



**USING COOPERATIVE LEARNING TO IMPROVE
GENERIC SKILLS AMONG UNIVERSITY STUDENTS**

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**INTERNATIONAL CONFERENCE ON TEACHING AND
LEARNING IN HIGHER EDUCATION 2009 (ICTLHE 09)
23 – 25 NOVEMBER 2009
LEGEND HOTEL, KUALA LUMPUR**

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Abstract:

One of the factors that contribute to unemployment among university graduates in Malaysia today is their lack of proficiency in generic skills. To overcome this, many universities has revised their curriculum in order to develop generic skills among students. Many methods has been utilized by lecturers in teaching and learning such as problem-based learning, cooperative learning, collaborative learning and others in order to develop generic skills among students. The purpose of this study is to determine if cooperative learning will improve university's students' generic skills. The study used a quasi experiment with pre-test and post-test as its research design. The duration of the study was eight weeks. Twenty four students in a class that implement cooperative learning using Student Team Achievement model were selected as a sample for this study. A questionnaire consisting of 54 questions comprising eight generic skills: collecting, analyzing and organizing information; communicating ideas and information; planning and organizing activities; working with others and in teams; using mathematical ideas and techniques; solving problems; using technology and cultural understandings was used as the instrument. The data obtained is analyzed by means of descriptive data and inferential statistics. The means and percentages were used to report gender, races and age data while the paired t-test was used to identify and analyze the differences of students' generic skills before and after attending the cooperative learning classes with 0.05 significant levels. The result of the study shows that the cooperative learning has improved four generic skills: solving problems; communicating ideas and information; planning and organizing activities and using mathematical ideas and techniques. In conclusion, cooperative learning can be used as an instructional strategy at the university to improve students' generic skills.

Introduction

Unemployment among University graduates has been an issue that interests a lot of people and a major concern. This is because a University degree is no longer a passport to employment and a successful career. According to Ministry of Human Resource (2006), among the unemployed, 24.3 are in the tertiary education level.

Among the reasons why many employers are reluctant to employ fresh graduates because they have poor command in English language (55.8%), poor character, attitude or personality (37.4 %), asking for unrealistic salary/benefits (33.0%), mismatch of skill (30.2%), no demonstrated ability to solve problems (25.9 %) and skills knowledge not in-depth enough (23.8%) (Jobstreet.com/ NST, Friday July 10, 2009). Many of the unemployed graduates are those who have a low proficiency in generic skills, especially the communication skill (Soo, 2007; Pauw, Oosthuizen & Westhuizen 2006). As the results, they are not able to adapt with the workplace environment and this will affect their productivity level.

Workplace today is quite different compared to a few decades ago. The industrial sector today requires dynamic and versatile workers to face up to the challenges of workplace. Rapid changes in the industrial sectors such as in the field of technology, manufacturing, marketing, and information technology give rise to a competitive industry in borderless world. Consequently, workers are not only required to be competent in their technical skill but also need to master generic skills to complement the current industrial needs.

Generic skills are non-technical skills which play a significant part in contributing to individual's effective and successful participation in the workplace (Department of Education, Science and Training, Australia (2006)). Generic skills are also known as by core skills, key skills, soft skills, transferable skills, employability skills, basic skills, key competencies and others in various part of the country. In this study, the generic are based on the seven key competencies developed by the Mayer Committee in the early 1990s. The generic skills form a firm foundation for the identification of skills required to successfully participate in the world of work (Australian Education Council and Ministers of Vocational Education, Employment and Training, 1992). Seven skills from Mayer's key competencies and one post-Mayer addition (Curtis and McKenzie (2001)) are used as variables to measure the generic skills in this study. They are collecting, analyzing, and organizing information; communicating ideas and information; planning and organizing activities; working with others in team; solving problems; using mathematical ideas and techniques; using technology; and cultural understandings. These skills are required by both new and existing employees to work successfully in organizations.

Consequently, many initiatives have been done by the universities to improve their curricula in order to meet the demand of today's industry. In order for graduates to be marketable and not being left out from the labor force participation, curriculum has been revised to help students to become 'work ready' in terms of their generic skills development by including this component in the curricula. include the generic skills component. In addition, university lecturers used various teaching and learning approaches in order to incorporate generic skills in them.

Traditionally, instruction in the university is content-based and more of a teacher centered approach. Lecturers/teachers deliver a lecture of at least 50 minutes of monologue per period of lesson. Students are expected to absorb and comprehend of what is being taught. Attention of students is focused on the mastery of declarative subject within the narrow domains. This content theory of knowledge is inadequate for preparing students for the world of work (Smith, 1989). Previous studies has shown the weakness in this type of teaching and learning, and thus there is a need to vary the lecture activities by engaging the students in activities (Biggs, 1999; Grasha, 1976; Bligh, 1972).

To overcome monotonous lecture, lecturers may incorporate cooperative learning in their teaching and learning. Cooperative learning is an instructional paradigm which utilizes small groups so that students work together to maximize their own and each other's learning. The essential components of cooperation are positive interdependence, face-to-face interaction, individual and group accountability, interpersonal and small group skills, and regular self-assessment of team functioning (Johnson, Johnson, & Holubec, 1993).

Although the basic principles of cooperative learning do not change, there are several variations of the approaches used. These include Learning Together, Circles of Learning, Jigsaw, Student Team-Achievement, Team Game Tournaments, Group Investigation, Team Accelerated Instruction and Cooperative Reading and Composition. These are all specific model lecturers/teachers can use to set up cooperative learning groups and to structure lesson.

The effect of using cooperative learning in teaching and learning has been positive for all types of students. For example, cooperative learning has been shown to increase retention and boost the performance of at-risk students (Gehring; 2006), improved University student academic performance (Gonzalez, 2006; Chemwei, Kiboss, & Ilieva, E2005), promote higher achievement and greater retention than do individualistic learning experience for all students (Stevens & Slavin, 1995), increases in self-esteem, social acceptance, and teacher ratings of students with disabilities (Putnam, Markovchick, Johnson, & Johnson, 1996), and guide and shape student behavior (Johnson & Johnson, 1975). Previous studies by Ballantine & Larres (2007); Awang, 2006; and Tiat et al, shows an improvement of generic skills among students when cooperative learning is incorporated in their lesson.

Purpose of study

The purpose of this study is to determine the effect of cooperative learning on university's student generic skill. In order to achieve this, the following research questions are formulated.

- 1) To what extent did the students had practiced cooperative learning in their assignment?
- 2) How did the students evaluate themselves during cooperative learning?
- 3) What is the level of generic skill before and after cooperative learning is introduced?

Apart from the three research questions, a hypothesis is also constructed:

H1: There is a statistically significant improvement in level of generic skill among students after using cooperative learning.

This study is significant as it adds to the body of literature on the effect of cooperative learning on generic skill, especially in higher education. It also helps to encourage lecturers to use cooperative learning in their teaching and learning if the results show a positive effect.

Methodology

This is a quantitative research which utilizes a quasi-experimental research design whereby a pre-test/post-test is used, with individual as his or her own comparison. In this case, the effect of cooperative learning on university's student generic skill is determined by comparing the level of student's generic skill before and after the treatment using the same measure. In order to validate if the treatment has been given appropriately, students were asked if they have worked cooperatively in their lesson. Students were also asked to rate themselves on the way they have worked.

Sample

For this study we are using an intact sample where no random sampling is involved. The sample consists of a class of 24 students who are undertaking DIT 1073 Mathematic II, Semester II/ Session 2008/09. The profile of the sample composition is shown in Table 1.

Table 1: Background information on students taking DIT 1073

		Frequency	Percentage
Gender	Male	7	29.2
	Female	17	70.8
Age	Below 22 years	16	66.7
	22-24 years	7	29.2
	25-27 years	1	4.2

Instrument

The study uses 2 set of questionnaires as the instrument to collect data. Questionnaire 1 is used to determine how consistent the students have used cooperative learning in their assignments and what their general evaluation on cooperative learning. This questionnaire is developed based on a study by Lara and Reparaz (2005). There are two parts in this questionnaire. The first part assesses how

consistent the students have used cooperative learning in their assignment. This is accomplished by measuring the duration the features of cooperative learning is practiced by students. The students are required to assess themselves in the first eleven questions on a 6 point scale from 0 to 5, 0 being never and 5 being always. The second part of the questionnaire determines the student's general evaluation on cooperative learning that they have gone through. This part consists of 5 questions on a 5 point scale, 1 being unsatisfactory and 5 being excellent.

Questionnaire 2 is used to determine if cooperative learning the level of generic skills. This questionnaire consists of two parts: respondent demography such as gender, age, and student's matrix number; and measurement of the seven generic skills based on Mayer Key and one Post Mayer addition. The generic skills measured are collecting, analyzing, and organizing information; communicating ideas and information; planning and organizing activities; working with others in team; solving problems; using mathematical ideas and techniques; using technology; and with the Post-Mayer addition cultural understandings. The students are required to assess themselves on the scale of 1 to 5, 1 being strongly disagree and 5 being strongly agree on the skills. There are forty eight questions, seven for each generic skills measured. This instrument was validated by for its readability, item chosen, etc. In addition, the instrument is also tested for its reliability by using the alpha cronbach test. A 0.918 alpha value is obtained from the test.

Procedure

At the start of this experiment students were given a pretest (Questionnaire 2) to determine their level of generic skills. Students were given a "treatment" whereby there were treated with cooperative learning using a technique called Students Team Achievement Divisions (STAD). After a period of eight weeks they were given a post-test (Questionnaire 2) to determine their level of generic skills and Questionnaire 1 in order to determine how consistent the students have used cooperative learning in their assignments and what their general evaluation on cooperative learning.

This study uses the Student Team achievement Divisions (STAD) (Slavin, 1978) approach which is developed by Robert Slavin. STAD is a simple team technique in which students in a given class are assigned to four-or-five heterogeneous member learning team. These students were given a different role within the group such as a leader, assistant leader, recorder, resource manager, and time keeper. The students will stay in the same group until the course is over. The structured activity begins after the lecturer/teacher delivers a lecture in class, after which it is follow with assignment given and this is done in groups.

In this study, the lecturer incorporates cooperative learning in the tutorial session. Assignments from topics that were taught that week were given to students during this session, and they were given forty minutes to complete the assignment. The students were allowed to discuss and solve the problem in groups. After every topic a quiz was given for students to be done individually. However, whatever their grades will contribute marks towards the score of group work. This will encourage the students to work harder because they are responsible for their group work score. In order to motivate the students to work harder, the lecture give a reward to the group based on the highest total score achieved by students on group work.

Results

1) To what extent did the students had practiced cooperative learning in their assignment?

The findings from this study indicated that students have used cooperative learning during the 8 weeks duration at very satisfactory level. Taking into account that the questionnaire had a scale of six points, 0 meant null frequency and 5 means nonstop (permanent/ constant) frequency, a mean of 4.26 was

obtained. Therefore, in general it can be said that the students perceived that they have used cooperative learning in their assignment.

When we analyzed the results in detailed we find that, all the items has a mean score of more then 4 except for item number 6 which is "I have good ideas; I am constructive." which scored a mean of 3.43. This is not surprising because good ideas are difficult to come by all the time. Item number 11 (I am happy about the success of the group) scored highest with a mean of 4.83, indicating that students being happy with the group success. Table 2 shows the detailed result on how students perceived themselves using cooperative learning in their assignment.

Table 2: Elements of cooperative learning. Answers are expressed in frequency and percentage. The scale of 6 points: 0=never, 1= rarely; 2= occasionally; 3 = periodically; 4=frequently; 5= always

No	Item	n	0	1	2	3	4	5	Mean	sd
			f(%)	f(%)	f(%)	f(%)	f(%)	f(%)		
1.	I listen to, and respect the ideas of others.	23	0 (0)	0 (0)	0 (0)	2 (8.7)	9(39.1)	12(52.2)	4.43	0.662
2.	I share the load of the work.	23	0 (0)	0 (0)	0 (0)	6(26.1)	11(47.8)	6(26.1)	4.00	0.739
3.	I value the contributions of the other members of the group.	23	0 (0)	0 (0)	0 (0)	0 (0)	5(21.7)	18(78.3)	4.78	0.422
4.	I help in seeking solutions; I am suggestive.	23	0 (0)	0 (0)	1(4.3)	6(26.1)	5(21.7)	11(47.8)	4.13	0.968
5.	I share my information, and take into account.	23	0 (0)	0 (0)	0 (0)	1(4.3)	7(30.4)	15(65.2)	4.61	0.583
6.	I have good ideas; I am constructive.	23	0 (0)	1 (4.3)	1(4.3)	11(47.8)	7(30.4)	3(13.0)	3.43	0.945
7.	I resolve conflicts in positive manner.	23	0 (0)	0 (0)	1(4.3)	4(17.4)	11(47.8)	7(30.4)	4.04	0.825
8.	I contribute towards making each member of my group do his set piece of work.	23	0 (0)	0 (0)	1(4.3)	5(21.7)	9(39.1)	8(34.8)	4.04	0.825
9.	I help the group find errors and/or mistakes.	23	0 (0)	0 (0)	1(4.3)	2(8.7)	12(52.2)	8(34.8)	4.17	0.778
10	I have made positive contributions to the group.	23	0 (0)	0 (0)	0 (0)	1(4.3)	11(47.8)	11(47.8)	4.43	0.590
11	I am happy about the success of the group.	23	0 (0)	0 (0)	0 (0)	0 (0)	4(17.4)	19(82.6)	4.83	0.388
Total									4.26	0.489

2) How did the students evaluate themselves during cooperative learning?

The students have evaluated themselves positive during cooperative learning. They valued working using cooperative learning. By using a scale of five points, where 1 means unsatisfactory and 5 means excellent, a total score of 472 out of a possible point of 475, with mean 4.10. In general, students evaluated this way of learning as very good.

Item "This way of learning, as opposed to individual work" scored highest with mean of 4.35 indicates that the students evaluated working in groups very positive as opposed to other forms of individual work. However, item "The realization of my role in the group" scored lowest with the mean of 3.87. Table 3 shows the general evaluation of students on cooperative learning.

Table 3: General evaluation of students on cooperative learning. Answers are expressed in frequency (f) and percentage (%). The scale of 5 points: 1= unsatisfactory; 2= occasionally; 3 = periodically; 4=frequently; 5= excellent

No	Item	n	1	2	3	4	5	Mean	sd
			f(%)	f(%)	f(%)	f(%)	f(%)		
1	The realization of my role in the group has been ...	23	0 (0)	0 (0)	5(21.7)	16(69.6)	2(8.7)	3.87	0.548
2	My contribution towards the group's success has been ...	23	0 (0)	0 (0)	2(8.7)	17(73.9)	4(17.4)	4.09	0.515
3	This way of learning, as opposed to individual work, is ...	23	0 (0)	0 (0)	2(8.7)	11(47.8)	10(43.5)	4.35	0.647
4	It has helped me to understand the subject better.	23	0 (0)	1(4.3)	1(4.3)	14(60.9)	7(30.4)	4.17	0.717
5	I have learnt things of real value.	23	0 (0)	0 (0)	4(17.4)	14(60.9)	5(21.7)	4.04	0.638
Total								4.10	0.447

3) What is the level of generic skill before and after cooperative learning is introduced?

The level of generic skills before cooperative learning ranges from mean of 2.8681 to mean of 3.7500. After cooperative learning is utilize in the teaching and learning process the level of generic skills ranges from mean of 3.3102 to mean of 3.7500. In general we can say that there is an improvement in the mean score from before cooperative learning is introduced and after the cooperative learning is introduced. Table 4 shows the level of generic skills before and after cooperative learning is introduced.

Table 3: Level of generic skills before and after cooperative learning is introduced

No.	Generic Skills	Pre Test Mean	Post Test Mean	t	Significance $\alpha=0.05$
1.	Communicating ideas and information	2.8681	3.2917	-3.370	0.003*
2.	Working with organising activities	3.1204	3.3102	-1.927	0.066
3.	Solving problems	2.8750	3.3250	-4.592	0.000*
4.	Collecting, analysing and organising information	3.6250	3.7865	-1.476	0.154
5.	Planning and organising activities	3.1417	3.5000	-2.310	0.030*
6.	Using mathematical ideas and techniques	3.5250	3.8417	-2.790	0.010*
7.	Using technology	3.4167	3.6667	-1.958	0.062
8.	Cultural understanding	3.7500	3.9583	-1.735	0.096

We hypothesized as in H1: There is a statistically significant improvement in level of generic skill among students after using cooperative learning.

Using paired T-test, it is found that only four elements are found to be significant. They are communicating ideas and information, problem solving, planning and organizing activities and using mathematical ideas and techniques. Consequently, we can say that cooperative learning can be used in teaching and learning to improve in selected generic skills of students.

Discussion and conclusion

Globalization and advancement in technology demand superior quality of workforce. Workers of today require not only require having good technical skills but also need to master generic skills to complement the current industrial needs. University needs need to churn out graduates that can fulfill the needs of industry or else their graduates will be left out and unemployed. This is because service sector has been progressively replacing the manufacturing sector. The services sector expected their workers to not only possess the right technical knowledge, but also those who possess the right generic skills.

One of the methods that can be used to improve generic skills among higher education students is to incorporate cooperative learning in the teaching and learning. In cooperative learning students of work together in small groups as a team to accomplish a common goal. Findings from this study suggests that students find cooperative learning to beneficial to them as it help them to understand the subject better and have learnt things of real value. They prefer learning in groups and working collaboratively rather than working alone and they feel responsible towards their group success. Study also shows that cooperative learning improves selected generic skills such as communicating ideas and information, problem solving, planning and organizing activities and using mathematical ideas and techniques.

Cooperative learning can be used by almost any teachers/lecturers as it can be adapted to match their teaching philosophies and practices. This is because cooperative learning is a general term that refers

to numerous methods for organizing and conducting classroom instruction. Students will benefit more if teachers/lecturers uses numerous methods in organizing and conducting classroom instruction instead of just using the 'talk and chalk' method as it will keep the students interest level high by making them participating actively in class. In conclusion, cooperative learning is an instructional strategy that not only helps increase students participation in class as they have to work together to complete their assignment, it is also helps to improve students' generic skills.

Biodata:

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