An Examination of Random, Homogenous and Heterogeneous Grouping Methods

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The benefits of pair work and cooperative learning have been well documented in EFL and ESL research and as a result been adopted by an ever increasing number of teachers for use in their classes (Brown, 2001). I personally am a firm believer in the use of pair work and have seen my students benefit from the interaction that the style naturally facilitates. Despite the successes though there still seem to be a few problems with the effective implementation of the method. We often see students conversing and interacting with their peers but when it comes to pair work that is to take place in and outside the classroom, for example on projects, presentations and the like, they occasionally become strangely reluctant or extremely specific on whom they will and will not work with. Sometimes students are truly incompatible with the partners that they are to work with, leading to communication breakdown, if it begins at all, the inability to produce a product of proper quality (the project or task) and subsequent motivation loss. This brings about questions as to whether we should allow students to create their own groups, create groups randomly or construct them by assigning students based on specific social, academic or other reasons and which grouping method creates better academic results.

Purpose

The purpose of this paper is to examine the effects of random, student planned and teacher selected groups in addition to some of the individual differences that are used in determining such groups and their effects on pair and group work with the aim of obtaining data on what method is more effective. These discussions will possibly be used as a precursor to statistical gathering in the coming year with an eye towards future publication.

Background

The use of group and pair work for Cooperative Learning is often used in EFL classrooms to create an atmosphere where as Olsen and Kagan (in Kluge, 1999, pp.17) state, "⋯learning is dependent on the socially structured exchange of information between learners...and in which each learner is held accountable for his or her own learning and is motivated to increase the learning of others." Unfortunately the social skills required to effectively work in pairs or groups are not necessarily possessed by the students we are trying to teach. While it would be extremely beneficial to teach such skills, time and course constraints limit us as to what we can do (Dornyei, 1997; Huxham and Land 2000).

In order to help counteract such student deficiencies and preempt potential group problems, the idea of planning the composition of groups more carefully has arisen. By combining students with others whom they are compatible with, the chance for success will likely increase while simultaneously developing their social skills (Huxham & Land, 2000).

There are essentially three methods of assigning students to groups:

1. Random grouping (or arbitrary grouping e.g. alphabetically, numerically)
2. Allowing students to create groups on their own
3. Creating teacher "engineered" groups (according to different academic, personal or social factors such as: test scores, personality, learning styles)

Random grouping is used by teachers for a number of reasons. One reason is the belief that all students are equally valuable in each others learning experience (Mahenthiran & Rouse, 2000). Random grouping creates a situation closer to 'real life' where we cannot always choose who we must associate with and thus must learn to associate with everyone. Another reason and probably the main factor when choosing this method is ease and speed. A teacher who has a large number of students in many different classes does not have the time to determine the best pairings / groupings prior to or during class. As 'random' connotes though the results of such pairing can be either positive or negative with students with positive attitudes and higher abilities doing well and those with negative attitudes and low ability fairing poorly (Mahenthiran & Rouse, 2000).

Those who allow their students to form their own groups, which are usually based on friendship, assume that students who want to work together will work more effectively (Mahenthiran & Rouse, 2000). Giving this autonomy to the students also creates more motivation and unity within the group (Dornyei, 2001; Huxham & Land, 2000) while creating feelings of warmth and acceptance as well (Levine & Moreland, 1990). The groups created by students therefore become quite homogenous in many aspects, with friendship being only one of many possible determining factors. Others are academic performance, motivation and attitude to name a few. We have all noticed how the quiet students tend to group together, as do the talkative ones, the smart ones and the unmotivated (Ehrman & Dornyei, 1998).

A number of problems occur when employing this method of group formation. First of all not everyone has friends in the class and or the individual traits that allow them to form effective partnerships. A classic example of this is the childhood (or adulthood!) sports team, where one child is always chosen last. Another factor is peer pressure and individual status within the society or school.

Even if these students were equal in most aspects to begin with, the creation of pairs or groups of friends and those who are not necessarily friends may create a two level status system by itself, causing more problems (Mahenthiran & Rouse, 2000). Another and possibly more obvious problem is that while the students may be friends and thus similar in many social and personal ways, they may not have the same study habits. This may result in the weak member of the dyad following the poor study habits of a dominant personality friend.

In contrast to the homogeneity students usually value, heterogeneous groups are often viewed by teachers as providing the best situation for interaction and task completion (Ehrman & Dornyei, 1998). Heterogeneous grouping allows the teacher to create groups according to ability, gender, ethnicity, ensuring each pair has someone that can do the work as well as making pairs fair for intergroup competition to name a few reasons (Webb & Palincsar, 1996).

One of the main reasons heterogeneous grouping is supported is to create a scaffolding effect in which low level students can learn from their higher ability peers (Webb & Palincsar, 1996). This concept is based on Vygotsky's Zone of Proximal Development (1978) which claims that performance will occur with the assistance of a peer that could not be achieved alone. In ZPD Theory it is essential that the paired learners be at slightly different levels so that one is brought up by the other but at the same time both stay within each other's Proximal Development Zones. If the higher skilled student is too high, the lower student may not understand the instructions / communication and no cognitive development will occur (Katira, Williams, Wiebe, et al. 2004; Ehrman & Dornyei, 1998). If the lower student is too low the higher student will not feel challenged (Vygotsky, 1978).

Other educators and therapists support heterogeneous interaction for a somewhat different reason. They believe that by causing students to interact with oth-

ers who have conflicting opinions and perspectives than their own, misconceptions can be corrected and more advanced concepts be developed. A heterogeneous grouping would therefore be more likely to create a 'conflicting' pair and thus potential improvement (Levine & Moreland, 1990; Webb & Palincsar, 1996).

Research in to the effects of heterogeneous grouping on low, medium and high level students have led to mixed results. Most studies have shown that low level students gain through the increased opportunity to receive help and instruction from their higher level peers but some have shown that the explanations from these higher level students often comes from outside of the ZPD and are thus not understandable to the low level student (Ehrman & Dornyei, 1998). Heterogeneous groupings are also criticized for constraining high level students paired with low level students by not challenging them to improve and often forcing them to carry too much of the work load leading to resentment and demotivation (Katira, Williams, Wiebe, et al. 2004). Medium level students on the other hand are most at risk in heterogeneous groupings as they are often 'left out' of groups were high and low level students take on a teacher-student relationship. The achievement of medium level students has thus been shown to be better in homogenous and narrow range heterogeneous groupings than in wide range heterogeneous ones (Webb & Palincsar, 1996).

Another factor in the effectiveness of pair and group work is the learning style employed by the student. Dunn and Griggs state that, "Learning Style is the biologically and developmentally imposed set of characteristics that make the same teaching method wonderful for some and terrible for others" (cited in Oxford, 2003, pp2). Learning styles occasionally come into conflict with the class methodology, in this case cooperative learning. Oxford states that if there is agreement between the student's preferences in learning style and strategies with the methodology being used, the student is likely to perform well and feel confident. On the other hand if conflict occurs between them, the student often feels uncomfort-

able, performs badly and has high anxiety. If the conditions are bad enough and persist for a long enough time, breakdown in interaction could occur (2003). With this in mind it is not difficult to extend this to the person to person scale within cooperative learning groups.

Learning styles can in turn be broken into different components including: sensory preferences, personality types, and biological differences. Sensory preferences relate to the types of input and stimulation the student is most comfortable with. Visual students positively react to visual stimulation such as reading and have problems when no visual references are used. Auditory students on the other hand do not require visual stimuli and enjoy lectures, conversations, role plays and similar activities (Oxford, 2003). Sensory preferences are of particular concern to EFL teachers in Japan as most Japanese students are very nonauditory and highly visual (Reid, 1987, cited in Oxford, 2003, pp.4). If some students are thus predisposed to learn in these different manners it makes sense to determine what they are to maximize efficiency within and outside the classroom and to group them in compatible or self supporting groups.

Personality types also play a role in student pairing as anyone who has had to teach can attest (Levine & Moreland, 1990). By determining whether the student is: extraverted or introverted; intuitive-random or sensing-sequential; thinking or feeling; and judging or perceiving we can potentially pair students that match each other best. Keirsey (cited in Katria, Williams, Wiebe et al., 2004) contends that by matching the strengths and weaknesses of learners together they can complement each other and explore different views, producing better results. We have all had 'problem' students at one time or the other and by determining personality type by testing and simple observation it would seem some of these problems could be avoided.

Problems with student self esteem will also come into play when problems due

to different skill levels, learning styles and personality are likely to occur. Students will not take the risks required in interaction tasks if they believe that they will feel embarrassed if they make a mistake. Maintaining face is a major concern for individuals (Dornyei, 2001) and especially in the Japanese culture. Putting some students in a situation where they are not comfortable due to the aforementioned differences will only lead to a disassociation from the task and result in self feeding demotivation. In pair compatibility studies in the field of Computer Science, students with lower self-esteem liked pair work while those with higher self-esteem did not when grouped together. Those pairings which did the best work on the other hand were those with similar levels (Katira, Williams, Wiebe, et al. 2004).

With the inherent differences that come with a class, namely student's different abilities, learning styles, skills and personality traits, problems are bound to occur even in the best of classes. While severe pair / group compatibility problems are rare, the fact that they do exist brings about the question as to whether they can be predicted and subsequently avoided through the use of correct grouping methods.

Hypothesis

This study hopes to compare random, homogenous and heterogeneous grouping methods through an examination of student perceived improvement, actual improvement and student enjoyment. As such I hypothesize that: Pairs are more likely to be compatible if···

▶ Similar skill level are grouped together (and thus within the student ZPD)

▶ Similar perceived skill level are grouped together (creating a low risk atmosphere and building self esteem)

▶ Similar learning styles are grouped together

In addition:

▶ Students with similar self-esteem levels are grouped together

▶ Student enjoyment will be higher in homogenous pairings (student / self engineered pairings)

▶ Perceived improvement will be higher in homogenous pairings (student / self engineered pairings)

▶ Actual improvement will be higher in heterogeneous pairings (teacher engineered pairings)

Possible Methodology

As this paper is more of a proposal for study, the complete methods to be used have not been fully determined. With this in mind I hope to base the results on a series of personality type questionnaires, English efficiency exams, learning skill questionnaires and peer evaluation.

Prior to the use of pairwork in or outside of class the student's personality type would be determined through the use of a questionnaire such as the Myers Briggs Type Indicator (MBTI) or Keirsey Temperament Sorter while learning strategies would be determined by a method such as Oxford's Strategy Inventory for Language Learning (SILL) (Brown, 2001). The student's general skill level would also be evaluated based on TOEIC, EIKEN and or entrance exam results.

Student self-esteem levels would also be determined prior to pairing by using a questionnaire asking the student to place their self-esteem levels on a Likert scale, similar to that used by Katira, Williams, Wiebe et al. (2004). For example:

1= I can do simple tasks but have a lot of trouble with more difficult or new ones.

9= I have no problems completing the tasks given to me.

After data on individual differences has been obtained, pairwork activities would be introduced over 10 weeks. Each week a different grouping method would be used for the class: random, homogenous (student chosen) and heterogeneous.

Heterogeneous grouping would be done based on preferred learning styles, personality and ability. Each grouping method would be used twice over the ten week period. As this research will be conducted in a Japanese all girl college, ethnicity and gender will not be a concern.

An exercise / peer / self evaluation would be performed by students prior to and upon completion of assigned pairwork each week. This confidential, online questionnaire would ask the student to evaluate their partner based on share of work done, cooperation etc. In addition to this analysis they would answer questions based on their perception of their partner's skill level and whether the two of them were compatible or not. Enjoyment of the task, perceived improvement and self esteem would also be questioned.

Once this information has been obtained data will be compared across all grouping methods.

Conclusion

The results of this study will, I hope, allow teachers an insight into a facet of pairwork / cooperative learning that most know little about. Some may argue that we do not need to worry about the differences in personality, learning styles and self esteem and if we place students with partners with different individual traits and abilities it will enable them to grow beyond their current limitations. I do not disagree with this point but I also contend that it will be more efficient for student development if we know the most effective manner to create student groupings that result in academic improvement. We have all seen the results of pair incompatibility, some more than others, and to be able to avoid them when possible would allow our students to concentrate on their tasks while making the teacher's much easier.

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