

# **Collaborative learning in diverse groups: a New Zealand experience.**

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## **Abstract:**

This paper presents the findings of a research project examining New Zealand experiences with collaborative learning. International research on collaborative learning is very positive about the educational benefits of working in diverse groups but much of this research has been carried out with diverse students from the same society. Anecdotal evidence indicates that the current New Zealand situation is different as International students come from many different societies. Additionally, the seminal work on collaborative learning done in the States by Johnson and Johnson was primarily based on pre- tertiary educational institutions. Research carried out at Victoria University of Wellington indicates a worrying increase in negative attitudes of tertiary domestic students towards working with International students; anecdotal evidence suggests that this results from working in unsuccessful collaborative groups.

This project surveyed staff and students at two Wellington tertiary institutions on their attitudes to collaborative learning. It identifies the particular challenges that Western tertiary educational institutions face in establishing collaborative learning with diverse groups of students, and proposes ways in which the institutions can meet these challenges and make collaborative learning in diverse groups a rewarding experience for all students.

## **Key Words:**

Collaborative learning, group work, diverse student groups, assessment, peer evaluation

## **Introduction:**

This paper reports on the second part of a four- part research project carried out by tutors at the Wellington Institute of Technology and Whitireia Community Polytechnic. Over the last thirty years extensive research has been published in the area of collaborative learning in diverse groups and almost all this research has come to positive conclusions about its benefits (Skon, Johnson and Johnson, 1981; Slavin, 1990; Johnson, Johnson and Stanne, 2000). The research, however, has been carried out predominantly with diverse students in the pre-tertiary sector of a single society. There has been very little research carried out on the implications of collaborative learning in the tertiary sector of a country such as New Zealand where students come from a wide range of different societies.

Although the term collaborative learning is used to cover a wide variety of classroom activities, for the purposes of this project it was defined as learning that takes place in a stable, formal group of two or more students who work together and share the workload equitably as they progress towards assessed learning outcomes.

The first stage of the project, carried out in 2005, identified problems that tertiary tutors currently experience when they use collaborative learning in their classrooms. Tutor groups in Christchurch, Wellington and Auckland discussed collaborative learning and identified the main issues as being the influx of international students into New Zealand, with the resulting language and cultural issues, and the difficulty in developing a fair assessment system for groups comprising of students with mixed levels of motivation and ability.

For the current stage of the research questionnaires were used to identify staff and student perceptions of the strengths and weaknesses of collaborative learning. The researchers also wanted to identify differences and similarities between staff and student attitudes. The questionnaires asked students and staff if they agreed or disagreed with 40 statements about collaborative learning, asked them to rank seven outcomes of collaborative learning in order of importance to them, and asked five open ended questions on wider issues such as "What I like about collaborative learning". A majority of questions were common to both staff and student questionnaires. The questionnaires were distributed at two polytechnics and the results were collated and compared with the issues that had been identified the previous year. Twenty staff questionnaires were returned and 148 student questionnaires; both sets were analysed using SPSS (Statistical Package for Social

Sciences, Version 13.0 for Windows). The scale used for the questionnaire was 1 (strongly disagree) to 5 (strongly agree); any response of 1 or 2 was taken as disagreement, 3 as neutrality, and 4 or 5 as agreement. Open-ended questions were collated and analysed for major themes and for consistency with the closed questions. Students surveyed were from Diploma and Degree programmes in Business, Information Technology and Hospitality.

The third stage of this project will be carried out in 2007 when the researchers will hold focus groups and interviews with tutors and students to examine more closely the results from the 2006 questionnaires. Reasons for responses, attitudes and inconsistencies will be analysed and potential solutions to problems will be explored.

The final stage of this research project will involve producing models of successful collaborative learning programmes for tutors to use as resources in their own classrooms.

### **Findings:**

The findings discussed in this paper are those that are of most interest to the ISANA International Education Conference. A full discussion of the findings will be published at the completion of stage three of the project.

#### *Attitudes to collaborative learning*

Both staff and student questionnaires showed an overall positive attitude towards collaborative learning.

Eighty-five percent of the tutors surveyed stated that they enjoyed using collaborative learning in their classrooms. Sixty percent believed that their students enjoyed working in groups and 55% felt that their students learned more working in groups than working as individuals. Ninety-five percent of tutors agreed that experience in classroom collaborative learning would be useful for students when they joined the workforce. This indicates that, despite the problems that were identified in 2005, these tutors saw value in students learning in groups.

Sixty-two percent of the students surveyed agreed that they enjoyed working in groups in their classes and 52% believed that they learned more working in groups than working on their own. Students also agreed that learning to work with others was important to them (76%) and 78% agreed that working collaboratively with others would be a useful experience for when they joined the workforce.

When the figures were analysed by ethnicity, however, different figures emerge. The ethnic groups identified were New Zealand European (35.5%), New Zealand Maori (9.7%), Pacific Islander (9.7%), Chinese (31.9%), Indian (4.9%) and other (8.3%).

New Zealand European students surveyed were less satisfied with collaborative learning than were students from the other ethnic groups. Forty-three percent of the New Zealand European students answered that they enjoyed working in groups, but the figure is much higher for New Zealand Maori (71%), Pacific Islanders (78%), Chinese (69%), and Indian (100%). Thirty-one percent of the New Zealand European students surveyed agreed that they learn more in groups than when they work on their own, but again the figures are much higher for other ethnic groups: Maori (54%), Pacific Island (71%), Chinese (70%) and Indian – not so high – 43%. Consistent with this trend, 67% of New Zealand European students surveyed answered that they enjoyed getting to know other members of a group when working together, but 86% Maori, 86% Pacific Islanders, 91% Chinese, and 71% Indian students answered positively.

#### *Attitudes to collaborative learning in diverse groups*

The researchers were particularly interested in staff and student attitudes to culturally diverse groups as this had been identified as a problem by the 2005 tutor workshops. It was also identified as a problem in research carried out in 2005 ((Baker et al, 2005); this research showed a significant difference between the domestic students surveyed, who preferred mono cultural groups, and the Chinese and Indian students, who preferred cross-cultural group work.

There was general tutor agreement about the social benefits of collaborative learning in diverse groups although there was some doubt about its educational benefits. Only 50% of the tutors surveyed in this project agreed that culturally diverse groups produced improved learning outcomes, although 65% agreed that students learned intercultural communication skills as a result of working in cross cultural groups. Eighty-five percent agreed that students learned interpersonal communication skills as a result of working in cross-cultural groups although only 40% believed that students actually enjoyed the experience. The doubt about improved learning outcomes may perhaps be explained by the belief of 70% of tutors that the level of English of some students is not high enough to allow them to contribute usefully in groups.

Students surveyed were also positive about the social benefits of collaborative learning. Only 46% of the students surveyed preferred to work in culturally diverse groups rather than in groups from their own culture but, again, the percentages were higher when students were asked about the social benefits of working in cross cultural groups. Seventy percent enjoyed learning to communicate with students from different cultures in cross cultural groups, and 61% believed that they had developed intercultural communication skills as a result of working in cross cultural learning groups.

Seventy percent of the tutors surveyed felt that the level of English was a problem in cross-cultural groups, but only 46% of students considered it a problem.

When this is broken down into ethnicity, however, there is again a difference between the ethnic groups. New Zealand European students surveyed were less satisfied with cross-cultural groups than were the other ethnic groups. Only 22% New Zealand European students preferred to work in culturally diverse groups compared with Maori (50%), Pacific Islanders (71%), Chinese (61%) and Indian students (43%). 55% of the New Zealand European students surveyed enjoyed learning to communicate with students from different cultures in cross-cultural groups compared with Maori (71%), Pacific Islander (92.9), Chinese (75%) and Indian students (100%). Consistent with this pattern, only 45.1% of the New Zealand European students agreed that they had developed intercultural communication skills as a result of working in cross-cultural learning groups compared with Maori (79%), Pacific Island (93%), Chinese (61%) and Indian students (57%).

Fifty-five percent of the New Zealand European students agreed that the level of English of group members was a problem in some groups and there were some strong comments to this effect in the open-ended questions. Only 35% of Chinese students, however, agreed that the level of English of some group members was a problem. This may perhaps indicate that Chinese students are not aware of any deficiency in their level of English and may explain why institutes frequently find that Chinese students are reluctant to accept extra help in English that is offered by the institution.

#### *Attitudes to assessment*

The other major problem identified by the 2005 workshops was assessment of work carried out by a group; this was also confirmed by the current research.

Tutors surveyed were concerned about the fairness of current group work assessment and were particularly concerned about peer assessment. Staff agreed (85%) that group members should share the work equally and 60% agreed that high achieving students are often disadvantaged by collaborative learning methods. Sixty-five percent were sometimes concerned that students in a group all receive the same mark for a group assessment, and only 50% agreed that peer assessment is a valid and reliable method of assessment. Only 45% agreed that assessment of collaborative learning is usually fair and 60% preferred to use learning groups where group members received individual marks based on their individual work in the group.

These results are consistent with the results from student questionnaires. Students surveyed were also concerned about the fairness of group work assessment. Students (87.1%) agreed with tutors that members of a group should share the work equally and that it is unfair that sometimes group members receive high marks for work that they have not done (71%). Fifty-six percent agreed that assessment in class groups has usually been fair but only 30% agreed that peer assessment is a fair method of assessment. 40% of students preferred to work in groups where the work would not be formally assessed.

When attitudes to peer assessment are broken down into ethnic groups, however, only 14% of the New Zealand European students surveyed agreed that it is a fair method of assessment. Responses from Maori students surveyed were similar: 14% of the Pacific Island students were slightly more in favour of peer assessment (29%) but there were much higher figures for Chinese students (47%) and Indian students (57%). Reasons for this discrepancy need to be investigated: it could perhaps be a reflection of collectivist cultures where responsibility for others is understood, harmony is encouraged, and a student can depend on other members of the group to give good marks.

Open-ended questions for both staff and students produced similar results with similar concerns about assessment. Seventy-five percent of staff who responded to the open questions cited fair assessment as the main problem for collaborative learning and 50% of students specifically identified the difficulties of assessment as the major cause for dissatisfaction. This concern with the fairness of assessment must be taken seriously by tutors as, when asked to rank the outcomes they wanted to gain from collaborative learning, students across all ethnic groups clearly identified achieving high marks as the most important outcome for them. On the other hand, most staff agreed that learning to work with others was the most important outcome for students, closely followed by preparation for the workforce. Some tutors may perhaps underestimate the importance of high marks to students, especially those students who are using a polytechnic as a stepping-stone to University and who need high marks to be accepted, and those high-achieving students for whom high marks are seen as essential to obtaining a good job.

#### *Attitudes to groups that are diverse in age and ability*

The researchers also looked at the success of diverse groups in terms of age and ability.

Only 30% of tutors agreed that their students enjoyed working in groups of mixed ability and mixed ages but 57% of students stated that they preferred to work in groups of mixed ability and 52% preferred to work in groups with a range of ages. This difference in perception is interesting and can perhaps be explained by the students' emphasis on the importance of marks; perhaps groups with older students and students of high ability are perceived as being more likely to produce high marks. Even though the majority of tutors believed that students did not enjoy working in mixed groups, 60% agreed that students achieved more in groups of mixed ability and 55% agreed that the students achieved more in groups with a range of ages.

There was a clear difference in ethnic preferences to the question that asked for attitudes to working in groups of mixed ability; Pacific Island and Asian students were much more positive. Only 37% of the New Zealand European students surveyed agreed that they preferred groups of mixed ability, but in the other ethnic groups 57% Maori students, 86% Pacific Island students, 61% Chinese students and 100% Indian students preferred mixed ability groups. There were not such clear ethnic differences in attitudes to groups of mixed ages.

#### *Group problems*

Fifty-six percent of the students surveyed said that they were given strategies for dealing with group problems and 53% said they were familiar with procedures. Of the staff replies, 40% said that they gave students training in dealing with disagreements in their groups and 45% answered that they gave their students training in what to do when there were personality clashes in their groups. Fifty percent replied that they taught their students strategies for group work before they asked them to work collaboratively.

Open ended answers from students showed that, despite being given a certain degree of training, there was a high degree of frustration with their inability to deal with the problems of "lazy" or "slack" group members and the resultant unfair workload distribution. Interestingly, however, only 20% of staff and 17% of students believe that it is primarily the tutor's job to deal with group problems. This is an issue that will be explored in stage three of this research project.

#### *Reasons for using group work*

Likewise issues of structuring groups and group assessments will be explored in depth in the next stage. The questionnaires showed some interesting discrepancies between tutor and student perceptions. Sixty percent of tutors agreed that they had clear pedagogical reasons when they chose to use collaborative learning techniques and 76% of students answered that they did understand the reason why tutors used group work; however, 29% agreed that the reason was that tutors were not sure of the answer themselves. (Five percent

of tutors agreed that they used group work when they were not sure of the material themselves.) Likewise, 65% of the tutors surveyed disagreed with the statement that they used collaborative learning to save themselves work but only 30% of the Chinese students surveyed disagreed with it. This can probably be explained by the different educational experiences of Chinese students but it is unfortunate that they have this perception of New Zealand tutors.

#### *Structure of assignments*

Ninety percent of tutors stated that they structured their assignments clearly and logically but only 48% of students agreed with this. This discrepancy can perhaps be explained by the low (45%) number of tutors who have actually been given guidance themselves on how to carry out collaborative learning in the classroom. 80% of tutors answered that tutors should be trained before they use collaborative learning techniques.

When the figures for agreement on the structure of assignments were broken down into ethnic groups only 21% of the Maori students surveyed agreed that they were clear and logical. This possibly indicates that further investigation in this area would be desirable.

#### **Discussion:**

##### *The social benefits of collaborative learning*

Questionnaires from both staff and students are positive about the social benefits of collaborative learning. These perceived benefits are also seen in cross-cultural groups. Open-ended questions consistently refer to the enjoyment of interacting with other students. *"It's fun and you can talk about stuff,"* wrote one student (who did not fill in the ethnic information). *"I enjoy the fact that you can get to talk to others and generally have a good time,"* wrote one New Zealand European student. *"Met a lot of friends,"* wrote a Malaysian student. A tutor wrote, *"It gives students who are otherwise 'quiet' an opportunity to contribute in a safer/smaller less intimidating environment."* Recent research carried out by Colleen Ward at Victoria University shows that both domestic and International students would like better inter-cultural interaction but that they are not sure how to go about developing it (Ward et al, 2005). The results of this research indicate that Ward's hypothesis that collaborative learning is a way of increasing interaction between cultural groups on campus is valid.

Open-ended questions also highlighted the benefits of collaborative learning in terms of understanding different cultures and different ways of solving problems. A New Zealand European student wrote that a benefit was, *"Sharing ideas and learning from others in different backgrounds,"* and a Russian student wrote, *"Getting to know more people from different cultures."* There was also an appreciation among full time students of help with work and sharing of the workload. A Cook Islander, whose cultural background seems to predispose her to group work, wrote, *"When I'm stuck with something, someone from the group who is more smarter (sic) than me will come along and help."*

The difference between the attitudes of domestic and international students is, however, cause for concern. New Zealand European students consistently showed less agreement on the value of group work, including its social and inter-cultural value. Some of this negativity seems to be the result of concerns about assessment, but there is also frustration with students whose language ability makes it difficult for them to contribute usefully in a group. One New Zealand European student wrote, *"Not all people are willing to make an effort. In a multi-cultural group I was left to do 80% of the work. In a non mixed race group this problem did not exist."* The student added, *"However, I do believe it is important to work with mixed races."* It seems as if the problem is not racism but the simple practicalities of working with group members whose English might not be adequate to the task.

##### *Assessment*

Assessment is an area that is causing major concern to both tutors and students.

Both groups do not approve of the uneven distribution of workload that often occurs in groups but do not see peer assessment as a solution. Although peer assessment allows students to penalise and reward each other, in practice it is not easy to do. Students made several interesting points in the open ended answers: it is hard to give students low marks when you still have to work with them in class, it is hard for some

students to prevent personal likes and dislikes influencing them, it is hard to risk hurting other people's feelings, it is hard to be responsible if another student fails the course *"even if they deserve it"*. One student wrote, *"Peer assessments may be biased; it is not always evident who does what,"* and a Sri Lankan student made the point that students *"need a proper measurement to check whether all group members shared the workload."* Another New Zealand European student wrote of students who don't carry out agreed tasks, *"I don't like to be put in the role of "dobbing" them in if they don't pull their weight. I pay to be taught, not to be an enforcer of the rules."* Although some tutors would argue that learning to deal with these problems is one of the most important aspects of working in groups, the frustration of these students should not be ignored. These are important issues that need to be addressed if tutors do decide to use peer assessment.

Both tutors and students were concerned about students achieving unrealistic marks as a result of working in a group. One tutor wrote, *"An otherwise excellent student can be made average through group assessments (likewise those likely to fail could pass setting up false expectations for other individual assessments)"* and a New Zealand European student wrote, *"I do not and have not enjoyed working in groups of uneven ability or language ability. Often it leads to only one or two people generating ideas/ input and producing the work – meaning no added value or increased learning for the able and a good pass mark for those who haven't contributed and may still not understand the work despite passing."* Another tutor wrote, *"Marks tend to pull down high achievers and pull up low achievers and this is not fair."* This, of course, brings up the question of whether group work does, in fact, penalise high achievers, something that will be discussed in a later paper. It also raises the important issue of employee confidence in the consistency of educational standards in an institution.

Quite apart from concerns about fairness of marks, many students expressed anger about uneven workload. Terms such as "free loaders", "slackers" and "carrying people" were used frequently in the open-ended questions. The students surveyed seemed to need more help than they were getting in learning to deal with these problems.

#### *Language problems*

There was a clear concern about language in tutor responses to the questionnaire. Some students were also concerned, particularly the domestic students. A New Zealand European student wrote that a disadvantage of group work was *"having to work with people from other cultures with lower levels of English."* A Cook Island student wrote, *"It would be extremely hard for me to work in a group if it was dominated by Chinese/ International students. The language barrier would be too difficult to overcome."* This student raises an interesting point that perhaps the proportion of second language to first language students in a group is an important variable.

#### **Conclusions:**

New Zealand educational conditions are significantly different from conditions in which most of the research on collaborative learning has taken place; it is therefore essential that New Zealand educationalists investigate changes that will ensure that the documented benefits of collaborative learning actually take place here.

New Zealand tertiary institutions should continue to encourage the social interaction that is taking place in student group work. Developing skills in intercultural communication is valuable to both domestic and international students; all students need to be prepared for working in today's global workplace. General problem-solving and interpersonal skills are also a valuable outcome of collaborative learning in tertiary classrooms.

The problems that tutors and students are experiencing, however, must be addressed urgently. New Zealand educational institutions have a dual responsibility: they must give international students the optimum conditions for effective learning, but they must also give their domestic students conditions conducive to their particular learning needs. Institutions could consider whether collaborative learning techniques should be tailored to achieve specific outcomes: structure and assessment might need to be different when the desired outcome is development of social and intercultural skills from when the desired outcome is improved academic achievement. Perhaps in the current New Zealand educational environment it is unrealistic to expect to achieve both outcomes concurrently.

There is an urgent need for tutor training in collaborative learning techniques, particularly in the area of assessment. Tutors, students and employers need to be confident that assessment is fair and that educational standards are consistent. If tutors use peer assessment, they must be trained to produce systems that are valid and reliable. Results from this research indicate that marks are of crucial importance to students; tutors must therefore ensure that students always perceive assessment outcomes to be fair.

Institutions must address the language problem with International students. Commercial conditions probably make it unrealistic to call for a higher entry level but international students would benefit from extra English help after they have been enrolled. This research shows that Asian students seem to be unaware of the need for a higher level of English when they are working in groups, so perhaps it is the institutions' responsibility to ensure that they attend English classes that have been specially designed as a preparatory course for specific tertiary programmes. At the moment any such courses are optional; they may need to be a condition of entry for any students under a specified IELTS rating.

Students also need to be trained in effective collaborative learning behaviour. In the open ended responses students expressed clearly that they did not have the skills to deal with unmotivated or less able group members. Institutions could perhaps require students to complete the communication section of their programme, where they generally are taught these skills, in the first semester of their study.

Other issues that were identified in this research will be explored in focus groups and interviews in 2007 and hopefully published during the year.

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