The student experience of working in teams online

Annegret Goold
School of Engineering and Information Technology
Deakin University

Annemieke Craig
School of Information Systems
Deakin University

Jo Coldwell
School of Engineering and Information Technology
Deakin University

The research reported here is part of a project undertaken at a large Australian university in late 2005. The overall aim of the project was to identify the characteristics of student learning in an online environment. A university-wide student survey was conducted to ascertain student views of online learning and also of online teaching as part of the project. In the survey students were asked questions about their experiences of team work in online environments. The student perceptions of teams and team work are the focus of this paper.

The findings from the survey indicated that students appreciated the opportunity of working in diverse teams. They supported the view that their opinions were valued in such teams. Student views of how teaching should be conducted in units with online teams were also expressed. Concerns about team interactions, technological barriers and communication and cultural issues were also raised. The implications for teaching with online student teams are presented and discussed.

Keywords: student groups, student teams, online groups, online teams, group work, team work, virtual teams.

Introduction

Team skills are part of a suite of professional skills that employers expect graduates to have and be able to apply in the workplace. Educational institutions on the other hand are expected to provide opportunities for the development of these professional skills, and to prepare students for working effectively in the workplace. Team skills are generic and transferable skills that have lifelong relevance. Team skills include the ability to communicate effectively with team members, to work collaboratively to solve problems, to negotiate with peers and resolve conflicts, and to engage with diverse team members.

The research presented in this paper was undertaken as part of a Strategic Teaching and Learning Grant at Deakin University in 2005. The overall aim of the larger study was to investigate the impact of cultural diversity on online learning environments. As part of that study, an online survey of University students was undertaken and student perceptions were sought on a wide range of factors related to their experiences of learning online. This paper reports on particular outcomes from the student survey that relate to team work. In the survey, students were asked questions about their views of teams and team work conducted in the online environment.

Context of the research

Deakin University has used online communication to present teaching materials and support on-campus and off-campus students since 1981. In 2002 it developed an online learning portal which is now supported by the Blackboard Vista $^{TM.}$. At Deakin University on-campus students encounter traditional, face-to-face teaching, supported by online technologies. Off campus or distance education students are supported through the online technologies as well as by traditional paper-based resources. The University endeavours to provide as similar a learning experience as possible to all students, regardless of mode of study or physical location.

In a normal semester a full-time student would be expected to access up to four of some 1500 undergraduate and 700 postgraduate units via the online learning portal. A standard undergraduate program is made up of 24 units of study, completed over six semesters. At least one of these 24 units is delivered wholly online, where there are no face-to-face classes at all and where all teaching takes place in the online learning environment. The mandate of a wholly online unit in every undergraduate program is to prepare students for lifelong learning by developing their skills in communication and collaboration. There are a further two levels of online presence defined by the University: a basic online presence where students are provided with a first and main point of administrative contact for the unit online; and an extended online presence where at least one major component of teaching for the unit occurs online.

Team work is incorporated into many units and is generally focused on learning and improving team processes, in addition to the development of a final product such as a report. The types of team work activities that are completed by students online vary considerably and include:

- creating a management report, research report or essay;
- discussing ethical issues;
- attending virtual seminars;
- participating in debates;
- creating project management plans;
- preparing presentations;
- designing documents;
- developing lesson plans;
- media sharing and evaluation; and
- decision making, problem solving and brainstorming.

The online learning environment has multiple tools to support team work including document sharing, asynchronous discussion forums, real-time multi-media collaboration, synchronous chat, wikis, blogs, media repositories, email and virtual learning environments supported by software such as Drupal.

The literature

It has been suggested that one of the major benefits of well-designed team work is that it can facilitate learning and enhance student understanding of unit-related knowledge (McInnis & Devlin, 2002). Others suggest that in fact generating deeper levels of understanding requires students to work collaboratively (Chang & Fisher, 2003). Team work, particularly online team work, can also be used for the development of communication, collaboration and social skills and can give students experience in using effective communication tools which they can use in further study and employment (Fåhræus, Chamberlain, Bridgeman, Fuller & Rujelj, 1999). The importance of developing team work strategies and associated generic skills for future employment has been well cited in the literature (see for example McInnis & Devlin, 2002; Clarke, Pearce & Gannaway, 2004; Karim & Heckman, 2005; Cogburn, Zhang & Khothule, 2002).

A review of prior research on virtual teams identified 12 short-term studies of students in online teams and the success of such teams was found to be linked to team-building exercises; establishing of shared norms; and the specification of a clear team structure (Powell, Piccoli & Ives, 2004). According to this review, relationship building, perceived team cohesiveness and the level of trust are other factors which impact on the level of satisfaction when working within these types of teams. Another study investigated the viability and efficacy of virtual student teams in collaborative learning and contended that real online collaboration requires the team to design something together or to develop understanding of concepts through debate (Alexander, 2002). However it has also been suggested that the increased interest in online learning has partly been fostered by its potential to produce benefits of collaborative learning by the creation of learning communities (Hunt, Thomas & Eagle, 2002).

A number of studies have suggested how student virtual teams might be supported by teachers (see for example Fåhræus et al, 1999; Salmon, 2000; Cogburn et al, 2002). Additionally the literature raises a number of important points related to trust and the need for social interaction and for building community. Trust is seen as an essential factor in team work and contact must be maintained or trust will erode. In online team work the effect of insufficient time for building trust among team members was more important than in face-to-face teams. With face-to-face collaboration, team members are encouraged to spend time on social interaction (Alexander, 2002). Apart from developing trust in one's team members, a community spirit needs to be developed for team work to be successful. According to Bernard, de Rubalcava and St Pierre (as cited in Redfern & Naughton, 2002) for successful collaborative

online learning, it is crucial that the learner feels part of a learning community where social interactions take place and where his/her contributions add to universal knowledge.

The effectiveness of learning online collaboratively through small team interaction can be improved through social support systems and a team social presence facilitated by the teaching staff (Deakin University, 2006). Online team work is particularly suitable for distance education students and for online collaborations in units such as ethics (Goold & Coldwell, 2006). Equally there are issues regarding the use of online team work and concerns include a lack of perceived relevance, lack of clear objectives, inequity of contribution, and overuse (McInnis & Devlin, 2002).

Working in student teams online can therefore be problematic if not designed and implemented well.

The research

The aim of the overall research study was to ascertain students' perceptions about their experiences in the online learning environment. The anonymous and voluntary student questionnaire was made available to the whole university student population for a period of two weeks in September 2005.

The questionnaire included questions covering demographics such as age, gender, country of birth, language and cultural background, as well as questions about studies at Deakin University - their mode of study and enrolment, enrolled faculty and major area of study. The major focus of the questionnaire was on the student's experience with online units and in particular:

- perceptions of the online learning environment and their ability to use it;
- perceptions of their role as a student, their expectations of learning and of learning online; and
- perceptions of virtual team work.

The 60 questions were based on issues from the literature and identified as likely to inform online learning practices. Most of the questions required a 5 point Likert scale response from Strongly Agree (1) to Strongly Disagree (5). A number of questions required open-ended responses. There were seven questions which related specifically to perceptions of virtual team work. The data from these questions was gathered into a Microsoft Excel spreadsheet and various types of statistical analysis were performed on the data.

Issues relating to team work in the virtual environment also surfaced in many of the comments volunteered by the participants in response to the open-ended questions. A content analysis of all the answers to the open-ended questions was undertaken using the qualitative software tool NVivo. Comments that related to team work and group work were collated into three main areas: comments about individuals within the group/team and the type of attributes they should have; comments about what the teaching staff or the University should do with respect to group/team work; and a third category which included any other comments about group/team work.

The results of the seven specific questions about team work and the comments about team work in the open-ended questions are the focus of this paper. In this research the phrases team and groups, and group work and team work, have been used interchangeably.

Results

The total student population at Deakin University in 2005 was 32,354 (Deakin University, 2006). Table 1 shows the demographics of the students with respect to gender, mode of study and mode of enrolment. The total number of completed surveys was 2711. Although this response rate is low, the response rate is in line with another University-wide student survey which was considered adequate for providing reliable indicators (Deakin University, 2005). Of the 2711 surveys completed here, 10 were unusable and were therefore not included in the data analysis.

Table 2 shows the break-up of the survey data. Gender, mode of study and mode of enrolment in the survey data indicated that the completed surveys were a representative sample of the 2005 University student population (Table 1). There were only minor differences between the survey data and the reported University demographics in 2005. The survey data had a slightly higher representation of females (4% more); students studying full time (13% more); and on-campus students (4% more).

Table 1: University population

Students enrolled in 2005 $N = 32{,}354$			
Male	43%	Female	57%
Full-time	59%	Part-time	41%
On-campus	65%	Off-campus	35%

Table 2: Survey population

Survey data $n = 2701$			
Male	39%	Female	61%
Full-time	71.5%	Part-time	28.5%
On-campus	69%	Off-campus	31%

Table 3 shows the break-up of students by owning faculty for the University population as well as the survey population. Again there are some minor differences in the response rates. Some discrepancies can be attributed to the differences in perception of 'owning' faculty particularly where double degrees are concerned. Students from the Faculty of Arts and the Faculty of Education responded in slightly fewer numbers while the response rates from students from the Faculty of Health and Behavioural Science and the Faculty of Science and Technology are higher. Interestingly the proportion of students from the Faculty of Business and Law who responded to the survey is the same as their proportion of the University population. Again the minor differences are not significant. Overall there is reasonable confidence that the data collected from the survey is representative of the University population as a whole and are adequate to provide reliable measures of student perceptions.

Table 3: Total enrolment and completed survey by faculty

Faculty	University Population		Survey Data	
Arts	6424	20%	384	15%
Health and Behavioural Sciences	4544	14%	421	17%
Business and Law	11803	37%	926	37%
Education	4373	14%	276	11%
Science and Technology	4864	15%	474	19%

Student responses to questions about team work

Table 4 shows the responses to the questions about teams. The questions are in the order they appeared on the questionnaire. For some questions there was a 'Not Applicable' category but the responses for this category have been removed, with the total number of responses adjusted. For all of the questions there was a relatively high percentage of 'Neutral' responses (ranging from 26 % to 48%), indicating that the student neither agreed nor disagreed with the statements. There are two ways to interpret this. Firstly, students may not have had an opinion. Secondly, students may have thought that the responses could be positive or negative depending on the context or situation. For example, the high response rate in the Neutral category for 'I like to be the team leader when doing team work' (48.5%) may depend largely on context (whether the student thought that their leadership skills would be appropriate or needed) or what it entailed (duties and extra work).

There was strong support for the statement 'My opinions are valued in teams I have been part of'. It is evident from the responses of Strongly Agree (9.9%) and Agree (52.1%) that students see team work as an area where they can contribute, and where these contributions are recognised by their peers. Combined, the Strongly Disagree and Disagree categories for the statement were less than 5%.

To a lesser extent there was positive agreement with the statement 'Virtual team work is an opportunity to work with a diverse range of people' (agreement = 51.8% and disagreement = 10.3%). Other statements receiving slightly positive responses were those relating to the amount of extra time necessary for virtual team work (agreement = 45.2% and disagreement = 17.1%); preference for own tasks instead of collaborative work (agreement = 39.1% and disagreement = 26.8%); and team leadership (agreement = 31.3% and disagreement = 20.2%). There was very little difference in positive and negative responses for the statement 'Ideas for the team are always imposed by one or two individuals' (agreement = 38.4% and disagreement = 29.6%). Most students disagreed with the statement 'I wait to be asked before I offer my opinion when working collaboratively' (overall disagreement = 59.5% with agreement = 13.7%).

From the literature it was suggested that two groups of students might respond differently to elements of team work, particularly to statements relating to preference for doing their own tasks within the team and waiting to be asked to participate. These groups are the off-campus students who have work and time

Table 4: Results from the team questions

Statement	SA	A	N	D	SD
My opinions are valued in teams I have been part of.	239	1268	822	87	19
N = 2435	9.9%	52.1%	33.8%	3.6%	0.8%
I prefer to work in teams where we do our own work.	240	716	836	554	102
N = 2448	9.8%	29.3%	34.2%	22.6%	4.2%
Virtual team work is an opportunity to work with a diverse range of people.	238	1162	1022	217	62
N = 2701	8.8%	43.0%	37.8%	8.0%	2.3%
I like to be the team leader when doing team work.	185	584	1189	432	64
N = 2454	7.5%	23.8%	48.5%	17.6%	2.6%
I wait to be asked before I offer my opinion when working collaboratively.	47	324	724	1417	189
N = 2701	1.7%	12.0%	26.8%	52.5%	7.0%
Ideas for the team are always imposed one or two individuals.	121	821	784	678	49
N = 2453	4.9%	33.5%	31.9%	27.6%	2.0%
Virtual teams take more time and effort	363	695	881	359	42
N = 2340	15.5%	29.7%	37.7%	15.3%	1.8%

commitments and the international students who are not familiar with team work (McInnis & Devlin, 2002). However when the responses from off-campus students were compared to on-campus students for those two questions, there were no significant differences. The responses of the international students were much the same as those given by Australian students.

Student comments about team work

The open-ended comments which related to team work were initially grouped into three categories:

- responses about the perceived role of individuals with respect to team work conducted online;
- responses about the perceived role of the University and teachers with respect to team work online; and
- other comments about group/team work.

Student perceptions about the role and attributes of the individual in team work

Problems arose for teams where it was perceived that some team members were not contributing or pulling their weight. A major focus of the comments in this category was the frequency, or lack of postings by some members of the team. There was also a perception that distribution of work amongst team members was not always equitable. Indicative comments include:

- People in the 'team' disappear or don’t post at all- you just get left with a vocal minority and they are not always the easiest people to work with (I know I'm one of them).
- Some students don't use DSO and tend to leave the others in the group to do the work. There does not seem to be anything you can do about it.
- Without the personal contact it is harder to try to get others to pull their weight.

The time required for some students to respond to the team was a concern with some team members seemingly not concerned about deadlines:

- Team members can choose not to access DSO which makes allocating tasks and group work difficult because you have to wait for people to respond and this may take days.
- Many people do not meet deadlines. Consequently my assignments relying on other people's comments or work are held up or not as deep as they could have been.

Another common concern was the need for students to have good English skills if good communication was to occur. In many cases such comments were directed at students whose first language was not English, but interestingly, not always:

- It is impractical to engage in collaborative work on projects that inherently require good English, and frequent two-way communication.
- Getting teamed up with members who struggle with language problems is really frustrating.

The subsequent assessment of the team's work caused concern:

- Online group assignments are awful. It is always left to one or two individuals to do the work, and there are no provisions to ensure that the tasks are allocated evenly. Marks should not be awarded to the group as a whole for this reason. It penalises students who do all the work, while rewarding those that have not done anything.
- I'm not sure that the units need to conduct team based assignments as this is, performing in teams, is not an essential part of the unit, and if it was then the involvement rather than the outcome should be the measurement.

Lack of dedication to the team and the task, and the lack of motivation generally to do well in studies, were also mentioned. One student summed it up as:

- When group work is involved there is great difficulty in involving group members who are not dedicated to the team.

Student perceptions of the role of the University and teaching staff with respect to team work online

The importance of staff support and guidance for virtual team work was an issue that was frequently raised:

- It is great if you get a unit chair [lecturer] who is proactive and helpful and the groups work together and share the work but not all units provide the help and resources that you need and not all groups work as well as you expect. So the experiences can vary from unit to unit.
- The role of staff is to provide assistance to ensure team work is effective.
- [If] the university DOES NOT support team members who are having difficulty communicating with team members, there is a real danger of unbalanced workloads in these teams.

Clear instructions on what is required to be done and what needs to be submitted for submission are essential:

- Task requirements are worded either too vaguely, or in a level of English to difficult for them to understand and causes group members to interpret task requirements differently, causing disagreements and confusion on what REALLY should be submitted.

Finally working online is often touted as advantageous for students as they can study when they are able rather than being restricted by timetable requirements. Yet some students felt that virtual team work went against this ideal:

- When group assignments are required, it compromises the 'It allows me to work when I want to' advantage of the DSO learning environment.

Other comments about team work

Students expressed a belief that online team work takes more time than team work conducted offline:

- It is very difficult to coordinate group activities online on DSO, with over 70% of time working on the assignment devoted to this task.

- It is much easier I find to work in collaboration with others in a face to face environment; it is more successful in terms of everybody having an opinion and the speed at which work is done.

Technology issues were a concern with appropriate access being the main focus:

- Some people don't have internet at home so can't communicate very well when have to do assignments. Some students do not wish to cooperate and not everyone has an internet connection of the same speed and the same level of access making it not so desirable for use/collaboration on what it seems to be designed for.
- Some students can't access DSO easily. Therefore, it's often easier to use personal email for group work.

Comments regarding the difficulties of interacting with the team were common:

- I can't work when I can't see other people....when working in a team I need to be able to sit down and have a discussion; the online system is too slow for that!
- It is sometimes difficult to co-ordinate input and comments from all the members of a team, which makes the process somewhat less efficient than face-to-face work.

Communication and cultural issues:

- Conversations can be misconstrued and others in a team may slack off more than expected. Some leave things to the last minute and don't make proper use of team members when not meeting face to face.
- You don't get to properly inter-relate with other team members and some statements can be taken in the wrong manner and cause issues.
- Understanding of cultural diversity does not take place when a team works in DSO.

Discussion

Although students are generally positive about their team work experiences during their studies, they have concerns with team work online. These relate mainly to communication and participation. One of the main difficulties seems to be with the management of *lurkers* (individuals who do not actively participate in the online environment) and *shirkers* (those who do not arrive in the online environment). Active participants in the team often want to be inclusive of all members but do not have the means to do so. Managing this aspect of online team work needs to be the responsibility of the teachers involved. Further, the tasks that the team are asked to undertake need to be constructed in such a way that non-participants cannot benefit from the efforts of participants and that active participation is recognised in the final outcomes.

Another concern is about the length of time it takes to complete tasks online compared with face to face. In many respects this can be related back to the lurkers and shirkers issue and a lack of motivation and/or time management skills of the non-participants. Building up a level of trust and a sense of community within each team as suggested by Alexander (2002), may go some way to minimise the negative impacts of online team work.

Students need time to prepare for virtual team work and the use of team work in later years of study is more likely to be successful when students can withstand more stress and be able to communicate information more effectively (Alexander, 2002). This is a primary reason why the University recommends that wholly online units should not be offered to first-year students.

The findings in this research are supported by a study of students of a particular sub-set of the student population in Semester One 2005. In that study students indicated that the worst things about working in virtual teams were the extra time required for online activities; the difficulties encountered when communicating online; and the tendency for fellow students to participate and submit their work at the last minute (Goold, Augar & Farmer, 2006). Other studies suggest that very few students elect to be in virtual teams if they are given the choice of working face to face (Alexander, 2002; Powell et al, 2004). A large-scale study of 1279 students (Hunt et al, 2002) reported that of four modes of study - traditional, personalised, technology-based and student-based - the least preferred was student-based, involving team work online. They suggest that this may be because of the small number of students who had a collaborative learning style.

Implications for teaching

Although team work and online team work are essential skills for graduates, the impact on student workloads can be excessive if the work is not monitored or scheduled appropriately. Overall team work takes more time than individual work as teams need to develop and grow. The stages of group development - forming, storming, norming and performing (Tuckman, 1965) - take more time when online groups are involved. Teachers need to be aware of this when creating online team tasks. The issue of time is also important in another area. As the teacher's role shifts from being an instructor of knowledge to a facilitator, the teacher needs to be more accessible to students and this will usually require a contribution of added time (Fåhræus et al, 1999).

The University is working towards more flexibility for students when they study, how they study and where they study using eLearning technologies to facilitate this. But an emphasis on team work can hamper the flexibility by insisting on scheduled deadlines that the team must adhere to in order to complete their tasks.

It is very important for teachers to recognise that students often do not need to be assessed as a team. Students feel penalised when the team does not perform. Assessing the individual contributions of team members is often a challenging task if this has not been positively addressed in the design of the required tasks and assessment metric. This is equally true of face-to-face teams (Hayes, Lethbridge & Port, 2003) and of teams working online (Fåhræus et al, 1999). It is important to provide clear guidelines of the assessment task itself, including how the task will be assessed and how the team work elements will be assessed (Murray, 2003).

One of the advantages of an online environment is that tools and systems for helping students and teachers to manage team processes can be utilised effectively to assist. The Teamworker, a web-based system that helps in team creation, team administration and identification and rectification of dysfunctional team is an example of such a tool (Murray, 2003). A wide range of peer assessment tools, both within the learning management system and custom built tools, can be used to ensure that students have input into the assessment of their peers and subsequent distribution of marks (see for example Luca & McLoughlin, 2002; Fermelis,Tucker & Palmer, 2007).

Conclusions and future work

The research here has highlighted some concerns that students have about online teams and team work in their tertiary studies. Other concerns about time, technological barriers, team interaction and cultural and communication issues voiced by students have also been presented.

Student views of how teaching should be conducted in units with online student teams have been discussed. The research has drawn attention to the responsibilities and the role of the teacher in establishing appropriate teaching strategies and facilitating team work online. In an online environment, the role of the teacher should be seen as a facilitator of learning and any team work undertaken in that environment needs to be carefully monitored. Particular attention should be given to supporting students in online teams and to assessing the individual contributions made by team members.

Since undertaking this study Deakin University has considerably enhanced the professional development programs available for academics and has provided a series of online modules addressing a range of pedagogical and technology-related issues. There is now a module on team assessment where the focus of the module is on-campus, face-to-face team assignments. The information provided is extensive, starting with a theoretical basis and rationale for using face-to-face team work as well as the barriers to successful team assessment. Interestingly, when the authors investigated professional development support for online team work at Deakin University, this was located on a web site dedicated to providing academic support in the use of the technologies making up the learning management system. Although there is some pedagogical advice, the information provided revolves around the use of functionality that the technology provides to support teams and team work.

In 2005, when the data being reported on here was collected, many students had been introduced to online teaching methods during their tenure as students of the University. More recently students have become more accepting of learning in an online environment and of completing collaborative work online. The research into the team work aspects of online learning and teaching warrants further investigation on many fronts. The technology to support online team work is improving; students are gaining more experience in using technology to support their learning; and they are gaining easier access to the Internet.

As teachers we need a better understanding of how to support students and facilitate team work in online learning. Improvements in online learning experiences, including team work will thus prepare students as effective members of teams in the global, virtual workplace of the future.

References

Alexander, P. (2002). Time, Trust and Information. In *Proceedings of SAICSIT 2002*, pp. 65-74.

Bernard, R. M., de Rubalcava, B.R. & St Pierre, D. (2000). Collaborative Online Distance Learning: Issues for Future Practice and Research. *Distance Education.* 21(2), 260-277.

Chang, V. & Fisher, D. (2003). The validation and application of a new learning environment instrument for online learning in higher education. In M.S. Khine and D. Fisher (Eds.), *Technology-rich learning environments: A future perspective.* Singapore: World Scientific Publishing Co.

Clarke, B., Pearce, M. & Gannaway, D. (2004). Using Collaborative Learning to Develop Transferable Skills. *Transforming knowledge into wisdom: Holistic approaches to teaching and learning (HERDSA 2004),* Miri, Sarrawak.

Cogburn, D., Zhang, L. & Khothule, M. (2002). Going Global, Locally: The Socio-Technical Influences on Performance in Distributed Collaborative Learning Teams. In *Proceedings of SAICSIT 2002*, pp. 52-64.

Deakin University (2005). DSO (WebCT Vista) Evaluation Report: Semester 1, 2005. Internal report

Deakin University (2006). *2005 Pocket Statistics*. www.deakin.edu.au/planning-unit/statistics/pocket/2006.php. [viewed 12 Dec 2006].

Fåhræus, E., Chamberlain, B., Bridgeman, N., Fuller, U. & Rujelj, J. (1999). Teaching with Electronic Collaborative Learning Groups. In *ITiCSE'99 Working Group Reports and Supplemental Proceedings,* 31(4). https://doi.org/10.1145/349316.349567

Fermelis, J., Tucker, R. & Palmer, S. (2007). Self and Peer Assessment: Development of an Online Tool for Team Assignments in Business Communication and Architecture. *ABC 72nd Annual Convention 2007*, Public Knowledge, United States.

Goold, A., Augar, N. & Farmer, J. (2006). Learning in Virtual Teams: Exploring the Student Experience, *Journal of Information Technology Education*, Vol. 5, pp. 477-490, Informing Science Institute, USA.

Goold, A., & Coldwell, J. (2005). Teaching Ethics in a Virtual Classroom, In J. Cunha, W. Fleischman, V. Proulx, J. Lourenco (eds), In *Proceedings of the 10th Annual SIGCSE Conference on Innovation and Technology in Computer Science Education*, pp. 232-236, The Association for Computing Machinery, Inc., USA. https://doi.org/10.1145/1067445.1067509

Hayes, J., Lethbridge, T. & Port, D. (2003). Evaluating individual Contribution Toward Group Software Engineering Projects. In *Proceedings of 25th International Conference on Software Engineering,* pp. 622-627. https://doi.org/10.1109/ICSE.2003.1201246

Hunt, L., Thomas, M. & Eagle L. (2002). Student resistance to ICT in education. In *Proceedings of the International Conference on Computers in Education (ICCE'02*), Vol.2, pp. 904-908.

Karim, N. & Heckman, R. (2005). Group communication media choice and the use of information and communication technology to support learning: A case study. http://www.emeraldinsight.com/1065-0741.htm [viewed 10 Feb 2007].

Luca, J. & Mc Loughlin, C. (2002). A question of balance: Using self and peer assessment effectively in teamwork. In *Winds of change in a sea of learning: Charting the course of digital education*. *Proceedings ascilite Auckland 2002*. http://www.ascilite.org.au/conferences/auckland02/proceedings/papers/072.pdf

McInnis, J. & Devlin, M. (2002). *Assessing Learning in Australian Universities: Ideas, strategies and resources for quality in student assessment*. Australian Universities Teaching Committee, Centre for the Study of Higher Education. http://www.cshe.unimelb.edu.au/assessinglearning [viewed 12 Feb 2006].

Murray, M. (2003). Managing teamwork, *OLT2003 Excellence: making the connections*, Queensland University of Technology.http://eprints.qut.edu.au/archive/00000080/01/MartinMurray.PDF [viewed 15 Aug 2008].

Powell, A., Piccoli, G. & Ives, B. (2004). Virtual Teams: A Review of Current Literature and Directions for Future Research, *The DATA BASE for Advances in Information Systems*, 35(1), 6-36.

Redfern, S. & Naughton, N. (2002). Collaborative Virtual Environments to Support Communication and Community in Internet-Based Distance Education, *Journal of Information Technology Education*, 1(3), 201-209. https://doi.org/10.28945/356

Salmon, G. (2000). *E-moderating.* London: Kogan Page.

Tuckman, B. (1965). Developmental sequence in small groups. *Psychological Bulletin,* 3(6), 384-399. https://doi.org/10.1037/h0022100

Authors: Annegret Goold is a lecturer in the School of Engineering and Information Technology at Deakin University. Annegret can be contacted on annegret.goold@deakin.edu.au
Annemieke Craig is a senior lecturer in the School of Management Information Systems at Deakin University. Annemieke can be contacted on annemieke.craig@deakin.edu.au
Jo Coldwell is a senior lecturer in the School of Engineering and Information Technology at Deakin University. Jo can be contacted on jo.coldwell@deakin.edu.au

Please cite as: Goold, A., Craig, A. & Coldwell, J. (2008). The student experience of working in teams online. In *Hello! Where are you in the landscape of educational technology? Proceedings ascilite Melbourne 2008*. https://doi.org/10.14742/apubs.2008.2418