

Effect of Jigsaw Instructional Method on Pre-Service Teacher Teaching Proficiency Skills and Perceptions Toward Working in Small-Groups.

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Abstract

The purpose of this study was to determine the effects of Jigsaw cooperative learning on students' Teaching Proficiency Skills. In addition, this study also determined students' perception toward working in small-groups concerning Jigsaw cooperative learning. The samples of this study consisted of 60 form third grade students at the faculty of physical education were divided in two groups (Experimental and Control) each consists of 30 students. In order to control the differences of dependent variables, a pre-test was given before treatment. After treatment, a post-test was administered to both groups. Two types of instruments were used to collect the data: the Teaching Proficiency Skills checklist to gather information on student's performance in PE lesson skills, and what happened in the group's questionnaire (WHGQ) to gather information on student's perceptions of how group members worked in their small-group. The pre-test and the post-test data were analyzed using t-test for Teaching Proficiency Skills, A MANOVA was conducted on the student's responses to the WHGQ to determine if there were differences in the students' perceptions of how group members worked in their small-groups in the experimental and control groups. Findings of this study show that learners taught using Jigsaw cooperative learning strategy performed better than those taught using Conventional learning methods, and students in the jigsaw cooperative learning groups were more willing to work with others on the assigned tasks and they provided more elaborate help and assistance to each other than their peers in the control group. Furthermore, as the students in the cooperative learning group had more opportunities to work together, they developed a stronger perception of group cohesion and social responsibility for each other's learning than their peers in the control group.

Keywords:- Teaching; Proficiency; Performance achievement; Jigsaw Cooperative Learning; Self-Confidence; Teaching proficiency..

Introduction:

One of the biggest targets of today's education system which aims at development and change is to teach students how to reach information by way of research, instead of giving it to them directly. A research dominated, rather than a memorizing and giving concrete information, type of education system has to be founded, so that students can consider scientific idea as a life style in all lessons, they are encouraged to do work on all science, they foster approaches to their lessons in a positive way, and they are active in the purpose of improving their skills and knowledge. In this period, students who are in their childhood and puberty; an age of gaining information, ability, skills, attitude and habit, should be considered entirely with regard to their physical, mental and psychological aspects and education. They should be rearranged regarding that type of attention according to the conception of our era.

Cooperation is a generic human endeavor that affects many different outcomes simultaneously. These can be divided into three broad categories; effort to achieve, positive interpersonal relationships and psychological health/social competence. (Johnson & Johnson; 2000), these three categories or outcomes are likely to be found

together, since each can induce the others. Methods and techniques are the key to ultimate learning, and knowing the way of reaching the goal is as crucial as the goal itself (Allison & Rehm, 2007) Reaching the educational goals is dependent upon being able to choose the appropriate method (Gamal, 1997). Choosing the appropriate methods is in accordance with the suitable methods for an effective in class learning-teaching process (Arra et al, 2011). For an effective learning, teachers should be attentive about teaching style, and in order for teachers can be attentive about the method, they should be familiar with the methods available and appropriately use them (Aronson & Thibodeau, 1992). In physical education, different research has reported similar conclusion to those develop in conceptual area thus advantage of cooperative learning to promote development of motor Skills (Ashly & Ben, 2004) social skills inclusion of students with disabilities and students' self-esteem and motivation toward physical activity (Giles & Adrian, 2003).

Field and laboratory studies have produced a great deal of knowledge about the effects of many types of cooperative interventions and about the mechanisms responsible for these effects. The jigsaw one of the cooperative learning techniques is based on group dynamics and social interactions (Giles & Adrian, 2003). It's one of the pure

cooperative learning techniques, this technique, including many different treatments with different small groups in order to help learning and improve cooperation between students. (Gaber Abdel Hamid, 1999). There are two Jigsaw methods, original jigsaw and jigsaw II. The original jigsaw is the jigsaw method that was developed by Aronson and his colleagues. The original jigsaw requires each student to read and become expert on only one part of reading selection rather than reading the entire selection. This approach would require accessible instructional material neatly divided into four to five appropriate topics. Original jigsaw also takes a little time because its reading are shorter, only one part of the total unit to be studied. Later in 1996 Slavin adapted Aaronson's original jigsaw to be more practiced and an easier format he called it jigsaw II. Jigsaw II is an activity that allows a small group of students to work together in order to maximize their own and each other's learning (Slavin, 1996). Jigsaw II can be used whenever the material to be studied is in written and narrative form. It's most important in such subject as social studies, literature, some parts of science and related areas in which concepts, rather than skills, are the learning goals. The instructional material for jigsaw II should be usually a chapter, story, biography or similar narrative or descriptive materials. (Arra et al, 2011). Jigsaw II students work in five heterogeneous groups of six or so students each material that the teacher has a broken into subsection for each student to work on. (Aronson& Thibodeau, 1992).

Search problem:

Research in physical education fields supports the movement toward students' active engagement in their learning at all levels, but practically at college level, receive augmented benefits from increasing involvement in their acquisition of new knowledge and skills. This is practically critical for teacher education candidates who are preparing for earns as educators (Gall et al, 2003). Teaching Proficiency Skills in the Field practice is one of the important activities within the Faculty of Physical Education programs that contribute to the preparation of the pre-service students to meet the needs of the labor market. Furthermore, teacher preparation and professional programs should effective strategies to prepare teachers to teach in more challenging ways. Out of the need for high-quality physical education teachers programs, these include and introduce innovative teaching models, strategies, or practice. New instructional strategies to be adopted by teachers, and great deal of discussion about how to prepare future physical education teachers, the plan for this study evolved regarding the use of jigsaw I cooperative learning as a teaching strategy within students of physical education(Asar, 2012); (Eman, 2012).

Therefore, the researcher studying the effect of the use of cooperative learning on the effectiveness of Teaching Proficiency Skills to the second grade students in the Department of Curriculum and Physical Education Teaching Methods in the Faculty of Physical Education for Boys because there were a little attention in physical education literature about alternative group formation of cooperative learning methods. This lack of researches is surprising, given that the emphasis in cooperative learning is on group interaction and activities.

Aims of the study:

The purpose of this study is to determine the effects of jigsaw cooperative learning on achievement of Teaching Proficiency Skills. In addition, this study also looks at students' perception of jigsaw cooperative learning. The specific objectives of this study are:

To determine whether

1. To determine the difference in Teaching Proficiency Skills between students' tough using jigsaw cooperative learning and students taught using traditional methods.
2. student's responses to the WHGQ to determine if there were differences in the students' perceptions of how group members worked in their small-groups in the experimental and control groups

Hypothesis:-

1. There is significant difference in the Teaching Proficiency Skills between students who are exposed to jigsaw co-operative learning (experimental) and those who are exposed to traditional methods (control) to the experimental group.
2. H02-There is significant difference in students' perceptions of how group members worked in their small-groups to the experimental than control groups.

Search Terms:

Jigsaw

Jigsaw is a cooperative learning strategy that enables each student of a "home" group to specialize in one aspect of a topic. Students meet with members from other groups who are assigned the same aspect, and after mastering the material, return to the "home" group and teach the material to their group members.

Teaching Proficiency Skills

Teaching Proficiency Skills was developed to gather

information about preservice teacher in the field practice the observer asked to respond to each item using a likert's scale of 1-5 to indicate weather behavior almost never happened {1}, to wheather most happened {5}. Cronbach' alpha for the overall scale was 0.86 (Eman, 2012).

What Happened in the Groups Questionnaire (WHGQ)?

The What Happened in the Groups Questionnaire (WHGQ) was developed to gather information on student's perceptions of how group members worked in their small-groups. The WHGQ was informed from previous observation protocols and surveys by Johnson and Johnson (1995) and Gillies and Ashman (1996). The WHGQ consists of 15 items designed to measure students' perceptions of their cooperative, small-group work experiences. The items were written to represent the five key elements of successful group cooperation: Positive interdependence; Individual responsibility to help others achieve the group's goal; Interpersonal communication; Facilitation of each other's efforts; and, regular processing of the group's functioning in managing the task and its members (Johnson & Johnson; 1995). In addition, items covering students' motivation, attitudes, and group behaviors were also included. The students were asked to respond to each item using a Likert scale of 1-5 to indicate whether they perceived the behavior almost never happened {1}, to whether it almost always happened {5}, Cronbach's alpha for the overall scale was 0.78.

Material and methods:

Sample:-

Respondents for this study comprised of 60 students from third grade physical education college students. All of them were selected randomly.

The procedure followed for randomization was all the names of the students were put in a hat and were pull them out at random. Same procedure was followed for the selection of the students who participated in the experiment. The age range of the students was between 18- 20 years and they were more or less similar with regard to socioeconomic status, cultural background, and academic background. Tests for homogeneity of variance (Qw) of effect sizes were calculated.

The duration of an experiment was four months i.e. February 1st to end of May 2013, at the rate of one session per week of total of 15 seasons.

Instruments:-

1. Teaching Proficiency Skills checklist to measure

teaching skills performance.

2. The test was given to both groups before and after instruction was completed.
3. Videotape.
4. What happened in the group's questionnaire (WHGQ) was developed to gather information on student's perceptions of how group members worked in their small-groups.

Data Analysis:-

1. The computer statistical program (SPSS version 17 Package) was used to analyze quantitive data.
2. Means were calculated for the experimental and control groups based on the experts responses to the checklist and the questionnaire of Teaching Proficiency Skills.
3. The independence samples t-test was applied to compare the effects of the traditional teaching and cooperative learning on students Teaching Proficiency Skills.
4. A MANOVA was conducted on the student's responses to the WHGQ to deter- mine if there were differences in the students' perceptions of how group members worked in their small-groups in the experimental and control groups.

Applying the main research experiment

1. The researchers applied the study in the period from February 2012 to May 2013.
2. The design of this study is a quasi-experiment consisting of experimental group and a control group, since the classes existed as intact groups.
3. Pre-tests were used to determine the equality of the two groups.
4. This study consisted of 60 students, divided into two groups consisting of 30 students in the control group and 30 students in the experimental group.
5. Experimental groups were exposed to jigsaw cooperative learning, while the control group was given the traditional teaching method.
6. The lecturers who implemented the jigsaw cooperative learning underwent training on the use of cooperative learning in order to ensure that it was implemented as planned.
7. Upon completion of instruction, post-tests were conducted to determine the difference between the groups.
8. Instruments used in this study were Teaching Proficiency Skills checklist and students' perceptions of how group members worked in their small-groups.

Results:

Table (1)
Compare between control and experimental

Groups in pretest	Experimental group		Control Group		df	t	Sig. (2-tailed)
	mean	Std	Mean	Std			
Good Planning	10.72	1.16	10.92	1.29	58	0.325	0.932
Mastering the Lesson Skills	10.78	1.62	11.38	1.72		0.345	0.766
Clarity of orders and instructions	11.08	1.34	10.94	1.39		0.423	0.674
Correcting Errors	12.80	0.67	12.90	0.91		0.342	0.525
Safety Procedures	8.70	0.94	8.80	0.72		0.310	0.498
Total	54.08	5.39	54.94	4.18		0.423	0.674

The results of t-test displayed in table (1), Students in the experimental group had a mean score of 54.08 with a standard deviation of 7.39; students in control group had a mean score of 52.94 with a standard deviation 6.38. The t-test yield a score of 0.423 with a degree of freedom 58 and

the different were not statically significantly different. Because there was no significant difference between the groups on the pre-test scores, it was possible to assess the difference between groups on the post-test by means of a t-test.

Table (2)
Compare between control and experimental groups in posttest

	Experimental group		Control Group		df	T	Sig. (2-tailed)
	mean	Std	Mean	Std			
Good Planning	17.65	1.26	17.47	1.34	58	0.324	0.747
Mastering the Lesson Skills	16.92	1.82	14.68	1.26		4.03	0.001**
Clarity of orders and instructions	16.58	2.94	15.73	1.93		2.11	0.046*
Correcting Errors	18.74	1.97	18.65	0.98		1.74	0.142
Safety Procedures	17.25	2.11	15.17	1.47		4.17	0.001**
Total	87.14	6.11	81.64	4.90		2.16	0.047*

As shown in table (2) having performed t-test, there was astatistically significant different in the total of mean of Teaching Proficiency Skills score of students across the experimental group and control group at the alpha level of 0.05. Therefor null hypothesis was rejected. It can be concluded that a Teaching Proficiency Skills achievement of students through jigsaw CL was better than Teaching Proficiency Skills achievement of students undergoing traditional instruction.

What happened in the group's questionnaire?

A MANOVA was conducted on the student's responses to the WHGQ to determine if there were differences in the students' perceptions of how group members worked in their small-groups in the experimental and control groups.

The MANOVA was significant, $T^2 = 0.44$, $F(1, 58) = 4.28$, $p < 0.01$ permitting an examination of the univariate results. An examination of Table 3 shows that six univariate results were significant (adjusted alpha = 0.04); No interrupting or cutting off; Listen to each other; Asked to expand on point; Opportunities to share ideas; No domination by others; and members helped each other. Table 3 shows that the students in the experimental groups reported that group members were less likely to interrupt or cut each other off when they spoke or to try and dominate each other. Furthermore, the students in the experimental groups were more likely to listen to each other, ask each other to elaborate on their points; share their ideas; and, help each other than the students in the control groups

Table 3

Means and Standard deviations of students' perception of what happened in the group in Experimental and control group

Item	Experimental group		control group		F value
	M	SD	M	SD	
1. Free to talk	4.22	0.96	4.17	1.11	2.44
2. Interrupting or cutting off	2.26	1.24	2.91	1.39	14.84**
3. Listen to each other	4.38	0.76	3.76	1.14	19.54**
4. Asked to expand on point	3.73	1.03	3.09	1.2	8.93**
5. Opportunities to share ideas	4.29	0.80	3.77	0.88	7.91**
6. Domination by other	2.22	1.15	3.18	1.08	18.17**
7. Sensitive to needs of others	3.53	1.18	3.47	1.19	0.30
8. Consider others ideas	3.76	0.77	3.73	1.08	0.88
9. Agree on decisions	4.16	0.81	4.34	1.03	1.09
10. Organization in the group	3.58	1.11	3.47	1.19	0.76
11. Formed new friendships	3.18	1.21	3.12	1.09	0.17
12. Members helpful to me	3.64	1.11	3.49	1.16	1.75
13. Members worked together	4.17	1.02	4.08	1.03	0.87
14. Felt ok about being in group	4.22	0.95	4.11	1.13	0.93
15. Members helped each other	4.22	0.97	3.76	0.99	5.10*
* P < 0.05., ** P < 0.01.					

Discussion:-

Effects of Jigsaw Cooperative Learning on Teaching Proficiency Skills: -

The results of this study indicate that jigsaw cooperative learning methods result in higher Teaching Proficiency Skills achievement than the traditional teaching methods. A probable reason is that, when students explain and receive explanations from each other in group, they retain the new skills much longer in their memory. They better understand what they have learned and therefore improve their Teaching Proficiency Skills. The cooperative approach has the element of accountability and interdependence embedded in a structure that is not found in the traditional classroom. This study supports the findings conducted by Zakaria et al (2010) and Melihan and Sirri (2011). The positive impact produced by jigsaw cooperative learning shows the importance of student interaction as proposed by Vygotsky and Piaget. The students in experimental group were more willing to work with others on the task, listen to what they had to say, and share ideas and skills and they did this by giving both solicited and unsolicited explanations to each other. It is the explanations that students provide to each other as they work together in small groups that are critical if learning is to occur (Webb; 1992). Moreover, if students are to benefit from the explanatory help they receive, the

explanations must be timely, relevant to the recipient's need for help, correct, and of sufficient detail to enable them to correct any misunderstandings (Webb, Troper, & Fall, 1995). (Gillies and Ashman; 1996, 1998) found that students are often more perceptive of the needs of their fellow students and will provide unsolicited help, such as explanations, when they perceive it is necessary (Eman, 2012). In short, while students can receive both solicited and unsolicited explanatory help from their peers, this help must be of sufficient elaboration for them to benefit from it (Zuckerman, Chudinova, & Khavkin, 1998). Certainly, the help the students provided to each other in the cooperative learning groups was detailed and timely and coincided either with specific requests for help or with student's perceptions of the need to help and support others in their groups (Akram, 2013). In effect, through their willingness to help each other succeed with the task, the students demonstrated their cohesiveness as a group (Johnson & Johnson, 2000); (Slavin, 1996) and their shared sense of community (Fawzia, 2014).

Students taught how to teach physical education lesson through the Jigsaw cooperative learning strategy performed significantly better than those who were taught through the conventional or traditional teaching methods. These findings support earlier studies that concluded that the use of the Jigsaw cooperative learning strategy

improved achievement scores compared to the conventional teaching methods (Hanze & Berger, 2007).

Students' perceptions towards jigsaw cooperative learning

This study also investigated students' perceptions of what happens during cooperative learning and how their perceptions may differ as a result of participating in experimental or control groups. The results showed that the students in the experimental groups perceived other group members were less likely to interrupt and cut each other off and more likely to listen to each other, ask each other to expand on points they were making, share ideas with each other, and help each other. They were also less likely to try and dominate others than their peers in the experimental groups. In short, the students in the experimental groups perceived their peers were more willing to help and promote each other's learning than the students in the control groups. When students do this, they demonstrate care and concern for each other and responsibility for each other's achievements (Slavin, 1995). These attitudes help to build a sense of group identity and promote pro-social norms among group members that help to create an environment conducive to learning (Slavin; 1996). Faculty demonstrate a commitment to cooperative learning when they encourage their staff to participate in professional development activities designed to broaden their understanding of how to embed this approach to learning and teaching into their curricula (Sharan et al; 1999). Moreover, they sanction its use by publically acknowledging this pedagogical practice (Slavin; 1996). In such faculty, which I have referred to as high commitment faculty, lecturers realize the importance of cooperative learning activities so that students experience task interdependence, promote each other's learning, and accept personal responsibility for contributing to the task (Johnson & Johnson; 2000). Comments by lectures in the faculty that had a high commitment to promoting cooperative learning included the following: "When we do group work, we must do it properly so they students realize they've got to work together and help each other. That way, they they've got to do their fair share (of the work) and not sit back and wait for others. They get really involved in their groups. It's very motivational (meaning group work). They seem to like getting on with it (meaning the task). These types of comments were rarely made by teachers in faculty that were less committed to promoting this pedagogical practice. In fact, many teachers in this faculty commented that they were expected to use more traditional teaching approaches such as direct teaching in order to cover the content of the curriculum. Group work was seen as detraction from the core business of lectures which was to

teach so students could learn and in such faculty, cooperative learning was not widely endorsed. This attitude was not evident in faculty that had a high commitment to cooperative learning. In fact, this faculty was very similar in they implemented cooperative learning to the faculty identified by (Slavin; 1995) where cooperative learning was used as an overarching philosophy to change school and classroom organization and instructional processes. When this occurred, Slavin found the students obtained higher obtained higher academic achievements across the curriculum than their peers in more traditional faculty (Slavin; 1996). In the study reported here, it was the faculty that demonstrated a high commitment to cooperative learning that established experimental cooperative learning groups in their classrooms and it was these groups that obtained higher learning outcomes on the questionnaire than their peers in the control groups.

Conclusions

In the light of the objectives and hypotheses of the study and through the research sample characteristics, researchers reached the following conclusions: -

1. The effectiveness of use of the jigsaw cooperative learning on Teaching Proficiency Skills score.
2. Use Method is covered as a form of cooperative learning. impact on students' awareness of the skills of working in small groups, cooperative and acquires the skills necessary to achieve success in the learning processes.

Implications

1. The use of Jigsaw learning strategy in teaching results in better students' performance in Teaching Proficiency Skills.
2. The Jigsaw learning strategy is therefore a suitable method for teaching.
3. School Quality Assurance and Standards Officers in education should encourage teachers to use this strategy of Teaching Proficiency Skills in order to improve the current trend of dismal performance in Teaching Proficiency Skills worldwide and especially in the field practice at the faculty of physical education.
4. The teacher training colleges and universities should emphasize Jigsaw learning strategy as an effective method of Teaching Proficiency Skills.

Recommendations

In the light of the objectives and results of research the researcher puts the following

1. Holding more practical training courses for faculty members in the faculties of physical education at various universities on how to use various forms of cooperative learning.
2. The need to the attention of faculty members to acquire the student's different cooperative learning skills.
3. Work to provide learning resource rooms in the faculties of Physical Education by all means and in particular educational technology.
4. Encourage pre service teachers in vocational all levels in the undergraduate on the use of different models of cooperative learning in field preparation programs.
5. Conduct similar studies on larger samples and the various programs.
6. Conduct studies on the use of various forms of collaborative learning in the various stages of education, the study of the relationship results of those studies a number of different variables such as age, sex and specialization.
7. Business surveys about the difficulties faced by the use and recruitment of various forms of cooperative learning in the learning process.
8. Action longitudinal studies on the impact of the use of cooperative learning to keep the motor skills to a long period of time.
9. Conducting field studies comparing between different forms of collaborative learning in many different academic programs.

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