

Co-operative Learning — an alternative Approach to Large Group Lectures with Postgraduate Students: a Case Study

Rachael Jesika Singh

This paper reports on an experimental pilot which introduced co-operative learning into a research development programme for postgraduate students. It took place at Limpopo University, a rural university in South Africa, with the intention of providing an alternative teaching approach to the typical large group lectures. The students were from a variety of disciplines. All were seeking assistance on research-related topics, so that they could produce sound proposals and quality dissertations and theses. The principal research question was: "How can co-operative learning be used within a large, postgraduate university class and is it effective?". Qualitative techniques were used, including interviews with students, observations, and documentary evidence in the form of photographs. The findings of this research indicate that students enjoyed small group discussions; they were able to share ideas and opinions, and were more focused when they worked co-operatively together. The findings also showed the important need for the facilitator to be thoroughly prepared for classes organised in this way. The study recommends that the use of co-operative learning in higher education classrooms with large class sizes is worthy of further investigation and recommends that a larger scale study is undertaken.

Introduction

The South African education system before 1994 was characterised by the apartheid policy of differentiated education along racial lines. The curriculum was designed to keep the different race groups apart and establish supremacy of white over black people (Cosser, 2011). The focus in all public schools (which were divided according to racial groups: black, white, Indian and coloured) was on memorisation of content as opposed to engaging critically with the content. The result was that education from primary to post-secondary was rigidly organised to uphold the apartheid ideology of the state (Pillay and Karlsson, 2013). When South Africa became a democracy in 1994, this education system had to give way to a new system. The system adopted by the new government was an outcomes-based education (OBE) system which they felt would address the past inequalities and imbalances. This system failed to achieve this purpose and was systematically abandoned by the government (Spren and Vally, 2010). However, due to a significant focus on group work in OBE, what it did introduce was the principle of Ubuntu (working together). This principle is characteristic of African culture which promotes social togetherness (Xulu, 2010). Adapted into the curriculum, group work became a popular means of curriculum delivery. However, due to unpreparedness, lack of resources and other factors like large classes, it has been reported that group work became an excuse for some teachers to avoid teaching (Spren and Vally, 2010).

The higher education curriculum also adopted an outcomes-based approach; however, the means of delivery was not rigidly imposed. OBE shifted the focus from aims and objectives to the achievement of outcomes. The outcomes were linked to principles enshrined in the constitution of South Africa. To achieve these outcomes, students needed to work co-operatively and one strategy used was group work. It was assumed that students at university, by virtue of their exposure to outcomes-based learning in schools, would be more open to co-operative learning strategies. It was also noted that with the increased use of technology in higher education, more opportunities have become available for lecturers to try different techniques of teaching and learning.

Another characteristic of the current higher education environment is that of large classes (Hillyard et al, 2010). Due to wider access to higher education, enrolment has increased substantially in the last decade putting pressure on the limited number of institutions in South Africa (Pillay and Yu, 2010). As a consequence, larger classes and their dynamics add a new dimension to teaching and learning at higher education institutions. The size of a large university class before this period was around 200 students; currently the university class size is around 600 students. It is against this background that this paper examines the use of co-operative learning with a large postgraduate student group (honours, masters and doctoral students), to assess its use and effectiveness.

Co-operative Learning

Before presenting and analysing the data gathered during this study, co-operative learning as a teaching and learning approach and its association with social interdependence theory is briefly examined.

The work of Lewin (1935), and later, Deutsch (1949), resulted in the emergence of social interdependence theory. This described the interdependence that exists between members of a group working together towards a desired goal. A basic tenet of social interdependence theory, according to Deutsch (1949; 1962), is that the way in which individuals' goals are structured determines the way in which they interact with others and this interaction is responsible for the outcome of the goal. Subsequent theorists (Johnson et al, 2007) extended this theory and developed procedures for instructors. Johnson and Johnson (2009a: 365) assert that the "application of social interdependence theory to education has become one of the most successful and widespread applications of social and educational psychology to practice". Two types of social interdependence are described by Johnson and Johnson (2009b): positive social interdependence and negative social interdependence. Positive social interdependence fosters co-operation where the actions of individuals result in the achievement of joint goals and where the success of one is dependent upon the success of another. On the other hand, when the actions of an individual obstruct or prevent the achievement of other individuals, this is termed negative social interdependence (Johnson and Johnson, 2009b) and can be viewed as competition.

Slavin's theory of co-operative learning (1995) comprises two elements, one being positive interdependence and the other, individual accountability. The five-element theory of co-operative learning put forward by Johnson et al (1990) and comprising positive interdependence, face-to-face promotive interaction, individual accountability, social skills, and group processing, proposes that the learning experience is maximised when these elements work together.

Co-operative learning has been variously described by others. Kagan (1994) characterises it as a teaching arrangement that involves small, heterogeneous groups of students working together to achieve a common goal. If the purpose of co-operative learning is the achievement of a common goal, it has been asserted that students are likely to encourage members within the group to do whatever will help the group to succeed and will help one another with a group task (Akinbobola, 2009). Slavin (1991) described co-operative learning methods as instructional techniques in which students work in small groups to help one another learn academic material. Heterogeneous grouping has been claimed to be essential to co-operative learning (Dotson, 2001). It should be noted however, that other research has shown that some teachers experience challenges when they place students in a group and expect them to co-operate (Magnesio and Davis, 2010).

Co-operative Learning in Higher Education

As long ago as 1992, Purdom and Kromrey reported that over 600 formal inquiries had been conducted at both elementary and secondary levels where the effectiveness of co-operative,

competitive, and individualistic initiatives had been compared. More recently, Onwuegbuzie et al (2009) reported on the number of specific studies conducted by Johnson et al (2000) on co-operative learning. These numbered 194 and were undertaken across the instructional contexts of co-operative learning, competitive learning and individualistic learning.

Studies of co-operative learning in higher education have been conducted in the past. Whilst not as popular as its use in schools, a few significant studies provide insights into the way co-operative learning is practised in universities and colleges.

“Co-operative learning is now utilised in schools and universities throughout most of the world” (Johnson and Johnson, 2009a: 365). Johnson and Johnson (2007) focus on the success of co-operative learning at post-secondary level; they indicate that over 305 research studies have been conducted on co-operation at the college and adult levels. Lecturing has dominated postsecondary education for centuries; a way in which this trend can be reversed is to use “an instructional procedure” like co-operative learning “that affects the head and hand, whilst simultaneously affecting the heart” (Johnson and Johnson, 2007: 16). They sum up the heart experience that college students should be exposed to:

For college students to hold their college experience in their hearts and remember it as one of the most meaningful periods of their lives, students must (a) be faced with intellectual challenges and succeed, (b) be involved in caring and supportive relationships that develop into life-long friendships, and (c) develop the habits of the heart and mind that lead to the competencies they need to relate appropriately to others and cope successfully with the adversity and stress they may face in the future. The road to these outcomes lies through co-operative learning (Johnson and Johnson, 2007: 28).

Although individualism has persisted for a long time in higher education, the need to use co-operative methods has increased. One reason is the increased use of web-based technologies (McGarr, 2009) and also the rise of social networking. Social networking has created a space in the university environment for interaction. Furthermore, instruction which integrates the use of cloud technologies shows tremendous potential for co-operative learning (Denton, 2012). The ability to share and publish student constructed content, craft written narratives or collaborate on a wide variety of activities will surely increase the use of these modes of learning in classrooms (Denton, 2012: 40). This move towards change of instructional methods is not new to the university classroom. As early as 1982, discussions had begun among leading educational researchers on the use of co-operative learning groups as an organising concept in higher education (Cook, 1991).

The concept of groups or teamwork has solicited much debate. There is a difference between grouping students to do tasks and co-operative learning as Johnson et al (1991) argue. “Putting students into groups to learn is not the same as structuring co-operation among students” (Johnson et al, 1991: 6). Students’ attitude to their group experience was investigated by Hillyard et al (2010) in the United States. Their findings suggest that successful group work is no longer a matter of instructor effort but requires campus initiatives and interdepartmental coordination if students are to benefit from learning in small groups — something to be taken into account if the experience described in this paper is more widely adopted.

Context of Study, Findings and Discussions

For the purposes of this study, I viewed co-operative learning as a teaching and learning strategy that involves small groups working interdependently. My particular interest was to see whether using this approach could provide an effective alternative to the lecture-based sessions that are typical with large university groups.

This research was conducted at Limpopo University, with post graduate students who were undertaking a generic one year course designed to build their research capacity and skills and teach them about concepts used in research. It was the third year that the course had been organised by the university’s research office and was popular, with increased numbers year on

year. The course programme comprises eight, 8-hour modules which include proposal writing, literature review, academic writing skills and quantitative and qualitative research methodology. The introduction of co-operative learning strategies

The class environment was non-competitive; all students were there voluntarily to learn skills that they wanted to apply in their research and as a result, the class environment was non-threatening. Since these students came from multi-disciplinary fields, generic research skills were taught that could be applied in any context. There were no formal assessments given during the course.

Due to the length and number of sessions, it was not ideal for either the lecturer/facilitator or the students for the course content to be delivered through lectures alone. It was decided therefore that the course should be taught using a variety of co-operative learning strategies as an experimental pilot. Small group work and co-operative activities such as: think-pair-share, rally table, rounds and numbered heads together (Dotson, 2001; Kagan, 1999) were introduced. In this way, the co-operative learning approach made the course interactive and practical in nature. Students were asked to apply the concepts taught to their individual research projects. For example, if the concept of 'title versus topic' was taught, students were given a co-operative learning task to apply this concept to their own research topic/title.

An example of an activity used to teach the importance of quoting from the original source in the literature review module was the game Whisper a Lie. In student groups, one person made up a lie and whispered it into the ear of their neighbour who in turn passed it to the next person and so on around the group. When the lie reached the originator, it was compared with the original. The lie was usually distorted by the time the round was done. This activity was used to introduce the importance of quoting from the original source. The level of social interdependence for this task required the students to listen, trust and repeat what they heard to ensure the accuracy of the task. The outcome was dependent on all members of the team working together. Once this principle was established, students worked in pairs on an activity that involved using quotations from an original source.

Another example of a co-operative learning approach explored the supervisor/student relationship. One section of the class took on the role of supervisor and the other section the role of student. Using pairs of groups each made up of 3-4 students, one group in the pair was asked to list all the things that annoy them about their supervisors and the other group took on the role of supervisors and listed all things that annoy them about their students. The paired groups then fed back their views and discussed any interesting issues that had emerged. This then led to a whole class discussion. The purpose of this exercise was to put each person in the shoes of the other. Since student/supervisor relationships are often the cause of much conflict and unhappiness, understanding one another's roles is crucial to maintaining a good relationship.

A further activity exploring different perspectives took a current, hotly debated topic in the media. Individuals within large groups played the roles of the different stakeholders involved in the conflict; they had to present their version of the events of the story. Here the aim was that students learnt about respecting the point of view of another party by understanding the thinking associated with that point of view. Some disciplines were employed in aspects of the activities to ensure, for example, equal participation; whenever presentations were made a timer was used and students were forced to stick to the time allowed for presenting and critiquing.

In reviewing the sessions and what had been learned, students were paired so that they could bounce ideas off each other and a few examples were shared and discussed with the whole group.

The students who formed the sample for the evaluative research were part of the large group of over 400, who all spoke English as a second language. Qualitative methods were employed to collect and analyse the data. The evidence was collected from (a) interviews with 10 students

who were randomly selected. These focused on what was learned, not on the activities or learning process (b) observations recorded by the facilitator during the co-operative learning activities and (c) documentary evidence in the form of photographs taken of students whilst engaged in co-operative learning activities. In line with the University's ethical policies, written, informed consent was sought and received from the students for data collection.

In the student interviews, they were asked to talk about their learning during the course. Below are some of the comments they made:

This is really helping me in my research. I had no idea about research but now I am helping other students through the knowledge I gained from the sessions.

In the literature review, I learnt the difference between the text reference and the source reference.

It was a good experience, I learnt a lot on how to go about conducting my research. Along the way I discovered that doing research can be fun especially when you know exactly what you are doing.

I have learnt research writing styles and how to be concise when writing.

I thought I knew what is really expected from me in order to obtain my degree but to my surprise, I knew little, the course helped me with the rest.

I have a better understanding on the title of my research.

I came with a bad attitude towards research as it is said to be very difficult but after attending the lessons, I have changed my attitude. Research is interesting, it just needs one to be committed and work hard.

From the comments made on the learning process during the course, it can be concluded that the desired outcomes of the course were achieved since these representative comments and others not reported here, reflect the various skills learned during the course. The photographs, taken at various stages during the co-operative learning tasks, served as evidence of the students' participation and supported the interview findings that the process was engaging and enjoyable. The students appeared to get used to the co-operative learning strategies after a short while and these became accepted as part of the learning process.

The facilitator observed group dynamics at play during the co-operative learning tasks and a lot of strong debating took place. Some group members did not fully participate; the use of rounds for larger groups (10-15 students) assisted in getting all students involved in group tasks. Switching of roles also resulted in group members having to play different roles, especially ones that they would not play in normal circumstances. From the observations, some students tended to go 'off task'; here the facilitator had to intervene and be assertive so that they could focus on the task at hand.

An ideal research situation would have been to compare this data to the experiences of students engaged in exclusively lecture-based classes; however, the study was limited to the experiences of students who had been part of the co-operative approach.





Conclusions

The findings from this experimental pilot study show that a co-operative learning approach can be successful and effective in a large university classroom allowing the learning outcomes to be realised. During the process, students were actively engaged in social interdependence by completing tasks that required a collective effort and shared goal, where mutual learning took place through interaction and co-operation. The findings indicate that small group interaction was well received; students shared ideas and opinions and were more focused when working together.

One crucial element in the success of the pilot was the preparedness and willingness of the facilitator to adopt co-operative learning approaches. Facilitating a large group in this way was challenging and required thorough preparation.

The study recommends that the use of co-operative learning in higher education classrooms with large class sizes is worthy of further investigation and recommends that a larger scale study is undertaken.

The Author

Professor Rachael Jesika Singh is the Acting Director of Research at the University of Limpopo in South Africa. She facilitates the University's generic postgraduate class. Her research interests and publications are in teacher education, women in research and language education. She is a supervisor of masters and doctoral students.

References

- Akinbobola, A O (2009) "Enhancing Students' Attitude Towards Nigerian Senior Secondary School Physics Through the Use of Cooperative, Competitive and Individualistic Learning Strategies." *Australian Journal of Teacher Education* 34 (1): 1-9.
- Cavanagh, M (2011) "Students' experiences of active engagement through co-operative learning activities in lectures." *Active Learning in Higher Education* 12 (1): 23-33.
- Cook, L (1991) "Co-operative Learning: A Successful College Teaching Strategy." *Innovative Higher Education* 16 (1): 27-38.
- Cosser, M (2011) "Pathways through the education and training system: do we need a new model?" *Perspectives in Education* 29 (2): 70-79.
- Denton, D W (2012) "Enhancing Instruction through Constructivism, Cooperative Learning, and Cloud Computing." *TechTrends* 56 (4), 34-41.
- Deutsch, M (1949) "A theory of co-operation and competition." *Human Relations* 2 (2): 129-152.
- Deutsch, M (1962) "Co-operation and trust: Some theoretical notes." In M R Jones (Ed) *Nebraska symposium on motivation* (275-319). Lincoln: University of Nebraska Press.
- Dotson, J. (2001) "Co-operative Learning Structures Can Increase Student Achievement." San Clemente, CA: Kagan Publishing. *Kagan Online Magazine* Winter 2001.

- Hillyard, C, Gillespie, D and Littig, P (2010) "University students' attitudes about learning in small groups after frequent participation." *Active Learning in Higher Education* 11 (1): 9-20.
- Johnson, D W and Johnson, R T (2009a) "An Educational Psychology Success Story: Social Interdependence Theory and Cooperative Learning." *Educational Researcher* 38 (5): 365-379.
- Johnson, D W and Johnson, R T (2009b) *Joining together: Group theory and group skills*. (Tenth edition). Boston: Allyn & Bacon.
- Johnson, D W, Johnson, R and Holubec, E (1990) *Circles of learning: cooperation in the classroom*. Edina, MN: Interaction Book.
- Johnson, D W, Johnson, R T and Smith, K (2007) "The State of Cooperative Learning in Postsecondary and Professional Settings." *Educational Psychology Review* (19): 15-29.
- Johnson, D W, Johnson, R T and Smith, K A (1991) *Cooperative learning: Increasing college faculty instructional productivity*. (ASHE-ERIC Higher Education Report No 4). Washington, DC: George Washington University, School of Education and Human Development.
- Johnson, D W, Johnson, R T and Stanne, M B (2000) *Cooperative Learning Methods: A Meta-Analysis*. University of Minnesota: <http://www.co-operation.org/pages/cl-methods.html> [Accessed on 4 July 2013].
- Kagan, S (1994) *Cooperative Learning*. San Clemente, California: Kagan Publishing.
- Kagan, S (1999) "Cooperative Learning: Seventeen Pros and Seventeen Cons Plus Ten Tips for Success." San Clemente, CA: Kagan Publishing. *Kagan Online Magazine*, Winter 1999.
- Lewin, K (1935) *A dynamic theory of personality*. New York: McGraw-Hill.
- Magnesio, S and Davis, B H (2010) "A Teacher Fosters Social Competence With Cooperative Learning." San Clemente, CA: Kagan Publishing. *Kagan Online Magazine* Fall/Winter 2010.
- McGarr, O (2009) 2A review of podcasting in higher education: Its influence on the traditional lecture." *Australasian Journal of Educational Technology* (25): 309-321.
- Onwuegbuzie, A J, Collins, K M and Jiao, Q G (2009) "Performance of cooperative learning groups in a postgraduate education research methodology course." *Active Learning in Higher Education* 10 (3): 265-277.
- Pillay, D and Karlsson, J (2013) "New spaces for researching postgraduate education research in South Africa." *South African Journal of Education* 33 (3): 1-18.
- Pillay, V and Yu, K (2010) "The state of Humanities in post-apartheid South Africa – a quantitative story." *South African Journal of Higher Education* 24 (4): 602
- Purdum, D M and Kromrey, J D (1992) "A Comparison of Different Instructor Intervention Strategies in Cooperative Learning Groups at the College Level." Paper presented at the annual meeting of the *American Educational Research Association*, San Francisco, CA, 20-24 April. ERIC Document Reproduction Service No ED344898.
- Slavin, R E (1991) "Cooperative Learning and Group Contingencies." *Journal of Behavioral Education* 1 (1): 105-115.
- Slavin, R E (1995) *Cooperative Learning: Theory, Research, and Practice*. Boston: Allyn & Bacon.
- Spreen, C A and Vally, S (2010) "Outcomes-based education and its (dis)contents: learner-centred pedagogy and the education crisis in South Africa." *Southern African Review of Education with Education with Production* 16 (1): 39-58.
- Wilson, J W (1997) *Creating and Initiating a Cooperative Education Program*. Boston, Massachusetts: The World Association for Co-operative Education.
- Xulu, M (2010) "Ubuntu and being Ubuntu: towards an Ubuntu pedagogy through cultural expressions, symbolism and performance." *Skills at Work: Theory and Practice Journal* (3): 81-87.