

REFLECTIONS ON DEVELOPING EFFECTIVE "VIRTUAL" GROUP LEARNING

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Abstract

This article arose directly from developments undertaken at Chesterfield College in the academic year 2004/5, when a FdA Foundation Degree in Logistics Management was being planned, in collaboration with local employers. At a fairly early stage it was determined that this degree would operate utilising a "blended learning" approach, with participants attending college at various times, but the main thrust of the learning would be undertaken, managed and guided via the use of ICT technologies, with participants operating in "virtual" learning sets.

As the internet information platform to support the participants was being developed, certain methodological issues began to emerge;

(a) what types of resources and associated learning activities should be made available to participants?

(b) what could be done to assist participants to operate effectively in "virtual" learning sets?

In this article I wish to ignore the issue of resources and associated learning activities and put that to one side, and instead concentrate on how to generate effective "virtual" learning teams/sets. In order to do this, three issues need to be addressed:

- what is a "virtual" team and what makes it different to a traditional co-located team ?
- how do these differences impact on the "virtual" team ?

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- how can we assist our degree participants to operate effectively in the "virtual" world we will expect them to be inhabiting, remembering that for many, if not all, this will be a new experience?

This will then be reviewed with reference to the learning experiences of the first year intake of students onto the Foundation Degree in Logistics Management.

INTRODUCTION

Foundation degrees were launched in the UK in September 2001, and there are now in excess of 20,000 people on such degree programmes (1). The principle of foundation degrees is that they will be designed in collaboration with local employers, so that they provide participants with appropriate technical skills and academic knowledge such as to make them more effective employees in whatever vocational area the degree covers. Possession of a foundation degree will also allow for progression onto the third year of an honours degree at a university. Foundation degrees might be taken by people looking to enhance their skills so as to be able to move into employment in a specific vocational area, or by people who are already employed within the vocational area and wish to upgrade their skills and knowledge. A basic principle of foundation degrees is also that there should be flexible provision, so that workers can continue to work, but also be able to undertake a foundation degree. Foundation degree programmes, therefore, are encouraged to develop different and more flexible modes of provision to the traditional "come to college every week for x number of days for x years" approach.

There is no need to go into the whole background of the story here, but it came to pass that early in 2004 Chesterfield College, or more specifically the Department of Business and Leisure Management of the College, set out to develop a FdA Foundation degree in Logistics Management to commence in September 2005 (basically the area of North Derbyshire is a former coalmining area, which has seen the coal mines close, and work is underway to regenerate the local

economy and to create new employment opportunities; one area of rising employment in the area is in logistics management, as a number of large organisations develop warehousing operations in the area to take advantage of relatively cheap land prices and good transport links to the rest of the UK from a fairly central point - but such developments need the availability of appropriately skilled staff to prosper and succeed, and recognition of this made funding available to the College to develop the qualification). From the beginning employers in the sector were consulted and involved, and it was clear that whilst there was seen to be a desire to support such a degree, many employers were concerned about releasing employees to attend college on a regular basis. The course template was created with this in mind, the idea being to use "virtual" learning sets of participants in the course, who would have access to a purpose designed website which would make available to them web based resources, formative assessment tasks, both group and individual, set out by module on a weekly basis, with online chat and dedicated forums being available, as well as email tutor support, leading up to participants being sufficiently skilled to undertake summative assessment, which again would all be available largely online. However, the course team also had a "gut" feeling that the degree participants might well benefit from coming into college sometime, and it was suggested a 2-2-1, or possibly 2-1-1- model might be utilised. For example, participants in the 2-2-1 model would come into college for 2 days at the start of the semester, 2 days toward the middle of the semester and one day at the end of the semester, these days possibly varying, or including the weekend, so as not to impact repetitively on attendance at work (in other words not causing somebody to miss 5 Thursdays, for

the sake of argument).

As a template of mode of attendance and activities, in outline this seemed to be a potentially viable structure, but the question then is, "What do we have to do to make it work?" How can we introduce participants to the idea of working both virtually and collectively, and what then will be the function and role of those few days college attendance, and what is the relationship between the college attendance and the "virtual" team. And thus the more precise questions bullet pointed out earlier arose.

What is a "virtual" team and what is special about them?

The starting point here then must be to ascertain what exactly is meant by a "virtual" team. I do not intend to attempt to describe here the history of the development of the concept of the "virtual" team - and will happily leave that for others. Suffice it to say here that it appears to be a term that came to the fore in the late 1980's and the early 1990's. Lipnack and Stamps, writing in 1987, for example, suggest:

"A virtual team, like any other team, is a group of people who interact through interdependent tasks guided by a common purpose. Unlike conventional teams, a virtual team works across space, time and organizational boundaries with links strengthened by webs of communication technologies." (2)

A remarkably similar definition currently appears in the online encyclopedia, wikipedia:

"A virtual team, also known as a Geographically Dispersed Team (GDT) is a group of individuals who can work across time and space and organizational boundaries with links strengthened by webs of communication technology" (3)

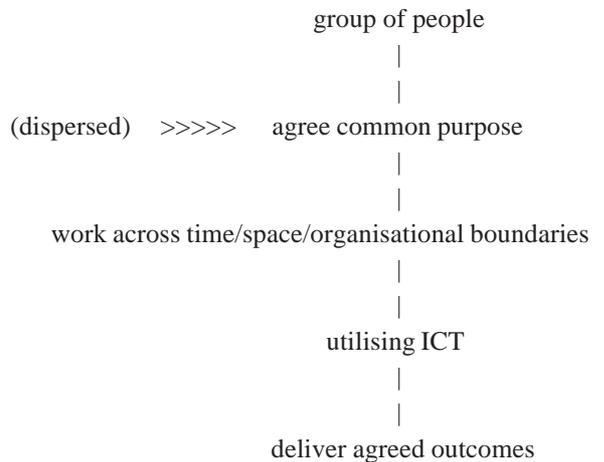
For Hofstede, Vermunt, Smits and Noorderhaven, writing in 1997, a "virtual" team:

"...is a team whose members do not necessarily meet face to face. Rather they employ communication technologies such as electronic mail, videoconferencing or whiteboarding." (4)

And Sarker and Sahay writing in 2002 suggest:

"These teams (virtual) may be viewed as temporary work groups, consisting of geographically dispersed members who primarily interact using different information and communication technologies such as e mail, groupware, video and computer based conferencing systems to produce a deliverable that is evaluated in terms of outcomes." (5)

There seems to be essentially a great deal of commonality between these definitions, which all basically propound what appears to be a very similar view of the "virtual" team:



But of course things are not quite so simple. Hidden within the definitions are significant qualifying words (my italics):

"...links strengthened by webs of communication technology."

"A virtual team is a team whose members do not necessarily meet face to face."

"Who primarily interact using different information and communication technologies."

In the general use of the term "virtual" team, the assumption often seems to be that the team is made up of workers who operate in virtuality, i.e. teleworkers who interact and exist as a team in a virtual world where there is no physical contact. If you don't believe me, ask a few people what they understand by the term "virtual team" - I will be surprised if generally they do not reply with words to the effect that the virtual team uses IT to operate and live in a virtual world where team members never physically meet (a quick sample of 20 students just reinforced my view!). But the qualifying terms identified above in italics imply strongly that "virtual" does not necessarily mean that team members do not meet, but that rather the "virtual" team lives and operates mainly in virtuality, but team members may well meet and interact in the physical world too.

If operating as a team in a "virtual" world somehow is different to operating as a team in a direct face to face physical world (and this shall be explored soon), then now suddenly the waters are muddied. There is clearly the possibility that our "virtual" team may live its life from inception to dismantlement in an entirely "virtual" way, or that our "virtual" team may interact virtually, but also meet physically, possibly on a number of occasions. Indeed it looks like some form of continuum exists along the lines of:

	Team
Colocated	Virtual
infinite	0
face to face meetings	

A number of questions now clearly begin to raise their far from pleasant heads, namely:

"Do teams face different problems and issues as we move along the continuum from left to right?"

"How do you determine and where on this continuum does a traditional team become a "virtual" team?"

"What is the significance for a "virtual"

team of occasional physical face to face meetings?"

With these questions in mind, what needs to be done now is to focus on the issues and problems that virtuality brings to team operations, with a view to establishing the possible significance of face to face interaction in overcoming any of the problems that virtuality brings. We may then be able to look at the significance of this for the proposed Foundation degree structure, which incorporates some face-to-face meetings of the "virtual" teams/learning sets.

Key problems/issues facing "virtual" teams

Geographical and Cultural

Actually here we introduce yet another dimension to the debate about "virtual" teams - the extent to which the team is geographically dispersed, being not only potentially a "virtual" team, but also a GDT - Geographically Dispersed Team. Geographical dispersion of the team, across nation states or continents, brings with it the possibility, if not probability, that differing national cultures will cause problems, making it difficult for the team to function effectively. For the (selfish) purposes of the author, this is not an area that will be dealt with greatly here, given the original intention of focussing on virtual teams in an English context.

Arguably the central writer here is Hofstede (6), who identifies a number of dimensions of culture, namely; a) power-distance b) individualism-collectivism c) masculinity-femininity d) uncertainty avoidance and a later added e) long term-short termism.

As an example of the type of problems that might arise, we might look at the individualism-collectivism dimension - people who are members of a culture where collectivism is a strong feature are likely to feel uncomfortable and unwilling to join in free debate because such debate

they perceive as undermining collective interpersonal relationships (and if their culture scored high on power- distance, also showing disrespect for their superiors, whose policies or actions they might feel they would be involved in criticising). To team members from cultures where individualism is more pronounced, those team members from the more collectivist cultures could well be seen to be evasive, uninvolved, unhelpful or aloof. (7)

What we are looking at here so far is not so much an inherent difficulty of "virtual" teams but rather of cross cultural teams, and may become an issue if the "virtual" team is also a cross cultural team. But as we move on, we begin to move toward areas where virtuality itself becomes an issue.

Lack of shared goals

Most literature on teams suggests that teams need shared goals or mission - otherwise members will be attempting to produce outputs not congruent with the efforts of other team members and dysfunctionality will set in. An interesting piece of work in connection with this is that of Hinds(8) which appears to show distributed workers being less cohesive groups than co-located groups Obviously cultural issues could play a part, with team members having different aspirations, or different interpretations of goals that all apparently subscribed to, or different views as how best to work toward attaining those goals. Or it could be that the main problem "virtual" teams face is connected with communication, and that virtuality may have serious deleterious effects on communications.

Before moving on to look explicitly at communications, it might be worth just exploring briefly one connected area which may have direct relevance to my starting point, to remind you, which was creation of a Foundation degree in which on line support and interaction will be the key fea-

tures. Neilson (9) suggests that the main problem facing "virtual" teams is a lack of incentive for sharing knowledge - in a memorable analogy, he saw "virtual" team members as often listening to the same radio station, WIIFM, "What's In It For Me?", and that there needed to be available individual or collective gain for all if the team was to work effectively in virtuality. The obvious question, which we will return to later is how to manage this degree programme so as to create:

"... a group of professionals informally bound to one another through exposure to a common class of problem, common pursuit of solutions" (10) so that they become "...peers in the creation of "real work". What holds them together is a common sense of purpose and a real need to know what each other knows." (11)

The two quotations above are interesting in that they originate from literature looking at "communities of practice", not simply "virtual" teams - and yet again this may well be something we may need to refer back to later.

Communication Problems

a) *Technology*

The "virtual" team is in a sense a hostage to its technology, and the efficiency with which the technology will facilitate effective communication; system failure /downtime due to system maintenance potentially can disturb the "virtual" teams communications to such an extent as to fragment the team if not paralyse it. But the team is also affected by the efficiency of the technology that is available to it, in terms say of ease of accessing the systems and the effectiveness of the technology as a means of passing information from one team member to another. Real technological issues emerge here about system robustness, and compatibilities, and again I am not going to attempt to explore these technical issues.

One other area we should just flag up here is

that of asynchronicity - do all team members operate, for example, in the same time zone so that instantaneous response is possible? No matter how efficient the technology, if we have to wait 5 hours before our team member in a different time zone gets up before we can expect a reply, then communication is fractured and strains may well emerge in the team as a result.

Interpersonal Interaction

Unless we are distinctly odd (and for example live as a hermit) then we live a social life where we interact with others frequently. We learn and are socialised into how to act in varying circumstances; study of this is well-established in sociology, maybe best illustrated in the writings of Goffman (12) and Berger and Luckman (13), and in the development of whole schools of sociological thought such as symbolic interactionism (14). Whilst students of business and management might not recognise the terminology above, it is essentially the type of approach they often adopt when looking for example at ideas about the development of corporate culture. (15)

As we interact in our social or organisational world, what the sociologists have pointed out to us in such approaches as symbolic interactionism, is that we are so close to, so familiar with and so skilled at doing something that we are often unaware that we do it. The "it" **referred here** is the way that we create our social worlds and relationships on the basis of interpretations we make from the clues that we observe - the way that people look, dress, their body language, the physical artefacts that they surround themselves with.

The "virtual" world clearly brings difficulties in that these physical clues are not so readily available to us, and thus a problem establishing identity/persona/personality of someone we interact with in the "virtual" world arises. Without establishing a clear identity for the person we are in communication with, then communication may

become problematic, even, for example, with regard to something that in everyday life we generally find quite simple, such as when we stop speaking to allow the other person to have their "turn" (16) - something we do by reading the cues/clues physically given off by the other person.

We are aware that certain individuals may create false persona in the "virtual" world - adult paedophiles, who lure children to meet what the child believes to be another likeminded teenager, people who "troll" bulletin boards for the fun of teasing others (17). It may not be the case in our "virtual" team that people deliberately attempt to deceive us, but rather that either, in a sense we deceive ourselves with regard to the identity/persona of others by attributing to them clues of identity that actually are not being given out by them, or we fail to identify clues about identity that are actually emanating from them, either because we could not understand the clues or did not recognise their existence at all. Although we do not have the physical clues to draw on in the "virtual" world, clues may exist, for example, in the style with which people communicate, the actual content of communications or even the email identity that a person gives themselves (one of my ex-students email address was "prettygirl@...", which certainly said one or two things about her).

Trust and Teamwork

Many organisations send people on team building or bonding exercises, where a variety of exercises are undertaken ("Stand on that table. Good. Close your eyes. Good. Lean forward. Good. Now dive off the table head first, and your team will catch you in their linked arms. Go on - they will. Honest"), or the team is placed in a situation of difficulty or peril ("OK, we have driven you blindfolded for an hour or so, we'll let you out of the vehicle now. It's 3AM. Breakfast is back at the hotel between 6 and 6.30. Goodbye"), or team members as individuals are

put under conditions of stress, surrounded by and supported by their team mates ("OK, what each of you is going to do this morning is abseil down to the ground from the roof of this 6 storey building"). Essentially what all of these exercises work on is developing trust - "...a state or a position, confident through subjective expectation regarding the behaviour of somebody or something in a situation which involves risk to the trusting party." (18)

A number of people believe that trust cannot exist in completely "virtual" teams - Handy, for example, believes that "trust needs touch" (19). Other writers have identified a number of factors which potentially develop trust, such as repeated interactions, shared experiences and the anticipation of future association. (20) The issue here is whether virtuality hinders or prevents these factors coming into play. For example, is the anticipation of future association virtually likely to be as bonding as anticipation of the team getting together physically and possibly informally - many people have pen friends, and maintain that relationship for years at a distance - but maybe underlying this is often the hope and anticipation that one day they will physically meet.

Trust is essentially something pertaining to, and arising out of, the quality of relationships within a team, and may or may not be linked to the process and task relationships that exist within a team. Zaccaro and Bader (21) found in their research that "virtual" teams with high levels of trust spend up to 50% of their communications in the first few weeks of the team's existence exchanging personal information on such matters as hobbies and families.

Thus connected to this, many people have developed an interest in the development processes of "virtual" teams. One of the best known models of team development is that of Tuckman (22) - the forming, storming, norming, performing, sequential model, and other similar sequential models exist such as that of Tubbs (23). The

importance of these sequential models is the stress they have for effective teams involving themselves early in their life in processes of getting to know one another/developing interpersonal relationships - the question for the "virtual" team is how this can be achieved. A different form of model that is often used to look at effective teamwork is that of McGrath (24) and The Time, Interaction and Performance Model, which suggests that within effective teams three different functions are performed/delivered, production of the desired outcomes, the generation of team member support, and the generation of feelings of well being. The point here again though is quite clear - the team is not about just production alone, and a focus solely upon this will lead to team failure. Good team interpersonal relationships need to be generated, and the question that must be faced by the team manager, be they managing a traditional co-located team or a "virtual" team, is how to go about nurturing the development of these.

CONCLUSION

In framing the conclusions here I am so mindful of my original focus on how to effectively manage a Foundation degree programme, which utilises learning sets using the internet as its primary learning focus. There are certain aspects of virtuality that will not impact on these course participants. They are unlikely to be really widely geographically dispersed and thus issues related to asynchronicity do not arise and neither will the participants be likely to come across the problems of geographical and cultural separation that many virtual teams may face.

The crunch of the matter though is what makes virtual teams different from traditional colocated teams, and as was made clear in the early sections of this article, exactly what makes a team "virtual" is far from clear and explicit. The ultimate "virtual" team, as it were, operates entirely in virtuality and never physically meets, but most definitions imply that "virtual" teams can meet -

hence the participants on the Foundation degree in question will meet each semester, yet they are still classed as a "virtual" team.

So, tip toeing round this issue, for the moment, we need to identify the key problems facing virtual teams, other than those just mentioned, which are not effectively going to be limiting factors to the team in question. It seems that virtuality gives rise to issues concerned with efficient communication, the development of trust and thus of team working. Put at its simplest, communicating purely in a "virtual" world involves one in communicating with an invisible, disembodied, "virtual" entity, who we are likely to feel little or no engagement with, as we cannot recognise them as a personality and cannot with any degree of certainty develop an understanding of the personality of the person we are in communication with, as the "virtual" world denies us access to the physical clues we normally pick up on in day to day physical interactions. The end result of this is likely to be that any trust we have in our "virtual" team partners is likely to be ephemeral and brittle, and it may well thus take little for any bonds of trust that were brought with goodwill into the relationship to be shattered. Teamwork thus becomes a difficult matter in this "virtual" world, and without the team functioning effectively little can be accomplished.

But there is good news potentially in all of this for the "virtual" participants in the Foundation degree, because the course model, 2-2-1, two days in college at the commencement of each semester, two days toward the middle of the semester and one day at the end of the semester, may well allow for some of the key problems virtuality gives to be sidelined. The two days at the start of the semester, if managed correctly, should give opportunity for the learning sets to develop some understanding of one another as distinct and identifiable personalities, whilst the two days mid semester should give the teams a chance to rebond and resolve any issues or tensions that have emerged, and the final day just give the team a

chance to collectively, in physical collocation, review what they have learnt and need to bear in mind for working in the "virtual" world in the next semester. The original idea of these days in college, whilst allowing for the teams to physically meet, had been seen much more in terms of giving an opportunity for physical course inputs. It may well be the case that the course team will need to do some rethinking about the most effective use of this time in college that the participants will have, as it looks as if this time might best be used to develop and reinforce team solidarity. One part of this will be, at the very start of the programme, to attempt to develop within the learning set members a view toward them collectively developing a culture of how they are going to inhabit and operate as a team in their "virtual" world (see the Appendix for the introductory presentation made to the learning sets, introducing them to the issues). The idea of communities of practice here becomes relevant - although community is a notoriously difficult word to define, its implications are clear. A community shares views and develops norms of behaviour; what we want to see develop within the learning sets of the Foundation degree are shared norms of behaviour emerge which will facilitate the members progress through their degree programme.

Just one final nagging thought, which still goes back to the essence of what virtuality means - in what has been examined here, the answer has revolved around the teams physically meeting, in order to pre-emptively face up to developing an understanding of one another, before entering the actual "virtual" world. Is this really a cheat to solving the problems of virtuality, or is it a key for "virtual" teams, if significant numbers of such teams do occasionally meet?

Real life - the first students on the Foundation Degree in Logistics Management and their experiences.

The Foundation Degree in Logistics Management commenced in September 2005, utilising an

attendance at college model of 2-2-1. Students would spend 2 days in college at the start of a semester, 2 days in the middle of the semester and one day at the semester end. Students were grouped in learning sets, and had access to an intranet in which a variety of learning resources were available, a week by week guide to their studies was set out and weekly tasks for the learning sets to undertake in the virtual world collectively were located. Individual summative assessments were distributed in mid semester.

The original intention had been to focus the days in college on academic input to assist the students development, but following on from the research for this article more attention was given to providing the students with learning opportunities which involved them in group working, often with their learning set partners.

The programme recruited quite well, reflecting in part the involvement over the previous year of employers in creating the curriculum. On the induction day in September, the first day of the first 2 of the 2-2-1 pattern of attendance at college, there were 16 students, a few expected students not materialising. One student quickly decided the programme was not right for them and departed that first lunchtime never to be seen again! At the end of the first year in July 2006 we had 14 students who had successfully completed the programme, one student dropping out following the non-appearance of promised finance for their fees.

Toward the end of the first year of the programme the students were involved in a number of exercises reflecting on the programme and their learning development. A number of key themes emerged:

- there was almost unanimity that coming into college every so often bonded the learning sets together (as one student wrote "it's as important to sit down with your learning set and drink coffee as to have a lecture")

- there was a similar degree of unanimity that once you found a way of managing your time, that it was possible to effectively study using internet based resources at home, as long as you had the support of your peers in the learning set
- but it was also clear that some learning sets were more active and effective than others - and looking at the students responses it appears that the learning set needed to be a certain size. On the first day when students were allocated into learning sets, we did so on the basis not of students present on the day but rather on the basis of students expected (so that people who maybe could not attend the first day had a learning set). The end result of this, given the actual non appearance of certain students, was that the learning sets varied in size from three to six. It certainly looks from the students personal reviews that the small learning sets did not work as well as the larger sets - as if there were a critical size to ensure continual debate and interaction in cyberspace. This is something we have noted and will react to in the future, where we may well attempt to ensure that each future learning set has at least 6 members and possibly slightly more
- Many of the students also identified explicitly, that whilst they appreciated the help and assistance of college lecturers, both physically in college and via email, that without the support of their colleges in their learning sets successful completion of the year might have been in doubt.

REFERENCES

- Information on Foundation degrees is most easily found at www.fdf.ac.uk.
- Lipnack J and Stamps J. *Virtual Teams Reaching Across Space Time and Organizational Boundaries with Technology*. New York.

- Wiley and Sons.1997. p6-7.
http://en.wikipedia.org/wiki/Virtual_team.
- Hofstede G, Vermunt A, Smits M, Noorderhaven N. "'Wired International Teams" - Experiments in Strategic Decision Making by Multi Cultural Virtual Teams"' published originally in Galliers R et al (eds). *Proceedings of the 5th European Conference on Information Systems*. Vol 1 p321-336. Cork Publishing Co. 1997. Available on line at www.info.wau.nl/people/gertjan/wired.html.
- Sarker S and Sahay S. "Understanding Virtual Team Development: an Interpretive Study." *Journal of the Association of Information Systems*. Vol 3. 2002. p247-285. Available on line at www.ifi.uio.no/in364/docs/sarker.pdf.
- Hofstede G. *Cultural Consequences; International Differences in Work Related Values*. Beverley Hills. Sage. 1980.
- For an exploration of such matters see Ngamphanakul P and Pilling A. "Attitudes toward Internet Adoption in Small and Medium Sized Enterprises; a Cross Cultural Comparison of the Thai and British Experience." *ABAC Journal*. vol 25 no 1. January -April 2005, p67-76. Available on line at www.journal.au.edu/.
- Hinds P. "Perspective Taking amongst Distributed Workers: the Effects of Distance on Shared Mental Models of Work." WTO Working paper #7. March 1999.
- Neilson R. *Collaborative Technologies and Organizational Learning*. Pennsylvania. Idea Group Publishing.1997.
- Manville and Foote quoted in Kimble C, Li F and Barlow A. "Effective Virtual Teams through Communities of Practice." *Strathclyde Business School Research Paper* 2000/9, p10.
- Brown S and Grey S quoted in Kimble, Li and Barlow *ibid*, p10.
- Goffman E. *The Presentation of Self in Everyday Life*. New York. Doubleday. 1950.
- Berger T and Luckman. *The Social Construction of Reality*. New York. Anchor. 1967.
- See for example Blumer H. *Symbolic Interactionism*. Los Angeles. University of California.1986.
- Possibly the best introduction to this area is Brown A. *Organisational Culture*. Harlow. FT/Pitman. 1998.
- The issue of turn taking is dealt with by Sarker and Sahay 2002 *op cit*. p250-1.
- See for example Donath J. *Identity and Deception in the Virtual Community*. Available on line at [http://smg.media.mit.edu/people/Judith/Identity/Identity Deception.html](http://smg.media.mit.edu/people/Judith/Identity/Identity%20Deception.html).
- Panteli.N. *Trust in Virtual Teams*. *Anadn*. Issue 43 2005. p3. Available on line at <file:///C:/vital%20teams/Main%20Articles%20Trust%20in%20>.
- Handy C. "Trust and The Virtual Organisation." *Harvard Business Review* 73(3) p46.
- Possibly the best survey of this area is to be found in Javenpaa S and Leidner D. "Communication and Trust in Global Teams. *Organizational Science*" (10: 6) 1999. p791-815. Available on line at <file:///C:/vital%20teams/Communication%20and%20Trust%20>.
- Zaccaro S and Bader P. "E Leadership and the Challenge of Leading E Teams." *Organizational Dynamics* 31(4) 2002, p377-87.
- Tuckman B. "Development Sequence in Small Groups." *Psychological Bulletin* 63 1965. p348-399.
- Tubbs S. *A Systems Approach to Small Group Interaction*. New York. Mcgraw Hill. 1995.
- McGrath J. "Time Interaction and Performance Model: A Theory of Groups." *Small Group Research* 22(2). 1991.