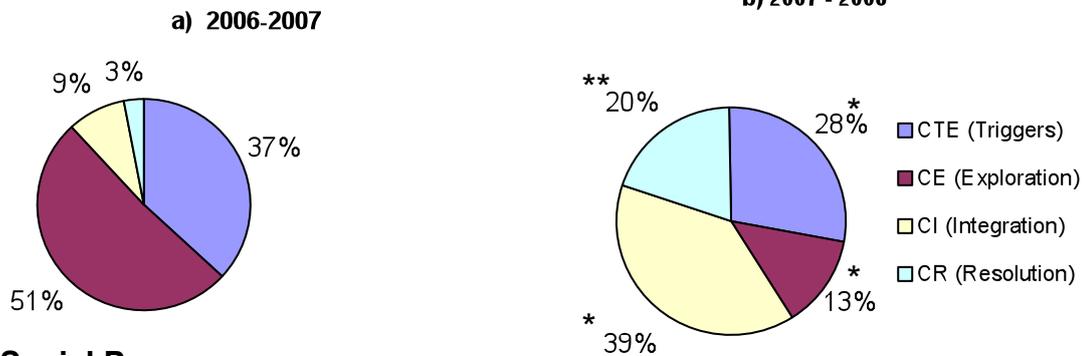
2007/2008, these differences were not statistically significant. It is important to note the Community of Inquiry Model was a relatively robust method for analysis since the inter-rater reliability for the 2006-07 discussions progressed to Kappa of 0.95 (p<0.01) and of 0.92 (p<0.01) for 2007/2008.
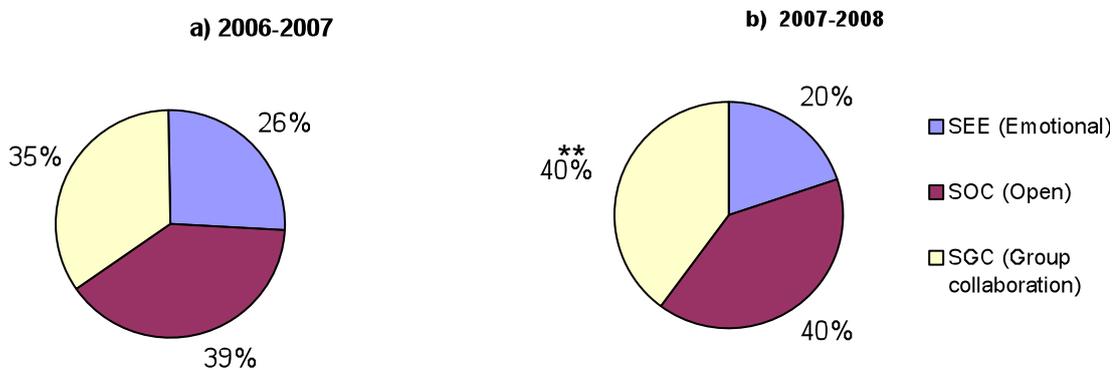
Implications for Practice

Overall, the study described here demonstrates that it is possible to develop online learning, facilitated by students themselves which promotes reflective discussion and critical thinking. Furthermore, the method we chose for analysing the texts of contributions to the discussions of Garrison et al (Garrison et al., 2000) was suitable for this investigation. That preparation and training of these student facilitators is important is supported by our results. The investigation, however, extends this further by providing evidence that the content and type of facilitator training is key to the success of online learning. It enhances the participation of group members and also spreads good practice among those who do not receive this training. We suggest that care must be taken to incorporate an appropriate training programme in any plans to introduce online group discussions. We recognise that our study was limited to an investigation of discussions concerning personal and professional behaviour in undergraduate medical students, which may have been conducive to the dissemination of good online behaviour. Subsequently, we have introduced discussions of other subject , for example safe and effective prescribing of medicines and future investigations will include an analysis of data from these discussions

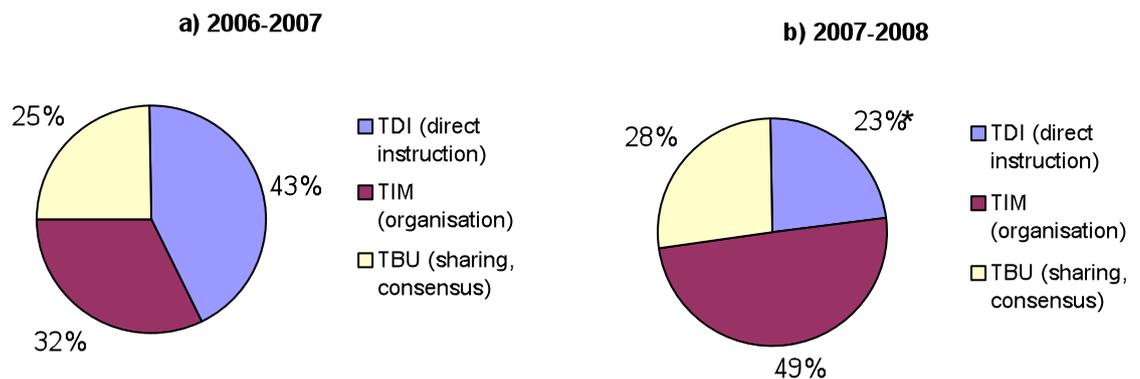**Figure 2. Analysis of the texts by Community of Inquiry Model compared between the two years of the study**

A. Cognitive Presence

a) 2006-2007

b) 2007 - 2008

- CTE (Triggers)
- CE (Exploration)
- CI (Integration)
- CR (Resolution)

B. Social Presence

a) 2006-2007

b) 2007-2008

- SEE (Emotional)
- SOC (Open)
- SGC (Group collaboration)

C. Tutor Presence

a) 2006-2007

b) 2007-2008

- TDI (direct instruction)
- TIM (organisation)
- TBU (sharing, consensus)

Each category of the three presences are indicated in the legends included in A, B and C, above. Data are expressed as percentage of total contributions in each of the three Presences that were assigned to one of these categories. Comparison of the results from 2007/2008 with those from 2006/2007 showed that all categories differed significantly in Cognitive Presence, but only group collaboration and direct instruction were significantly different in Social Presence and Tutor Presence respectively (** p<0.001 and * p<0.05, Mann Whitney U test)

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Appendix 1 Table 1

Table 1 - Community of Enquiry Model Garrison, Anderson & Archer (2000)

Community of Enquiry Components	Definitions of Categories	Code	Indicators and key phrases
Cognitive Presence (Only one code can be assigned to each text posting) There is a hierarchy of these components.	Triggering Event - initial conceptualising of a problem or issue; (Lowest level)	**cte**	Recognition of a problem, perhaps from experience, expressing puzzlement unease, asking questions, requesting explanation e.g. "*Professional behaviour in medical students… should we start by discussing what we interpret by this statement?*"
	Exploration – searching to make sense of a problem	**ce**	Exchanging information, clarifying situations or terms, discussing ambiguities searching for explanations; Characterised by exchanging information; e.g. "*I think this is an interesting topic, but how can the Medical School know we ar all responsible and sensible enough to be trusted?*"
	Integration – connecting ideas and beginning to link concepts, moving towards providing explanations	**ci**	Integrating knowledge and thoughts into coherent explanations; testing possible insights into problems eg "*Speaking from experience poor practice i something you are likely to see in an alarmingly regular basis and it is easy t say you should always take action*".
	Resolution – critically assessing solutions to problems (Highest level)	**cr**	Reflecting on the efficacy of solutions to dilemmas, exploring consensus, agreement and differences eg "*Perhaps asking questions in such a manner to be probing but not offensive would improve inappropriate practices by a senior professional by making them think about their actions*".
Social Presence (there is no limit on the number of codes assigned to each text posting) There is no hierarchy in these components	Emotional Expression (indicates feeling secure in the online environment)	**see**	Sharing and expression of feelings, both conventional and unconventional expression of emotion, humour, irony, and openness to self disclose and indicate vulnerability e.g. "*I was so angry…*" *I could not understand him…..*
	Open Communication	**soc**	Acknowledging others and their contributions, encouraging others, referring t their postings eg "*In your last message you referred to….*" *I really liked your interpretation of that situation…*"
	Group Collaboration	**sgc**	Encouraging group interchanges, focussed interchanges, which also accept differences of opinion, indicated by addressing the group as "we", referring t participants by name, using "our" eg "*I think that John summarised our discussions very well..*"
Tutor Presence (Only one code can be assigned to each text posting)	Instructional Management (Establishing underlying structures) Lowest level	**tim**	Facilitating establishment of group organisation and guidelines, facilitating choice of topics, establishing ground rules and netiquette eg "*in our initial fac to face meeting we decided to deal with….*" "*We must finish this discussion b*

There is a hierarchy of these components.			*Friday…"*
	Direct Instruction (Pacing the discussion, Confirming that the group understands, responding to technical concerns)	**tdi**	Recognising when the group has reached a "dead end" and move them on, referring to other outside knowledge and references to keep the discussion alive, answering technical concerns eg…"*If you want to upload an attachme just click on***…" "***We need to include evidence in our portfolio of our participation i.e. print off parts of our internet discussions so everyone needs get involved."*
	Building discourses and understanding in the group Highest level	**tbu**	Facilitating group collaboration, identifying agreements and disagreements, ensuring an appropriate climate for discussion, summarising, using key questions to move the discussion on, encouraging all to participate eg '*Any thoughts on this issue?' 'Anyone care to comment?'* …