Understanding Group Learning Processes in University Business Classes

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Abstract

Learning by working in groups can be an educationally productive technique that enhances students' learning in tertiary business classes. This study gives an insight into how the benefits of peer group learning as posited by Biggs (1999) applied to the group learning experience in an Australian University. To do this, exploratory research using depth interviews was conducted with students who worked on an assessment task in small groups of three to four students, in two different business subjects. This research investigated whether the learning outcomes matched those of effective peer learning, as specified by Biggs (1999). The findings indicated that positive outcomes applied to both groups' description of their learning experience, and that this outcome was not based on ethnicity or culture, but on a degree of shared values in regards to a work ethic and expected outcomes. The research suggested that for a productive outcome from a group's assessment task, students need to have an input into choosing their group members; share a common work ethic; and that they should be required to connect the different parts of a project by demonstrating to the lecturers an understanding of the task as a whole. In response to these findings, the paper suggests ways to assist achieving deep learning outcomes through group assessment tasks.

Introduction

In the classrooms of most Australian universities there is a large diversity of students in terms of cultural background and learning abilities. This presents a challenge for classroom learning as in one class lecturers and tutors might need to teach students of differing age, culture and socio-economic backgrounds who have different approaches and expectations about teaching and learning. In response to this challenge, traditional teaching techniques for lectures and teacher-centred tutorials have been supplemented and in some cases replaced by diverse, interactive methods of teaching and learning, including peer learning. This study aims to provide an insight into a group assessment task in two Business subjects in an Australian University, and to investigate if the benefits of peer group learning posited by Biggs (1999) applied to the recalled experiences of the members of the two groups.

A useful way to understand students' learning is to differentiate between a deep and a surface learning approach. Marton and Saljo (1976: 39) first used the terminology when they identified two quite distinct approaches to the learning
outcomes adopted by students who were asked to provide responses to the content of a text. One group of students tried to reproduce parts of the text while others explained the meaning and connections between parts of the reading content. The former group was said to have adopted a surface learning approach. Surface learning (lower cognitive learning) is extrinsically motivated and often relies on memorising the main points by reproducing the bare essentials and shows a reliance on rote learning. The latter group engaged in deep learning which Laurillard (1993) called ‘apprehending structure,’ which is an essential feature of deep learning. Surface learning is thought to be less likely to be retained or transferred to new learning contexts than deep learning, which is characterised by understanding the structure of a topic and being able to link its parts and apply them to new learning situations. Biggs (1999) developed a framework showing how a passive student with a low level of engagement and using memorising as a learning technique, could move towards deep learning by progressively using more active and independent forms of learning such as note-taking, recognising, relating, applying, generating, reflecting and by finally understanding the material sufficiently, to contribute to existing theory (Biggs, 1999: 4).

There is much evidence that student interaction by working in both formally structured and spontaneous groups can enrich learning outcomes (Collier, 1983; Johnson and Johnson, 1990) which then promotes deep learning. Biggs (1999: 87) identified three likely deep learning outcomes resulting from effective peer group learning. These are:

1. *Elaboration, of known content,* which occurs when students hear different interpretations and ways of explaining concepts than they have previously heard. Group assignments encourage students to expand and test their understanding of subject content by discussion and explanations between group members. This refers to the benefits of students actively participating in their learning and cooperating through interaction rather than individualism and competition, which often dominates individual learning assessments (Tate, 1993: 293).

2. *Deriving standards to grade performance,* standards for judging better and worse interpretations, by being exposed to a range of views and interpretations. Small groups recognise and resolve contradictions between their own and other students’ views, and by observing and practising problem solving in groups (Brown and Palincsar, 1989; Webb and Palincsar, 1996). This induces individuals within a group to realign their views in light of those expressed by the other group members.

3. *Metacognitive awareness of how one arrives at a given position.* How did he/she arrive at that conclusion, and how did I get to mine? Which is better? (Biggs, 1999: 87). Metacognition is ‘one’s knowledge concerning one’s own cognitive processes and products,’ according to the originator of the concept (Flavell, 1976: 232). Metacognitive awareness refers to improving one’s knowledge and control of how one learns (Case and Gunstone, 2002: 461).

As there have been a limited number of studies on group learning from the students’ perspective, this paper was designed to investigate if the three outcomes of group learning (Biggs, 1999: 87) were evident from the students’ perceptions of the group learning process. In doing so, this research sought to establish if being exposed to a range of views and interpretations assisted the individual group
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members to learn; aided group members to establish individual and group standards; as well as to gain individual insights into how they learn (metacognition).

Methodology
To examine these issues, depth interviews were conducted to understand the perceptions of the group members about their experiences of working on a group assignment. Qualitative research was selected as the research needed to give an insight into a 'field or life situation', which is 'reflective of the everyday life of individuals, groups, societies, and organisations' (Miles and Huberman, 1984: 6). Further, this research methodology allowed the researcher to experience, enquire and examine everyday life (Miles and Huberman, 1984: 6). Group depth interviews with a total of seven students (three students from subject 1 and four students from subject 2) were used to gain an insight into how students learned in a group that was undertaking an assessment task in two tertiary subjects. This study investigated the unique activities of particular students and to this end, depth interviews were selected as an appropriate methodology for this study. The total student numbers in these subjects were about 60 and 90 students respectively.

Students volunteered to be interviewed in response to an invitation offered in lectures and tutorials. The interviews lasted about one hour each, and were tape recorded with the consent of the participants. To build trust and the ensuing authenticity of the interviews, it was considered important to explain the aims of the research and assure students of the confidential nature of the group discussions, which would only be used for this research. This information and the students' agreement to participate or withdraw from the study were signed as part of a confidentiality agreement.

The interview sequence was semi-structured in an effort to allow interaction between the moderator and the students (Malhotra, et. al., 2002), and it employed strategies known to encourage both positive and negative comments (Crabtree and Miller, 1992), while enabling discussion on the issues raised. By posing a series of general questions, students' perceptions were recorded and their answers were used to provide insights into the group learning process experienced. The moderator of the group depth interviews was one of the researchers who was not a teacher in the subject being investigated.

The first level of data processing by the researchers involved clustering the students' comments into broad themes (Miles and Huberman, 1984). These themes broadly followed the framework of the interview schedule, although comments that did not respond to an interview issue were recorded against the question to which they contributed meaning. Following the identification of major themes within the interview, the examples of comments relevant to each major theme were collated to enable comments to be linked appropriately (Miles and Huberman, 1984; Yin, 1994). There is a wide recognition of the complexity of qualitative data analysis (Patton 1990; Stake 2000; Yin 1994) and its benefits in providing insights into the questions at hand. A limitation of the method is that the observed characteristics of groups are often very specific to the sample researched limiting the validity of transferring findings to other studies.
Context of the group assessment tasks

The following discussion provides an overview of the assessment tasks that the students were required to complete in each subject. In subject 1, the students were required to complete 30% of the subject's assessment in groups. The group experience required students to analyse and assess the performance of a selected company in the top 100 Companies listed on the Australian Stock Exchange. Each group comprised three students. The group that was interviewed was made up of two local students and one international student, who were interviewed together. All interviews took place after the assessment item reflected upon in the interview had been completed. In subject 2, the students were required to complete 55% of the subject's assessment in groups. There were two assessment tasks, the first task required the students to analyse a database using SPSS and to make conclusions and recommendations based on the findings of the analysis. This task comprised 30% of their total assessment and the task had been completed just prior to the interviews being conducted. The four international students in this group were interviewed together.

Summary and discussion of the main findings

The findings are discussed in accordance with the three anticipated outcomes of effective group learning (Biggs, 1999) – namely, elaboration of known content, deriving standards for judging performance, and comments that reflected metacognitive awareness.

The following discussion highlights the main findings based on the depth interviews with the seven students in the two business subjects.

Elaboration of known content

It became clear that the students believed that the ability for a group to elaborate beyond the scope of the individuals' ability was not automatic, but depended on its members' skill base and how receptive and flexible the members of the group were towards each other. The attitudes and skills of the group were important but the way the group approached the task was also regarded as crucial. Previous experience of working in groups had helped these students understand the potential benefits from group work and how to make the best of learning situations.

Differences are inevitable and if you can work it out then it is kind of groovy and satisfying. This was one of the best groups because our differences were complementary and we learnt a lot from working together on this assignment...

The experience of working in groups in high school helps a lot, you need to learn how to do this, to divide up the tasks, according to their strengths, you ask them what they are majoring in and what they want to do.

The students in subject 1 recognised that it was a challenge to work together with students from different backgrounds. The positive way of responding to the diversity in each of the groups was to utilise the complementarity of the group by tapping the different experience and skills within the group.

The group members commented that from their experience, not all group work tasks enhanced the process of learning for all members and that sometimes a group
will work well, and other times it will not work at all well. When questioned on what makes a positive group experience, the students believed a starting point was an awareness of the group task requirements and matching them with group members’ interests and skills. The groups said that a discussion about the requirements of each part of the assignment and the most appropriate group member to undertake the task helped build trust and confidence between group members. For example, the group mentioned that one group member’s lower English skills were compensated by their strong IT skills. This group accepted that there were likely to be differences between the group members, but recognised that to gain the most from a diverse group it was necessary to sort out these differences. According to the group, this meant that sensitive issues needed to be discussed - such as the expected workload of each of the tasks and the grades that group members were aspiring to. Reconciling differences between group members was seen as a prerequisite to effective group learning and utilising the complementarity of group members.

In subject 2 the students discussed how they had benefited from the skills of each member contributing their expertise to the task. The students discussed how they completed the assignment at a higher standard than they would have been able to do individually.

We couldn’t have done it on our own - we gained the expertise of each of the members so we were able to do better than we were able to do on our own.

The group expressed that its compatibility underpinned the positive group process and was based on common aims and different skills. The common aims were that they all would contribute to the task equally and try their best to complete the assignment well. The group described themselves as more confident academically than they were when they first embarked on a university degree but found it very difficult to exceed beyond pass grades. They regarded themselves as academically equivalent. The range of skills in the groups allowed them to complete the broad assignment task at a higher standard than any of the individuals in the group thought they could have achieved individually. The division of tasks permitted specialisation according to prior experience and skill base, facilitated by a regular schedule of meetings that allowed one group member to contribute to all parts of the assignment and provide feedback to the other group members. Meeting regularly motivated them to make progress before the next meeting.

I think it’s the group that’s important. We divided the tasks fairly and chose to do what we thought we were best at. We met every day initially

They expressed that regular meetings had strengthened the camaraderie within the group by promoting regular dialogue, and made sure that all group members stayed within the parameters of the task.

**Deriving standards for judging performance**

In subject 1, standards relating to organising and pacing the completion of stages of the assignment required negotiation between group members. In this process, group members’ standards were contested and subsequently adjusted or confirmed. For example, the students interviewed recognised that some group members leave things to the last minute. This comment inferred that other group members saw this as a potential problem if insufficient time was available before submission to
consider the issues in detail and link the parts of the assessment or gain a cohesive structure to the assignment in order to achieve the best possible results. One group member said that there is always a trade-off between accepting diversity within a group and the frustrations associated with working with people whose standards are different from your own.

There is the 11th hour rush, the night before it is due, it is a personality issue. The stress factors can be a problem, but if there is one strong member, you don’t have much choice (than to comply with their schedule).

This indicated both an acceptance and frustration with different standards and priorities between group members. The comments above also acknowledged that a group leader might help allocate the tasks, and set benchmarks for tasks to be completed and a schedule to be adhered to. The group believed that it was the standards of the group ‘leader’ that prevailed in a productive group learning experience. In this case there was a leader who framed a schedule that the group agreed to, but it was not adhered to in the latter stages of the assignment preparation.

The students in subject 2 took another approach, and the first task that these students undertook was to look at an assignment completed in a previous semester. This assisted the group to clearly understand the requirements of the task, as well as the structure and meaning of the assignment questions. They realised that the assignment had been changed in such a way as to make plagiarism difficult, and as such the group was deriving their standards from the work of students in a previous semester.

The methodology was different enough from previous assignments to make it impossible to copy bits. We used last semester’s assignment to follow the format so we don’t do it wrong – local students do the same. We couldn’t copy any part. When you did the assignment you have to put it in your own words...we needed to explain what we did so we had to explain it in our own words

Students discussed the final mark and the comments on the assignment. They still regarded the group learning process as very successful and were able to view it quite independently from the mark scored. Subject 2 students said that on reflection they were disappointed with the mark (a bare pass), but still thought they learnt more than they would have individually.

**We all expected better, but we enjoyed working together**

When asked if the comments by the marker explained the reasons for the mark loss, the group responded positively. Feedback to the group explained that they had not considered in enough detail the aspects of the data analysis and explanation, or integrated the parts sufficiently, inferring that the group had underestimated the depth of answers required in the assessment.

In summary, there were three different ways that standards were tested in this group’s experience. The first was the group establishing its standard based on the work of a group in a previous semester. The second was students comparing the standard of their individual work with the work of their group colleagues’ standards. The third was absorbing the assignment feedback from the teacher who marked the assignment.
Metacognitive awareness

Metacognition or understanding one’s own thinking is aided by exchanging ideas and being exposed to others’ perspective in collaborative learning (Tang, 1998: 116). Metacognition is sharpened in student-student interactions as students readily identify with each other’s learning (Abercrombie, 1969). Metacognition is rarely learnt directly and is strongly associated with activities conducive to deep learning. These include discussions that usually allow participants to clarify their own perspective. For example, the subject 1 group met to link the whole assignment together to make sure it was logical and consistent and to enhance understanding of the topic structure, which require a high level of metacognition. The following indicates that the subject 1 students acknowledged that the group learning experience aided metacognition by discussing, and linking of the assignment parts.

If you are struggling with a tricky concept and one person has part of it and another person has another part of it then you can better understand your own thinking... you can learn a better way of explaining it from students who are really smart..... we spent much more time explaining our answers to each other than I’ve ever done before.... but it did sort of click half way through that each group member was expected to understand the whole assignment thoroughly

In subject 2, one of the group members took on the role of correcting spelling and making grammatical changes and ensuring that the different sections of the assignment were consistent and coherent, but not rewriting or making substantive changes to the parts submitted by the other group members. The group made it very clear that they respected each individual’s contribution, and were not prepared to make substantial changes to the original.

(After group members had prepared their part).....

We would all get together in the lab and put our parts together and compile an answer.... I took it home and tried to make sure there were no inconsistencies, and came back to the group if I had questions, or thought something was wrong.

Group members in subject 2 tried to integrate the four parts, but were restricted in achieving this, as the ‘ overseer’ had not gained permission from the other group members to change anything substantial from the original submission. It was essential that they were all involved in this role if changes were to be made. Perhaps this was an example of what the subject 1 group identified as a ‘sensitive issue’ that needed to be discussed when the tasks were specified. One member of the group being assigned to ensuring there are no inconsistencies is a less integrating process than the group discussing the final contents and implications of the topic through exposure to each member’s approach, which is a key element of metacognition

Implications of the Findings

The following discussion relates the findings to the three outcomes of effective group learning as posited by Biggs (1999), i.e. Elaborating known content, deriving standards to grade performance, and metacognition.
Elaborating known content

Overall, the group experience in both subjects was very positive. They systematically worked through the process of elaborating the content, working out the best way to work together to produce results that positively enhanced the learning experience. There was strong evidence that group learning encouraged deep learning. Elaborating, testing standards, and metacognition are all well along the continuum towards deep learning. During group learning, students pooled their resources together, and found that participating and interacting within group activities enhanced the learning outcome (Webb, 1989). This utilizes the complementarity of group members’ skills. The research also indicated that the diversity of the backgrounds and skills of group members challenged the students to explain and justify their understanding of the topic area to the other group members from a different perspective. This indicated that the group process enabled students to elaborate the known content, and exceed the expected output that they would have achieved if it had been an individual piece of assessment. However, the improved outcome was conditional on students being offered choice in forming a group. This was a necessary precondition for students allocating tasks cooperatively and according to group members’ interests and skills. To exhaust the potential for deep learning, the assignment design must facilitate linking the parts so that all members comprehend the overall structure of the topic.

Deriving standards to grade performance, standards for judging better and worse interpretations

It was found that deriving standards was not only achieved between the students interviewed. Both the subject 1 and subject 2 group members identified different ways to derive standards. In subject 1, discussion and feedback from group members was the main way, whereas for subject 2 students it was from previous assignments and from the teacher’s feedback on the marked assignment that provided standards different from their own. The importance of feedback in the learning process (Laurillard, 1998: 62) concurred with the students in subject 2 who expressed how useful feedback had been in understanding of how they could improve their answers. The difference between the two groups was that the subject 1 group gained the benefit of deriving standards in the process of completing the assignment from each other, whereas the subject 2 group derived their standards at the very beginning of the group assessment and after it had been graded. This may help explain why they achieved a pass standard whereas the subject 1 group achieved a distinction. This infers that the standards derived from interaction of the group are more meaningful than the other two in achieving deep learning outcomes.

Metacognition

Similarly to ‘deriving standards’, metacognition was enhanced by multiple perspectives and linking the parts of a topic (Webb, 1989). The students in subject 1 integrated the parts of the assignment more substantively than the subject 2 students reported. The subject 1 students achieved one of the highest grades in the subject. Two of the group members said that it was higher than they normally
achieved individually. It appears that the stronger academic member in the subject 1 group was able to lift the quality of the other members' work by elaborating the content of their part to the other parts, and realigning the individual standards of the less academic group members, all of which enhanced the metacognition of the group as a whole. In subject 2, one person reflected that the group had been too focused on the individual parts of the assignment and had not understood the interconnections and hence made insufficient linkages to other parts of the assignment. They had nominated an 'overseer' of the assignment, but in hindsight this person thought the role had been too preoccupied with correcting grammatical and spelling mistakes and too concerned about not changing the submitted work, instead of trying to integrate and link the assignment parts. Thus, it was an important step for students in subject 2 to identify how they could improve the group process to ensure that the group's answer was comprehensively integrated. This indicated an awareness of how the group's metacognition could have utilised deep learning techniques more effectively.

The above discussion and examples of metacognition imply that it may be an elusive process that may overlap with elaborating known content and deriving standards and may not usually be observed independently of elaborating and deriving standards.

Conclusions and Recommendations

Therefore Biggs' (1999) three characteristics of positive group attributes were found to be outcomes of group learning for the students in this study. The findings need to be tested further, as it could be hypothesised that the two groups studied were not the norm for all groups in the two subjects, and a larger sample of students is needed.

The study provided an insight into the process of group learning in the assessment tasks in two business subjects - it was not supposed to provide generalisations. Both these groups were very successful from the group members' perspectives and although the grade was much higher for subject 1 than subject 2, there was no difference observed in the level of cohesiveness of working together between the two subjects. The exploratory research suggested that there could be three conditions that enable the Biggs (1999) potential outcomes of group work to be more readily achieved. These are that students exercise a choice in forming their group; thereby increasing the likelihood that the students share a common work ethic; and that students be required to inter-relate the parts of the assignment tasks. These are discussed briefly below and are summarised in Figure 1.

Students exercise a choice in forming groups for assessment tasks

The students interviewed expressed the view that a common approach to the quality and timeliness of a task was required for a successful group experience. They indicated that if students were able to exercise some degree of choice in who they worked with, they were much more likely to choose like-minded group members who they bonded with. They indicated that in this case the choice in selecting their groups had been a necessary prerequisite to the group working so well. The commonality was not based on ethnicity or culture, but on a degree of shared values in regards to a work ethic.
The two groups interviewed were cohesive and shared common ground. However, to ensure this happens as often as possible, students need to have choice in deciding on their group members. This may require a teacher's participation and possibly clear guidelines to ensure that the most disadvantaged within the class do not end up without a choice when groups are formed. Without compatible group members, groups may not deliver their potential learning outcomes to all participating students.

**Students share a common work ethic**

The research indicated that a key precondition to achieving effective outcomes from group assessment tasks, as identified by Biggs (1999) is a cohesive group. Other than having a stake in choosing the group, both groups explicitly referred to the cohesiveness of the group depending on common values and dialogue. After an involvement in choosing a group, the members had a stake in the group working well. It also improved the likelihood that group members felt comfortable working with each other.

**Students are required to inter-relate the parts of the assignment tasks**

Another finding was that the gains from deriving standards and aiding metacognitive awareness from group work required that students understand how the parts of the topic link together. This was the main difference between the groups in subject 1 and subject 2. In subject 1 the dialogue, discussion and feedback from group members was integrated into the answers given to the assignment questions. It appears that the strongest academic member of the group was able to set standards to ensure that the other group members were aware of the structure of the topic.

It is unlikely that all members of the subject 2 group were able to relate their part of the assignment to the rest of it, as was recognised by two group members when reflecting on this issue in the interview. To ensure all students are able to relate the parts of a topic, teachers need to construct assessment tasks that ensure that the assignment is not easily allocated as separate independent parts, but that it necessitates discussion and understanding of the relationships between each of the parts of the assessment task. In practice, this means applying one of the following methods:

- A requirement for all students to relate their allocated section of the task to the completed task, as part of the written assessment task;
- A requirement for all students to be prepared to answer questions relating to the whole assessment task by either answering a question on the exam or in another assessment task that requires students to demonstrate an understanding of the whole assessment task.
The research highlighted some key issues relating to the success of group work that were not considered by Biggs (1999) in the three proposed advantages of group work. These findings were that group learning could be more productive than working individually but that the benefits were conditional on the way the group was chosen and its cohesiveness. Group cohesiveness meant that a group shared a common work ethic, the benefits of which were supplemented by a group leader who initiated the group’s assignment structure and schedule.

Further Research

As this study suggests that effective group learning is not automatic even amongst motivated students, further research could investigate how teacher and student training could be structured to achieve deep learning outcomes in more group assessments tasks.

Further research is needed to understand how metacognition can be promoted and identified using observable indicators. This could include gaining some more measurable indicators of deep learning, particularly in a group context. This would also be useful when applied to measuring when and how linkages between the parts of the assignment are achieved.

The other finding that requires further investigation is the mix of student abilities in groups. The questions that need to be asked are: What is the role of high achieving students in group learning outcomes? Is the second subject group of four average students typical in that, without a high achieving student there was no group member who was able to lift the group performance above the average grade of the group? If these outcomes are typical, are they reasons for mixing students of different academic standards in each group?

Finally it is important to understand the factors that teachers need to plan for and consider in order to maximise the potential learning outcomes for students undertaking group assessment tasks. In particular, to investigate the ways teachers can ensure students understand and make linkages between the parts of each topic to gain the most out of a group learning task.

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Bionote

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