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Cooperative learning: theory into practice

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Abstract:

At the 2008 IASCE/IAIE conference in Turin, Trish Baker and Jill Clark presented a model for using assessed cooperative learning techniques with ethnically and linguistically diverse groups. The model consisted of four steps: training lecturers in cooperative learning techniques, training students in cooperative learning techniques, monitoring the groups' performance, and debriefing both lecturers and students. This research paper and presentation reports on a New Zealand tertiary business course that piloted the model with culturally diverse student groups. Results from this pilot study suggest that the thorough preparation and monitoring of diverse student groups by a lecturer trained in cooperative learning techniques led to superior academic achievement and greater student satisfaction for most groups. Successful groups were able to identify the skills they had acquired from the cooperative experience, particularly the transferable skills. Not all groups, however, derived the full benefit from the use of the model. Issues of individual motivation, openness to feedback, and a lack of generic skills contributed to the comparatively poor performance of one of the groups. The results of this research project suggest that the challenges of implementing cooperative learning groups with culturally and linguistically diverse groups may be met by ensuring that both lecturers and students follow the guidelines outlined in the model. This paper recommends further trialing of the model with a larger sample.

Keywords

Cooperative learning, group work, diverse student groups, assessment, culture, cooperative learning model, pilot study

Introduction

International researchers have produced extensive evidence of the benefits of cooperative learning; as a result of this research New Zealand educators have, in recent years, been encouraged to incorporate cooperative learning techniques into their classrooms. Anecdotal and empirical evidence in New Zealand, however, suggests that, in spite of the literature, tertiary teachers are not finding it easy to achieve the anticipated academic and social rewards.

Ward (2005) has pointed out that overseas literature (predominantly from the United States) has been derived primarily from "research and teaching in culturally diverse classes within single societies (within society contact) rather than in classes of international and domestic students (between society contact), and in primary and secondary schools rather than in tertiary settings" (p46) and that there is a need for New Zealand research in this area. Other researchers have suggested that New Zealand

tertiary lecturers find it difficult to translate cooperative learning theory into practice because of inadequate professional training in cooperative teaching techniques and assessment; this gap in teacher training inevitably results in insufficient student preparation. (Clark and Baker, 2007).

The current New Zealand tertiary student body consists of a diverse mixture of domestic and international students. New Zealand 's domestic population is made up of four predominant ethnic groups: New Zealand European , Maori, Asian and Pacific ; in addition to these domestic students there has been a steady increase in recent years in the number of international students studying at New Zealand tertiary educational institutions. These students may come from China, South Korea, Japan, America, South East Asia, Russia, Europe or Latin America. Lecturers with this mix in their classes must therefore learn to manage not only the cultural and linguistic challenges of a multi cultural classroom, but the challenges of teaching students who have wide differences in social, political and educational expectations.

In the tertiary educational environment assessment becomes more of an issue than in the primary sector; at a senior level grades can be a crucial factor in selection for a particular further educational institution or for a job. Fairness of assessment therefore becomes very important to tertiary students. Many New Zealand lecturers have not been trained adequately in cooperative assessment techniques; consequently perceptions of unfair workload distribution and unfair allocation of marks are reported by both lecturers and students.

Baker and Clark (2008) have developed a model that addresses the challenges of implementing cooperative learning in a multi societal tertiary classroom. This paper reports on a business course that piloted this model; the results of the pilot suggest that if New Zealand lecturers were trained to use this model in their classrooms the consequent academic and social benefits of cooperative learning would more closely correlate with the findings of overseas research.

Although the term cooperative learning is used to cover a wide variety of classroom activities, for the purposes of this research 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 outcomes. The term "group work" is sometimes used in this paper, however, as it is a more familiar term to practicing lecturers.

Review of the literature

Cooperative learning is generally considered to be an effective way of improving students' academic achievement (Slavin, 1990; Cuseo, 1990, Johnson, Johnson and Stanne,2000) as well as their interpersonal, intercultural and higher level thinking skills (Johnson & Johnson, 1988; Slavin & Cooper, 1999,). Johnson and Johnson postulate, moreover, that experience in cooperative education is essential for an individual's healthy psychological development (Johnson & Johnson, 1998).

Researchers suggest also that cooperative learning prepares students for the modern workforce where there is an increased emphasis on team work (Fiechnter & Davis, 1991), and for their meaningful participation in a democratic society (Kagan, 1994). Research on whether heterogeneous groups are more effective than homogeneous groups has been inconclusive (Stahl 1994; Watson, Scott, Marshall, 1995).

Subsequent research suggested that the implementation of cooperative learning techniques presents teachers with a variety of new challenges. Johnson and Johnson (1998) warned that simply putting students in groups and telling them to cooperate would not produce the desired outcomes; there were certain pre conditions that must be present for real learning to occur; these pre conditions are positive interdependence, individual accountability, promotive interaction, social skills and group processing. Researchers began to highlight the need for students to be trained in handling group issues (Oakley et al, 2004) and the need for teachers themselves to be given guidance in training students for group work (Ward 2006). Other researchers began to stress the importance of structuring group assessments appropriately, particularly for multi cultural groups. (Cohen et al, 2002; De Vita, 2005).

With the increase in international students studying at Western universities, additional issues began to emerge in New Zealand tertiary institutions and to be identified by researchers. The majority of international students in New Zealand are Asian, predominantly from China, so they come from very different cultural and educational backgrounds (Holmes,2002;Campbell & Li,2007).

Asian students are accustomed to an educational system which is teacher centred; dialogic teaching methods, including cooperative learning, favoured by New Zealand educational institutions can leave them feeling confused and disoriented (Holmes, 2005). Asian society does not encourage disagreement, so reluctance to participate in group interaction and difficulty in managing interpersonal skills within a learning group can be a natural consequence of the cultural disorientation felt by these students ((Holmes 2002; Campbell & Li, 2007). According to Campbell and Li (2007) many Asian students in their research project “felt they had been abandoned and that they were asked to produce more than they had been taught” (p85). Holmes (2002) also found that students from high context countries felt uncomfortable in groups where roles and responsibilities were immediately made explicit by the New Zealand low context students, and where it was not considered important to spend time building up relationships. She concluded that, “The issues arising from working in groups appear to be grounded in the culturally embedded understandings of group formation and group cooperation” (p14). Logistics created problems too: organizing and taking part in group meetings were seen as too time consuming by some groups (Clark & Baker, 2006; Campbell and Li, 2007). Unequal language levels of students who were often not prepared for the specialist language of the academic environment or for the social context of group discussion were found by some New Zealand researchers to create problems (Beaver & Tuck, 1999; Holmes, 2002;; Campbell & Li, 2008 unpublished); domestic students sometimes believed that they carried an unfair share of the group’s work and international students sometimes felt guilty that they were achieving grades that they did not deserve (Clark & Baker, 2006). An additional factor identified by Campbell and Li (2007) was that the lack of a competitive element disturbed some Asian students who were used to a highly competitive academic environment. The fairness and appropriateness of group assessment, an issue in many cooperative learning groups, therefore became a major barrier to student satisfaction in New Zealand’s diverse educational environment (Clark & Baker, 2006). Ward (2005), in a literature review of the educational, social and cultural impact of international students in New Zealand, stated that equal status contact and cooperative activities directed towards a common, meaningful and mutually beneficial goal were essential for the promotion of intercultural interactions and friendships;

difficulties with assessment and unequal contribution, however, seemed to be making the cultural inclusiveness promised by earlier researchers, and seen as crucial in an age of globalization (Selvarajah, Pio & Meyer, 2006), difficult to achieve (Ward, 2006).

Diverse cooperative learning groups, often seen as a way of increasing communication and understanding between domestic and international students (Ward, 2006), were found by some researchers to have the opposite effect (Clark & Baker, 2006). Holmes (2002) found that, while Confucian Heritage Cultures (CHC) students liked to work interdependently, they believed that domestic students were much more inclined to simply divide the work up and do most of it independently. While international students in the study were positive about the social benefits of cooperative learning groups, many domestic students developed an indifferent attitude and all groups showed a preference for working in ethnically homogenous groups (Holmes 2002?). Oral presentations were particularly problematic as international students perceived that New Zealand students feared that the CHC students' limited communication skills would be a detrimental factor in their final grade for a presentation. (Holmes, 2002) Although aware of the problems occurring in diverse student groups, teachers claimed that they did not have the time to deal with them (Clark & Baker, 2007).

New Zealand researchers have identified the issues involved in using cooperative learning techniques with a diverse student body but very little work has been done on proposing practical solutions. It is important that this is addressed so that New Zealand domestic students and international students can all benefit from the academic and social advantages of cooperative learning. The model developed by Baker and Clark (2008) is designed to address these issues.

Methodology

Both qualitative and quantitative research methods were used for this study. The first stage of the research project, carried out in 2005, involved workshops with tertiary lecturers in Auckland, Wellington and Christchurch to discuss attitudes to cooperative learning. Lecturers identified the main issues of cooperative learning as 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 composed of students with mixed levels of motivation and ability.

In the second stage in 2006, questionnaires consisting of 41 closed questions and five open questions on cooperative learning were distributed to a convenience sample at two educational institutes; 20 lecturer questionnaires and 148 student questionnaires were returned representing a response rate of 70% for lecturers and 60% for students. Closed questions were analysed using SPSS. Open-ended questions were collated and analysed for major themes and for consistency with the closed questions. The results were collated and compared with the issues that had been identified the previous year in the workshops.

In the third stage of the project in 2007 qualitative data from semi-structured focus groups and interviews was collated and analysed for major themes and consistency with the quantitative data. Student focus groups were facilitated in English and Mandarin with 13 international students from two

Wellington tertiary institutes. Focus groups and interviews were also held with 15 lecturers from the same institutes. Focus groups were audio taped, transcribed verbatim and coded.

The fourth stage in 2008 involved the production and piloting of a model for an effective cooperative learning programme that lecturers could use as a resource in their classrooms. It was clear from the data collected and analysed in this research project that many New Zealand lecturers were not implementing cooperative learning in the way recommended by researchers such as Johnson and Johnson (1998), and were not addressing the problems identified by students and lecturers (Baker and Clark, 2008). The findings from this and other research projects were used to construct a model that would help lecturers set up cooperative programmes that not only met the basic requirements of effective cooperative learning but were also pedagogically sound and culturally accommodating.

The model consists of four stages involving the training of lecturers in cooperative learning techniques, the preparation of students for group work, the development and application of group processes and monitoring and support processes during the period of cooperative work, and the debriefing of the groups and lecturers. (More detailed information on each stage of the model may be found in Appendix A.)

The pilot study

The course used to pilot this model was a third year degree course that required students to work in groups to complete a 'real life' industry project for a business client. Students taking this course are expected to demonstrate both a professional attitude and the ability to integrate the various disciplines acquired during their degree study. These disciplines include academic knowledge and skills as well as the ability to work effectively in a group. It is a significant piece of supervised study completed over a 16-week period entailing a minimum of 200 hours of work, including writing and reporting, for each student. Three student teams undertaking this course were involved in the pilot study. The students involved reflected the New Zealand tertiary educational mix: New Zealand students from a variety of ethnic and cultural backgrounds, and Asian and Pacific Island international students (A flow chart showing stages of the project may be found in Appendix B)

Stage one of the Clark and Baker model suggests that lecturers are trained to understand the pedagogical reasons for using cooperative learning and to be able, therefore, to make informed educational reasons for its use. They are also trained in group dynamics, understanding and managing cross-cultural differences and assumptions in student groups, structuring cooperative assessments effectively and assessing appropriately. The lecturer involved in this pilot study was knowledgeable and experienced in all these areas.

Stage two of the model involves the effective preparation of students for working in groups. The first two weeks of the pilot course were dedicated to discussion of the rationale for group work, group dynamics, group processes and expected outcomes. Because the groups would be diverse, discussions were also held about cultural differences and stereotypes which might impact on the functioning of the group. The students were issued with a handbook outlining the procedures to be followed and the assessment criteria for the projects.

In **stage three**, groups of four or five students were selected by the lecturer based on student skills and abilities and the nature of the project to be undertaken by each group. Students were issued with Oakley's guidelines for preparing a group contract (Oakley et al, 2004) and were encouraged to produce their own contract outlining the norms and processes agreed to by the group. This document requires the groups to determine their preferred leadership system, their expectations for participation in the group, procedures for dealing with non-performing group members and specific conflict solving procedures. Groups engaged in discussions and activities to help them become familiar with each others' skills, cultures, learning styles, motivators, knowledge and capabilities. The procedures for peer and self assessment required for the course were reviewed.

The groups then began work on their projects. Each group prepared a detailed project plan which included regular group processing meetings, regular weekly or fortnightly meetings with the lecturer and meetings with their client to report on progress. Documentation of all formal meetings was required as part of the assessment process. Groupware was made available to the students on Blackboard (an online learning support system) to facilitate communication within the group. The lecturer was available throughout the process to discuss any issues that arose with the project or the group although the overall responsibility for the project lay with the students.

Students and lecturers are debriefed in **stage four** of the model. The groups in this course prepared a report and made a final presentation to their client, lecturer and other interested parties. At the end of the presentation they were offered feedback on the quality of their output and the effectiveness of their teamwork by their client, lecturer and others present. Each student also submitted a detailed reflective essay analysing their group experience. This essay also provided the opportunity for students to give feedback on the lecturer's management of the project.

Discussion

The literature is consistent in identifying the main factors that result in positive cooperative learning experiences for both lecturers and students: appropriate task design, adequate preparation of students, establishment of effective group processes, and development of students' small group skills. The model piloted in this project addresses these four factors.

Task design

De Vita (2001) states that "what often lies at the heart of 'bad group work experiences' is that the task itself is poorly conceived." (p.39) He suggests that the task should be one perceived as relevant by students: it should be integral to the course objectives, it should be complementary to the rest of the syllabus and it should fit the students' abilities. It should be effective in promoting both the development of cohesive groups (interdependence) and the use of higher order cognitive skills. Rachel Lotan (2003) adds that "group worthy" tasks are open-ended, uncertain, and require complex problem solving. They provide students with multiple opportunities to access the task and show intellectual competence, and they include clear criteria for the evaluation of the group's product. Clear evaluation criteria are particularly important for international students who are struggling with an unfamiliar

educational system and a language that is not their own. Baker and Clark (2006) found that while 90% of lecturers surveyed believed that they designed clear and logical group assignments only 48% of the students surveyed agreed.

The model proposed by Clark and Baker requires lecturers to be trained in appropriate task design; the design of tasks in this pilot study fulfils the requirements identified by the literature. The projects approved for the course are substantial industry-based projects that are complex, open-ended, require high level cognitive skills and insights, and involve the teams meeting over a sixteen week period. They require students to take responsibility for managing resources and to solve any problems that occur. Students must identify and obtain the necessary resources, prepare a schematic proposal for the project, maintain appropriate and professional communication with stakeholders, reflect on and document all aspects of the process of the project, and produce appropriate written and oral reports for their business and academic audiences. This process demands a wide range of abilities and skills and is therefore more easily completed by a group than by an individual. It also provides the students with multiple opportunities to show intellectual competence.

It is the students' responsibility to manage their own projects. The lecturer acts as a project coordinator to supervise each project and provide technical advice and general guidance to the students but does not undertake responsibility for managing the project. Regular monitoring and support processes are an integral part of the project management. In addition to routine project team meetings, each team must meet with the project coordinator either weekly or fortnightly to discuss progress, assess group processes, and maintain momentum during the duration of the project. Regular meetings are also scheduled with the client throughout the project. Students therefore assume ownership of the problem and the development of a solution, an important aspect of task design (Barab and Duffy, 2000).

Cohen, Lotan et al (2002) suggest that if students are provided with specific criteria as to what makes an exemplary group product the quality of the interaction among the members will improve and consequently the quality of the group product. Clear criteria for the evaluation of the product, without removing the open-endedness of the task, were made available to the groups in the pilot project. The research on whether there should be an individual component to evaluation of a group assessment is mixed (Webb, 1995; Johnson & Johnson, 1998). In this particular course the majority of assessment marks are for the group as a whole but there are two elements of individual assessment (contributing 30% of the overall mark). Ten percent of this relates to the final oral presentation and defence of the project findings to the client and this was considered an appropriate method of assessing individual knowledge and understanding of the overall outcomes of the project. The remaining 20% relates to a reflective account of the individual student's group experience. A peer evaluation is also incorporated into the assessment schedule to address the issues of individual participation and accountability in the group. Both product (written and oral reports) and process (meeting documentation, research evidence and reflective accounts) are assessed. This mix of group and individual evaluation was intended to ensure that students in this pilot programme perceived that the process was a fair one.

The design of the task therefore met the requirements of the model and the literature for structuring cooperative assessments appropriately. The task brief was clear but the projects were managed by the students, which necessitated extensive interaction, time and task management, and complex problem

solving. Both product and process were assessed, as both made an important contribution to the learning outcomes, with individual accountability and rewards for group and individual achievement factored in to the assessment schedule. Criteria for evaluation were explained clearly orally and also in written form and international students gave no indication that they were uncertain about what was expected from them.

Preparation for cooperative work

Effective intra-group communication is essential for a successful outcome in cooperative learning but students must be helped to develop these skills. Johnson and Johnson (1998) state that “placing socially unskilled students in a learning group and telling them to cooperate will obviously not be successful” (p19). In New Zealand, Campbell and Li (2007) claimed that Asian students in their survey had not been taught the skills that were necessary for group assignments: “stages in group work, team building, conflict resolution, the decision making process, time management, coping with diversity in cultures, ethnicities, language skills, religions, ages and interests” (p85). The first two weeks of project work in the pilot study, therefore, were dedicated to ensuring that students understood the basics of cooperative work. Students in the study were actively involved in discussions on group dynamics, group processes, intercultural issues, prior group experiences and individual strengths and weaknesses in cooperative work. Student comments at the end of the project process emphasised the usefulness of this initial preparation:

“The goals and expectations of our team, structure, and processes were discussed prior to the team’s formation. It was agreed there would be regular meetings, communication, and assigned individual tasks were to be completed on time; if individuals were unable to meet their obligations..... for legitimate reasons, they would advise the other team members, if not, the matter would be escalated to the project co-coordinator.”

“At the beginning of the project each team member was required to identify his or her strengths or weaknesses they were bringing to the team. This enabled the team to identify areas that may be a problem and areas where we could help each other if required.....There were very few cases of poor work....I think this was because every team member was aware of the others’ weaknesses and we were able to pick up the slack in other areas.....In addition to this the knowledge of others’ weaknesses reduced the potential for conflict over these types of issues.”

Establishment of group processes

Oakley et al (2004) state that two important first steps in turning groups into effective teams are to set out a clear set of guidelines for team functioning and to have members formulate a common set of expectations of one another. They suggest constructing a “quasi legal” document that would prevent students from making invalid claims about agreed group processes. These suggestions are incorporated into the model piloted in this project.

The processes established by the design of the assessment provided a useful framework for developing group documents for each group. The formal processes required, which included a detailed project plan

with a clearly defined scope, a Gantt chart and regular milestones, assisted the process of task management. Within this framework teams developed their own specific processes. One very successful approach to this involved allocating the coordinating role to one team member:

“I did appreciate the effort of having someone within the team coordinating the activities and communication, which was a significant reason why this project proceeded relatively smoothly.”

Most teams recognised the need to establish methods for dealing with potential conflict in the group; as a result all conflicts that arose were resolved within the group with minimal involvement from the project coordinator.

“I learnt that in future work where I would be involved as part of a team there would always be disagreement of some degree and level and therefore processes should be put in place to deal with these types of issues so that the project runs as smoothly as possible.”

Successful teams in this study had effectively assessed risks and had developed management strategies for both risks and unplanned occurrences. All teams in the pilot study experienced such occurrences where team members were temporarily absent or unavailable. Where teams had developed effective processes, strong relationships and flexible time and task management techniques, this allowed them to continue to work effectively and meet their deadlines. The development and maintenance of strong communication strategies was also a key factor in ensuring that absent team members continued to be included in group discussions and decision making and, where possible, were supported to complete tasks.

The final few weeks of a project are particularly demanding in terms of time, task and relationship management. Success or failure of the project and survival of the group depends on the effectiveness of all the processes and relationships developed through the life of the project. This is a time when conflict is most likely to arise. Where the processes were functioning well the teams were able to adapt them to meet the increased demands of the end of a project.

“The effort of the team in the last two weeks of the project has to be commended, with meetings occurring daily, sometimes twice a day, once in the morning to determine the activities for the day and then one later in the day. The morning meeting would set the priority of the day’s tasks; the later meetings were to assess progress, and reprioritize outstanding tasks, and if required reallocate resources i.e. which activities required other team members to assist.”

“...team members who had completed their tasks offered to do extra tasks or assisted other team members. This was most evident within the last month of the project. Team meetings became more frequent and longer in duration, email correspondence increased. Team members made extra effort to support each other to complete the project.”

Teams that established, documented and maintained effective group processes and relationships within the framework offered by the course were able to achieve successful outcomes. Where the processes developed by the team were inadequate to meet their needs or were not utilised effectively, the team struggled to complete the project successfully. There was no indication in the groups that cultural makeup affected the success or failure of the group processes.

External monitoring and feedback for the teams was provided by the project coordinator and the client. Meetings with the client provided valuable information for the team and guidance on the scope,

direction and expected outcomes for the project. Successful teams took full advantage of client feedback to ensure their project remained focused.

Regular meetings with the project coordinator were held weekly or fortnightly at the discretion of the project team. These meetings provided an opportunity for the teams to receive objective feedback on their progress, their processes and any other issues they wished to discuss. Successful teams came prepared with specific questions and issues to discuss, having self evaluated their task, time and relationship management prior to the meeting. They discussed issues openly and followed up on advice or suggestions made by the project coordinator and on decisions made at the meetings. Less successful teams came to the meetings with few questions or issues to raise, displaying little awareness of task, time and relationship issues within the group. They were less willing to take advantage of advice offered by the coordinator, for example continuing to work on areas outside the scope of their project or failing to address gaps in knowledge or interpersonal issues within the group.

The frequency of meetings did not appear to affect team outcomes. The most successful team in the pilot study held the least number of meetings with the project coordinator and the least successful team held the most meetings. The factors that determined the effectiveness of external monitoring were the team's ability to self-evaluate their progress and their internal processes, their willingness to openly discuss their issues, and their motivation to accept and follow up on external feedback.

Development of small group skills

Johnson and Johnson (1998) suggest that the key variable mediating the effectiveness of cooperation is positive interdependence. They define this as the perception that one is linked to others in a way that one cannot succeed unless they do and that one must coordinate one's efforts with the efforts of others to complete the task. This implies some skill on the part of the group. Positive interdependence was clearly evident in the teams that were most successful in this pilot study. These teams established norms that encouraged inclusiveness and participation. Tasks were allocated and support provided to make use of, or develop, the skills and strengths of individual team members. That group success was perceived to be more important than individual achievement is supported by student reflections:

"I have learnt for future projects, to ensure good participation, everyone should feel valued and the environment should be one of being inclusive."

"The success of this project ...was that everyone felt that their contribution was valued. I accept the quality of the contribution varied between each team member but not the effort."

Positive interdependence is reliant on good communication in the team. Teams were required to outline a proposed communication strategy at the start of the project in their project proposal. The teams which were most successful proposed, and subsequently used, a variety of oral and written communication techniques, including face-to-face meetings with documentation, email, texting, and groupware on the Blackboard site.

A student described the use of email and texting:

"Their use had two effects, the sender could review the message before it was sent and the receiver could seek clarification. This removed the difficulties associated with other communication mediums"

(phone calls and face-to-face meetings) as it allows a measured response and reduces misunderstandings (noise)."

Some groups also came to appreciate the value of effective documentation.

"The quick turnaround of the minutes also contributed to us meeting our deadlines....I have not always viewed the recording and release of team minutes favourably, but they were useful in clarifying issues, and encouraged communication by both text and email."

Face-to-face meetings were still the basic communication medium for all groups. The quality of the discussion and the variety of techniques used to promote effective discussion, however, varied from group to group. This had an effect on the quality of decision making, leadership, the level of motivation, and the eventual outcome for the group and confirmed the findings of Battistich et al (1993) and Cohen et al (2002) that the quality of group discussion has an effect on the quality of the final product.

Again student comments reflect this:

"This shared desire for decisions to be made by consensus, with individuals providing leadership based on their strengths resulted in the team developing synergy as we had been committed to achieving a shared goal."

"Decisions were made by consensus, with each member contributing. A lot of time was spent explaining the need to develop a uniform structure...and why we used certain tools and processes. This allowed team members to challenge the reasoning, ensuring the right decisions made for the right reasons."

Throughout the life of the project, students were also involved in ongoing reflection on the success of the group's inter personal communication strategies. Johnson and Johnson (1998) claim that "effective group work is influenced by whether or not groups periodically reflect on how well they are functioning and plan how to improve their work processes" (p20). They quote several studies that indicate that "engaging in group processing clarifies and improves the effectiveness of the members in contributing to the joint efforts to achieve group goals, especially when specific social skills are targeted and students receive individual feedback as to how frequently and how well they engaged in the skills" (p22). The successful groups in this study consciously reflected on and improved their small group skills.

Conclusions

This pilot study confirms the usefulness of the Clark and Baker model in promoting effective group work with a diverse student body. It addresses the issues identified by the literature and demonstrates that cultural diversity need not be a problem if lecturers are trained to design tasks appropriately, if students are trained in small group social skills, if students set up practical and inclusive group processes, and if the students are willing to benefit from internal and external feedback. It was interesting to note that language levels and different attitudes to participation, identified as particular problems by previous New Zealand researchers, were not significant factors in this study. The mixture of high context and low context cultures did not appear to present any problems and students did not claim that cultural diversity led to unfair workload distribution or assessment. This suggests that

training staff and students is an essential factor in achieving positive outcomes in diverse cooperative learning groups.

Although the teams involved in the pilot study were all multicultural, from a variety of different cultural, social and educational backgrounds, cultural issues did not appear to be a major factor in the success or failure of the groups. There was little comment from students about cultural or linguistic difficulties resulting from cultural differences and the few difficulties that did arise were minor and were handled effectively within the groups. The development of clear expectations and inclusive practices, and the valuing of individual skills and strengths within the groups appear to have been the most important factors in promoting successful group work. Students were aware of this:

“To function as a team we needed to recognize that each team member had different skills, knowledge and abilities, and that all team members add value to the project.”

There was no evidence that homogeneous groups would have been more successful than the heterogeneous mix in this pilot study.

One of the most crucial elements in group success or failure to arise from this pilot study was the level of student motivation. Although all teams were motivated to achieve there was considerable variation in their levels of participation, their ability to establish and maintain effective task and relationship processes, their ability to manage time and their willingness to accept and act on feedback. At times this was exacerbated by a gap in the basic skills and knowledge necessary to complete the project. Successful teams developed processes and relationships that supported intrinsic and extrinsic motivation.

“I believe Adam’s equity theory explains why this team was motivated to achieve. The more individual team members contributed the greater the expectation the reward would be. As they observed other team members’ contributions they were able to determine the expected level required of them. I expect the group work assessment form and the related marking structure also contributed to motivating the rest of the team. I know it had some influence on my behaviour.”

The study does imply, therefore, that not all groups benefit equally from use of model; students as well as lecturers must be motivated and willing to learn and adapt.

Lecturers need to be aware that implementation of the model must take context into account: the level, abilities and prior training and experience of the students in the groups. The students in the pilot study had prior experience with group work which may have had some influence on their success. Another limiting factor in this research project was the size of the sample; further testing of the model with a larger sample is recommended.

Recommendation

It is recommended that the Clark and Baker model is used and modified to meet the needs of lecturers and students who are involved in cooperative learning in a diverse educational environment. It is essential that both lecturers and students are trained to meet the challenges positively and constructively.

The following comment from one student indicates the power that a successful cooperative learning group has to inspire its members:

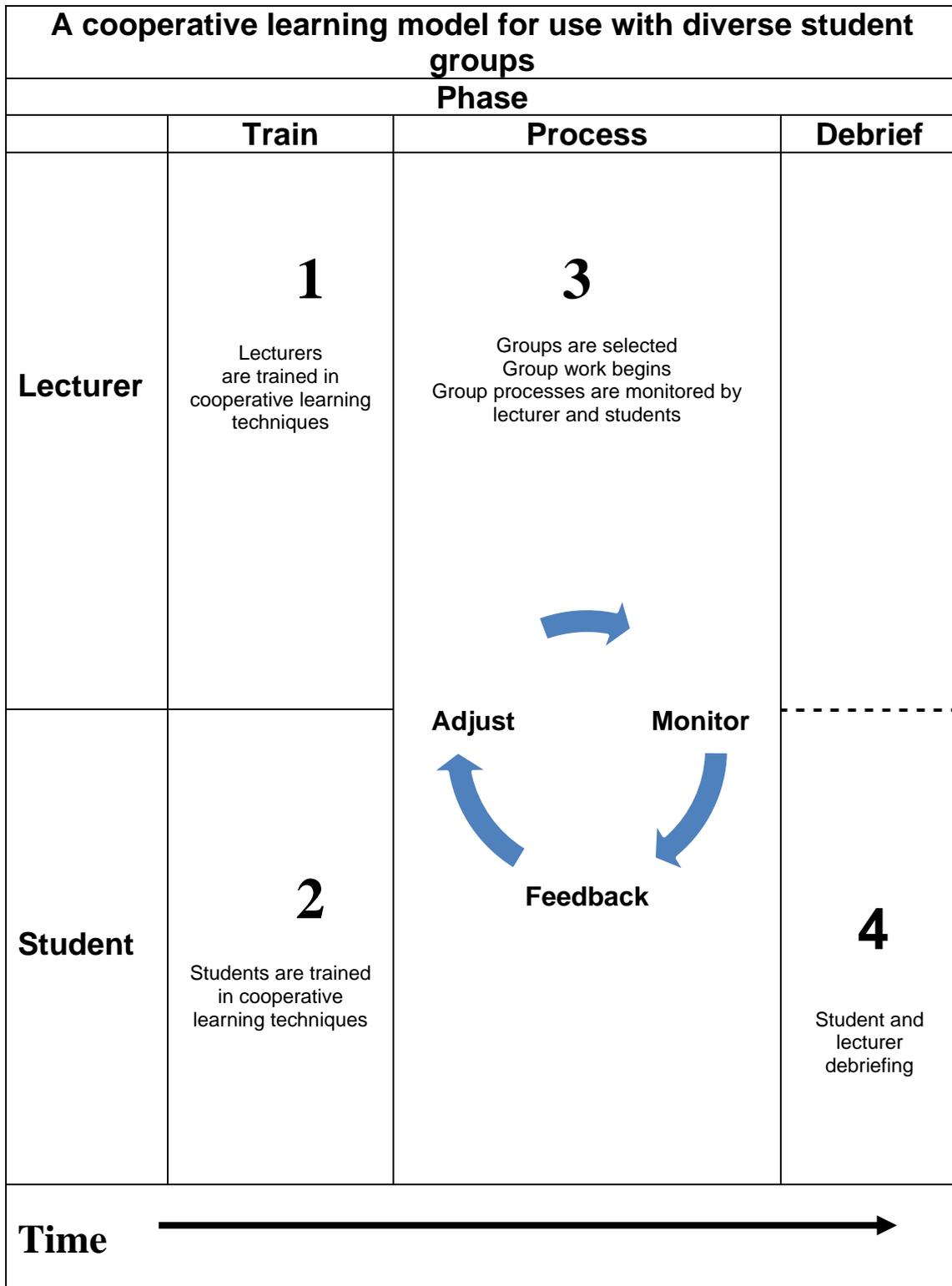
“Communication was the key to the success of the project. We were from such diverse backgrounds and yet we got along really well.....we were like the United Nations, however if the United Nations had our team work the world would be a better place”

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Appendix A:



Stage one: Lecturers are trained in:

A Understanding the pedagogical reasons for using cooperative learning and judging when it is appropriate and when it is inappropriate to assess student work done in groups.

B Understanding group dynamics

- The stages of group development.
- Group roles including leadership.
- Group decision-making techniques.
- Conflict management techniques.
- Group norms and group management issues.
- Lecturer responsibilities in student group development and issues.

C Understanding and managing cross-cultural differences and assumptions in student groups including:

- Participation/ silence.
- Conflict solving/ the importance of harmony.
- Cultural differences in decision-making techniques.
- Locus of control.
- Collectivism/ individualism.
- Response to authority/ 'power distance' orientation.
- Concept of "face".
- Concept of "guanxi" (networks, relationships)
- High context/ low context cultures.

The emphasis should be on sending "an unambiguous message of equality to students." (de Vita, 2000). One culture is not perceived as better than another; important values in all cultures are endorsed.

D Structuring cooperative assessments appropriately

- A task is designed that is complex and requires a range of higher cognitive skills and insights and is therefore easier for a group to complete than an individual. The task should involve more than writing (which is an individual activity). It should involve applying a rule or using course concepts to solve a problem so that group members are forced to interact, and should involve the team members in meeting over a reasonable length of time. Presentations, business simulations, video productions are appropriate; "product" assignments such as group papers are not appropriate. Tasks should be "fuzzy" to encourage extensive discussion on how to proceed (although the task brief must be clear).

- Marks are allocated for what you want the group to achieve e.g. interaction.
- Cooperative verbs are used when defining a task e.g. compile, collect and compare.
- Requirements do not favour the cultural and life experiences of any one particular group. Ensure that international students have any additional background knowledge that might be necessary.
- The context of the group task is adapted where possible to recognise the diverse cultural backgrounds of group members.
- High individual accountability **and** rewards for group achievement are built in.
- Regular external feedback is built in.
- Comparisons with other groups can be introduced as a motivating factor.

E Assessing appropriately

- The aims of the assessment are made explicit and prioritised before the assessment method is designed.
- The criteria for assessment are decided.
- A decision is made on the use of peer and self-assessment.
- Marks are allocated fairly according to individual contribution.
- If product and process are both important, then both are assessed.
- The process is assessed fairly e.g. minutes, student or group logs, reflective accounts.
- A decision is made on whether the lecturer will incorporate testing for evidence of individual learning outcomes.

Stage 2: Students are prepared for cooperative work

- Appropriate size and membership for groups is chosen: lecturer selected or self-selected.
- Clear written instructions are given. The group process and expected outcomes are made explicit. Allocation of marks is clarified; fairness is emphasised.
- Reasons for group work are discussed with the class: how it fits in with course objectives/ importance in the workplace/ pedagogical rationale/ how it fits in with other teaching methods/ skills students will learn from working in groups. A positive attitude to teamwork as a learning tool is promoted.
- Cultural differences and stereotypes are discussed. The emphasis is placed on integration (not an assumption that International students must do all the changing). A culture of valuing diversity is encouraged.
- Cultural attitudes are discussed with the class (e.g. participation, silences, stating opinions, respect for authority and received knowledge, critical thinking)
- A shared understanding of effective team -work is developed with the class.

- A foundational assignment is given to students to ensure that they all have a common body of knowledge and an appropriate level of skill. If specific background cultural knowledge is an inherent part of the group task, international students are provided with the information.
- Preparatory group (“pre-teamwork”) exercises are carried out in diverse groups e.g. pair work, jigsaw exercises.
- Interpersonal skills (e.g. conflict solving, giving feedback) are practised.
- Intrapersonal skills (e.g. reflection) are practised.
- Previous group experiences are discussed with the class. Potential problems at both individual level and team level are discussed.
- Group dynamics and group processes are explained
- Agenda and action minutes are explained and templates issued to the class. Guidance on running effective meetings is given.
- “Coping with hitchhikers and couch potatoes on teams” (Oakley et al, 2003) is discussed with the class.

Stage 3 Classes are given the group assignment

- Groups of a maximum of seven members are organised.
- International students are not placed singly in groups of domestic students.
- Lecturers are sensitive to global cultural conflicts.
- Groups participate in team building and “getting to know you” activities within their groups. Commitment to the team is encouraged. Competition with other groups is encouraged. Students are helped to become familiar with each other’s skills, learning styles, knowledge and capabilities.
- A “shared vision” is created in each group. This is restated at the beginning of every meeting.
- Groups are encouraged to develop written group objectives and ground rules.
- Groups decide on a regular written schedule for meetings and group tasks. The importance of effective time management is emphasised. An appropriate meeting place is decided.
- Groups determine group processes (e.g. the leadership system they want, expectations for participation, procedures for dealing with “free riders”, specific conflict solving procedures, formal mechanisms for critique and evaluation such as devil’s advocate). This is done before the project begins.
- A group contract is created and signed, and a coordinator is appointed to act as guardian of these processes.
- Regular group processing sessions (with specific tasks) are timetabled.
- Regular tutorial time is provided to discuss problems and to give students time to work on their team projects. This signals the lecturer’s interest in the process and reduces the likelihood of students meeting just long enough to divide up the work.
- Practice in peer and self- assessment is given.

Stage 4 Groups are debriefed

- Students are given an opportunity to reflect on and/or discuss their group experience (e.g. reflective account, class discussion).
- Students are asked to give feedback on lecturer management of the group project.
- Lecturers reflect on the effectiveness of the group process.

Appendix B: Flow Chart of Project Process

