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Tribute to triplets: A model for successful group work

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Mention group work to a class of students and an audible groan ripples around the room. Nevertheless, according to Johnson and Johnson (1989) 'learning to work together in a group will influence one's employability, productivity and career success'; students learn the importance of communication, collaboration, cooperation, and compromise (Katzenbach, 1997); and we prefer to mark twelve assignments rather than seventy. However, what of the downsides; the groups that fall apart, the students that complain bitterly about their peers, those who don't participate? The list could go on and on, and I am sure the students could add far more to the negatives than to the positives.

Key factors influencing the failure or success of a group assignment are the group dynamics and the initial group allocation. As a student myself, I experienced various models but none of them appeared to work particularly well, at least not in terms of student satisfaction. Sometimes students are encouraged to choose their own groups but that may leave a significant few without a group – maybe those who have had personal problems and most need support, or those who might be perceived as hard to work with. The result is that these individuals find themselves in the same group and, without strong leadership, this group achieves little. An alternative is for the lecturer to assign groups randomly (Hernandez, 2002). This does not go down well with students, especially if they have a choice of topics to select from; 'I can't work with them. I want to do a statistics project but they want to do programming'. In all cases, students feel that group allocation advantages some and disadvantages others. What does the lecturer do in the face of this opposition, especially when research offers little by way of guidance as to a preferred method to adopt (Chapman *et al*., 2006)?

Having experienced these models as a student, and having complained bitterly about them at the time, I was keen to do better when my own chance came to design a new course with a substantial group project element. I wanted my students' experience to be positive and different and for them to work effectively as groups. Above all, I wanted the group work to be fair to the students regardless of background, whilst providing them with a valuable lesson about working with others. Employers want graduates that are good team players, have excellent communication skills and work well as a group (CBI, 2008). Apparently, this is particularly the case for maths graduates who have a reputation for lacking these skills – although I can't imagine why!

My course assignment required groups to choose a mathematical area such as history of mathematics, quantum mechanics or financial mathematics, to research and then produce a written report and give a group presentation. We had a class of 80 first-year maths students from

varied backgrounds. Once the students realised group work was on the agenda, they pestered me frequently, asking who would be in their groups and saying things like; 'I don't want anyone in my group who won't pull their weight'. The pressure was on.

After the statutory sleepless nights, I came up with what I thought, and still think, was an excellent solution. I asked the students to form groups of three. Each of these triplets was required to decide on an area of maths they wanted to study and send me an e-mail with their names and a choice of three topics. One problem was that, although I had explained this in some detail in class, on the university student intranet and by e-mail, some students did not seem to use any of these forms of communication. However, the majority of students successfully followed the instructions. To each threesome, I then added three more who were either themselves a threesome or who hadn't responded. This was done with respect to ability, friendship groups and preferred topics. This method is similar to one proposed by Mahenthiran and Rouse (2000), who found that student satisfaction and grades improved when students were paired before being allocated to groups.

I appointed one member of each group to act as the contact person with whom I communicated. I chose this person purely on the basis of whether they were reliable at answering e-mails and were generally good communicators, as I felt this was essential for group cohesion. I gave this person a list of their group with their university e-mail addresses. The idea was that now each group of six would come up with a working title for their group, assign the work to each group member and just get on with it. Perfect! There were enough committed people in each group to make it work and so the members would only need to chase a couple of students. In the case where groups were unable to resolve differences, these would then be referred to me.

So did it work? At the time of writing initial indications and feedback are very positive. Those group presentations I have seen have been excellent and these were not only from the groups that I expected to do well. A major benefit has been that students who were less engaged in their studies have been placed in groups with motivated peers, who encourage them to perform. Previously, these students might have ended up in a group on their own and achieved very little, but now they are being challenged and stretched. Another benefit is that some students, who might have been intolerant of other students' weaknesses, are now in a better position to understand that others have genuine difficulties and are legitimately not always able to attend class.

Did anything go wrong? I have to admit that one group came unstuck, but this was due to unforeseeable, personal problems affecting all but one of the core people in the group. However, on the positive side, several groups contained students who hadn't spoken to each other before, and this has been very beneficial in helping the group dynamics of the cohort as a whole, without them feeling that the process was unfair. The inevitable problems that arose were overcome largely without the need for my intervention and will provide valuable experience for students to talk about at job interviews. Students' feedback has suggested that, unusually for group work, the allocation of members to groups was seen as fair to all in the class. Most of these students will have to do a significant piece of group work in their final year. This, I hope, will have been a good preparation for them.

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Biography

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