

Analysis on Effects of “Group Cooperative Learning” of “Pass-on-Experience” Mode among Higher Vocational Students*

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Abstract—In teaching practice of higher vocational education, “Group Cooperative Learning” pattern has various problems. “Group Cooperative Learning” pattern through “pass on experience” is proposed, in order to get rid of inefficient and one-sided operation and further develop teaching reform. The feasibility of “pass on experience” is analyzed and inspected through experiments. The result indicates the pattern promotes students’ learning effects and has worked in cultivation of teamwork and communication with people. The effects are better with increasing practice. Therefore, the pattern has big promotional value.

Keywords—higher vocational education; pass on experience; Group Cooperative Learning; design; effects

I. INTRODUCTION

“Group Cooperative Learning” is a generally-accepted teaching reform. In higher vocational education, it is a problem of practical significance that how to train talents through it. How to stimulate students’ cooperative motivation and train cooperative ability with others in school education is the new requirement of the society (Jaeobs et al, translated by Yang Ning, 2005). According to preliminary investigation, more than two thirds of teachers use “Group Cooperative Learning” in one semester, indicating the pattern is widespread. Some realistic problems are found: First, some teachers fail to know clearly about “Group Cooperative Learning” and regard it as form to “decorate” class. They think cooperative learning means requiring students to cooperate, or one-sidedly pursue learning forms of group cooperation no matter whether the problem has value of cooperation. Teachers play improper role in group cooperative learning. Second, enforcement rules and regulations in group cooperative learning are not provided for group members, who lack deep and equal communication. Most members are “free riders”. Only two to three students in one group work actively. “Group Cooperative Learning” is provided for most courses in the same semester. Therefore, those active students shoulder heavy tasks, completely departing from one of the purpose of “Group Cooperative Learning” in sharing responsibilities. Students cannot receive good skill training and complain and fear “grouping”. How to

achieve effective operation of group cooperative learning and whether “pass on experience” can take effect must be answered. According to the achievements of project research, it is discussed and analyzed further in this paper.

Pass on experience means predecessors teach the younger generation or old hand teaches new hand about cultural knowledge, skills and experience in work or (and) learning in person. Pass on experience is method and atmosphere, referring to a traditional Chinese way of teaching, forms and effects of which are acknowledged by people (Gong Hualan, 2015). In modern education, pass on experience is still regarded as effective way of talent training. According to existing literature research, “pass on experience” is mainly brought in the cultivation of young teachers, having achieved good results (Jiang Yang, Ma Zhenfeng, 2011; Wang Daojing, 2012; Ding Ge, 2014). In student training, the conclusion of Research and Practice of “Pass on Experience” in Teaching Information Technology Curriculum in Higher Vocational Education of Gong Hualan (2015) proposes the method of “pass on experience” used in College Computer Information Technology course can become a favorable supplementary means. According to the existing research, a concrete proposal will be designed, in order to enhance the effects of “Group Cooperative Learning”, get rid of inefficient and one-sided operation and further develop teaching reform. Effects of “Group Cooperative Learning” through “pass on experience” in the research results will be analyzed.

II. ANALYSIS ON FEASIBILITY OF INTRODUCING “PASS ON EXPERIENCE”

Questionnaire survey is carried out among full-time students in higher vocational colleges of Guangdong province in January 2015. Samples are collected through integration of field investigation and network survey. In this survey, 1,290 and 1,283 questionnaires are distributed and recycled respectively, with recovery rate of 99.4 percent. There are 1,146 valid questionnaires, with effective rate of 89.3 percent. Samples are collected from 68 higher vocational colleges. The conclusion of questionnaire survey indicates, as shown in “Table I”, higher vocational students think as for masters, the priority is professionals in enterprises, teachers and senior students successively. Experienced professionals in enterprises can let students grasp more professional skills. Except for

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enterprise professionals and teachers, most students regard senior students in the same major as master, because: First, they are about the same age and can communicate more easily; second, about mental stress, it is relaxed to work with senior students and get into a groove more easily; third, senior students in the same major can give better guidance. Therefore, students are willing to take senior students as “master”. “Pass on experience” is feasible and can better promote group cooperation.

TABLE I. ANALYSIS ON RANKING OF IMPORTANCE DEGREE OF PERSON SELECTED AS MASTER OF HIGHER VOCATIONAL STUDENTS

Person selected	The first important		The second important		The third important	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
School teacher	346	30.2	485	42.3	135	11.8
Enterprise professionals	699	61.0	335	29.2	74	6.5
Senior students of the same major	49	4.3	142	12.4	447	39.0
Students with strong professional ability	46	4.0	175	15.3	439	38.3
Other	6	0.5	9	0.8	51	4.5
Total	1146	100	1146	100	1146	100

Questionnaire survey is carried out in experimental class. As for “whether support the opinion that regards senior students as your master”, 74.1 percent express support, 22.9 percent hold neutralizing attitude and 2.9 percent do not support. Obviously, most students can accept this pattern and a very few oppose, providing conditions for the implementation of the pattern.

The selection of “master” is distinctly important. What is the standard? First is quality. “Master” must have strong sense of responsibility, be interested in courses, be ready to help others and enterprising. Second is ability. They have strong sense of identity in major, high professional levels and outstanding performance in course instructed, ability to guide “apprentice”, strong communication and coordination ability, meanwhile grasp knowledge points.

III. PRACTICE OF “GROUP COOPERATIVE LEARNING” THROUGH “PASS ON EXPERIENCE”

The “Group Cooperative Learning” pattern through “pass on experience” is proposed according to project teaching, design and implementation of tasks. The practice process is divided into three periods of preparation, implementation, summary and analysis.

Firstly, in the preparation, first, projects suitable for “Group Cooperative Learning” are established. Carry out project

teaching reform of courses related to “Group Cooperative Learning”, reconstruct teaching contents and set teaching projects and tasks, and define links with intervention of “master”, tasks and evaluation mode. According to teaching design formulated again, specific tasks of “Group Cooperative Learning” is proposed, including time of task arrangement, requirements of task, completion time of task, completion way and performance distribution (in line with appraisal program). Second, select excellent senior students as “master” and determine “master” selected after interview and approval, and define its role, specific job and responsibilities through communication. Third, determine time and way that “master” meets “apprentice”.

Secondly, in the implementation, first, group students. The grouping should follow principles of “the same quality between groups and different quality in group”, “six to eight people in one group, free combination of students and deployment of teachers”. After determining group members, divide the work of them, let them fill in the table of work distribution and form name, slogan and appointment (reward and punishment mechanism). Second, students are guided to fill in the table of group self-management. One printed copy of “job logging of group members” and one file folder kept by documenter are distributed to each group. In learning, group members fill in corresponding contents according to division of labor and deliver it to documenter after signature. Documenter should bring file folder to classroom in each class for teachers to check at any time. Third, masters are distributed to groups. Master and apprentice meet and build relationships. When guiding apprentice, “master” fills time, questions and results in the table.

Thirdly, in summary and analysis, the way of “process plus final evaluation” is adopted. “Master” fills in the table truthfully. Teachers understand detailed information and problems and give guidance timely. “Master” and teachers communicate about schedule and problems through phone, WeChat and E-MAIL. In final evaluation, “master” evaluates effectiveness of work, summarizes problems and suggestions and grades group cooperation and performance of group members. The score is included in group performance and individual performance. Moreover, “apprentice” evaluates attitudes and levels of “master”. The award of “excellent master” is provided in course commendation in end of term according to the average score given by “apprentices” for “master”. Self-evaluation and mutual evaluation are adopted to monitor, manage and evaluate the instruction of “master”.

IV. EFFECT ANALYSIS

A. Results of the Experiment

In order to check the effects of practice, the experimental method is adopted. Six classes try out this pattern in one semester. Students in the six classes attend survey class, with four classes as experimental group (try out the pattern of “Group Cooperative Learning”) and two classes as reference group (without implementation of “Group Cooperative Learning” through “pass on experience. There are 207 and 96 students in experimental group and reference group respectively. In teaching, the operation is in strict accordance

with the experimental method. In the end of term, performance of students participating in the experiment is summarized. The experimental period is from September 2014 to January 2015.

Because experimental group and reference group are independent samples, its significance level is determined through the ratio t between mean difference and standard error on the same variable of the two independent samples. Effects of this experiment will be checked through checking t of independent sample. In the analysis, independent variable is “whether it is experimental group, 1=experimental group, 0=reference group”, dependent variable are performances, including “attendance performance (students’ score in class attendance from 0 to 15 points), class performance (students’ score in answering of questions from 0 to 5 points), performance of professional quality (students’ score in division of labor from 0 to 5 points), performance of final written examination from 0 to 20 points), performance of practical training (students’ score in all training projects of the whole semester, from 0 to 55 points), performance of overall appraisal (summarize students’ final score from 0 to 100 points)”. Under

the help of SPSS22.0, the statistical result is shown in "Table II". Just as assumption, students’ performance in experimental group is significantly different from that of reference group (P<0.05). Except for class performance, the mean values of other performance of students in experimental group are significantly higher than that of reference group. On the whole, standard deviation of students’ performance of experimental group is slightly higher than that of the reference group, indicating students’ performance in experimental group is more dispersed. Class performance of students in reference group is significantly higher than that of the experimental group and more dispersed, the reason may be that the pattern of “Group Cooperative Learning” furthest promotes mutual improvement of the group. It will influence outstanding performance of individuals, especially in active speaking and performance. In a word, the result of t check indicates the experiment related to the pattern of “Group Cooperative Learning” through “pass on experience” is successful and enhances students’ performance significantly. The pattern of “Group Cooperative Learning” based on project teaching is a more effective method.

TABLE II. ANALYSIS RESULT OF T CHECK

Experiment type	Attendance performance		Class performance		Performance of professional quality		Performance of final written examination		Performance of practical training		Performance of overall appraisal	
	Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation
Experimental group	12.42	2.57	1.13	1.60	3.24	1.05	13.96	2.77	36.72	8.63	70.61	12.42
Reference group	8.68	1.55	1.58	1.75	2.16	0.95	13.01	3.44	27.05	5.09	67.43	11.79
P value	0.00		0.03		0.00		0.01		0.00		0.04	

B. Effects in the Period of Achievement Popularization

The above experimental result verifies this pattern can solve problems of students in group learning and has achieved anticipated effects. Importance and effects of “pass on experience” is further discussed. 35 students involved in the experiment in the same class are selected and carry out practice of this pattern in different courses in two semesters (September 2016 to June 2017). Check through difference comparing. Course 1 means some course adopts the pattern of group cooperative learning through “pass on experience” in the first semester; course 2 means some course adopts the pattern of “Group Cooperative Learning” in the second semester (without the pattern of “pass one experience”).

As shown in "Table III", after this pattern is adopted, 95.7 percent of students think the learning effects are improved. Compared with course 1, course 2 has better learning effects. As shown in "Table IV", all students think this pattern promotes practical training and 78.5 percent of students think it helps largely. Students involved in course 2 think it has larger help for practical training than that of course 1. On one hand, it indicates the effects of practice are better in the second semester. On the other hand, the pattern of “pass on experience” will weaken learning effects, but it lacks statistical significance testing (P1=0.54>0.05; P2=0.33>0.05).

TABLE III. ANALYSIS ON LEARNING EFFECTS OF THIS PATTERN THROUGH COMPARING WITH GROUP DIVISION OF (GROUP LEADER PLUS GROUP MEMBER”

Item	Course 1		Course 2		Total	
	Freque	Percent	Freque	Percent	Freque	Percent
Much better	11	31.4	13	37.1	24	34.3
A little better	21	60.0	22	62.9	43	61.4
A little worse	2	5.7	0	0.0	2	2.9
Much worse	1	2.0	0	0.0	1	1.4
Total	35	100.0	35	100.0	70	100.0

TABLE IV. ANALYSIS ON THE HELP OF THIS PATTERN FOR PRACTICAL TRAINING

Item	Course 1		Course 2		Total	
	Freque	Percenta	Freque	Percentage	Frequency	Percentage
	cy	ge	ncy			
Great help	8	22.9	7	20.0	15	21.4
Some help	17	48.6	23	65.7	40	57.1
Ordinary	8	22.9	5	14.3	13	18.6
Small help	2	5.7	0	0.0	2	2.9
Total	35	100.0	35	100.0	70	100.0

As shown in "Table V", after the pattern is adopted, training group cooperation is the most helpful for students' personal growth, and then improving the ability to communicate with others, completing assignments smoothly. Group cooperative learning through "pass on experience" in course 1 can better highlight the function of training group cooperation and enhance emotions between students. Compared with course 1, course 2 highlights the help in completing assignments smoothly. It indicates the pattern of "pass on experience" can better promote group cooperation and play an important role in enhancing emotions instead of only having effects in completing assignments and tasks. "Group Cooperative Learning" through "pass on experience" plays a vital role in student education.

TABLE V. ASPECTS MOST HELPFUL IN THIS PATTERN FOR PERSONAL GROWTH

Item	Course 1		Course 2		Total	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Training group cooperation	22	62.9	19	54.3	41	58.6
Complete assignments smoothly	3	8.6	7	20.0	10	14.3
Improve ability to communicate	6	17.1	6	17.1	12	17.1
Enhance emotions between students	4	11.4	3	8.6	7	10.0
Total	35	100.0	35	100.0	70	100.0

V. CONCLUSION

The effects of "Group Cooperative Learning" through "pass on experience" are verified. It promotes students' learning effects especially playing a role in training group cooperation and communication with people. Students can realize their progress obviously. On the other hand, this pattern will have better and better effects on students and stimulate potential of group cooperation. It has large promotional value and can be implemented in different majors, schools and periods.

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