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EFFECTS OF COOPERATIVE LEARNING STRATEGY ON TECHNICAL SCHOOL STUDENTS' INTEREST AND ACADEMIC PERFORMANCE IN JIGAWA NORTH WEST

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ABSTRACT

The study investigated effects of cooperative learning strategy on school students' interest and academic performance. Quasi-experimental design of non- equivalent pre-test, post-test group was adopted in the study. Population consists of 132 Senior Secondary Two SS 2 students in Science and Technical College Karkarna Jigawa North West. Sample of 40 students was obtained using random sampling. Instrument for data collection were Welding Fabrication Performance Test WFPT and five points Likert scale Welding Fabrication Interest Questionnaire WFIQ. Validity of the instruments was ascertained by experts in Mechanical Education and Educational Psychology. Split half reliability coefficient of 0.79 was obtained for WFPT while Cronbach's alpha reliability coefficient of 0.62 was obtained for WFIQ. Data were analysed using mean, standard deviation and independent sampled t-test. Findings revealed cooperative learning strategy enhance students' interest and performance in welding fabrication. Based on the findings study recommends adoption of cooperative learning strategy to enhancing students' interest and better academic performance.

Keywords: Cooperative Learning, Interest and Performance

Introduction

Technical education is the hub of innovation and technological development of Nigeria economy, considering role of technical education in national development it is however sad to note of the consistent students' poor performance in science and technical subject conducted by the National Business and Technical Examination Board (NABTEB). Chief examiners report for the year 2023 clearly stated that most students perform poorly in science and technical related questions. Umar and Maaji (2010); Atsumbe and Raymond (2012); Jimoh, *et al*, (2018); Saba (2019) in their studies attributed the consistent poor performance of students to frequent use of lecture method by the teacher.

Aliyu (2017) describes the lecture method as teacher dominated instructional techniques where students are passive receiver of information. In a similar process Aliyu and Ibrahim (2019*)* states that lecture method is an instructional technique where students are passive rather than actively involve in learning through collaborative learning such as the adoption of cooperative learning strategy for optimal academic performance.

Cooperative learning emphasizes on students' active participation in learning and social interaction students with diverse

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learning needs come together in small group with the brighter one's serving as tutors (Hermawan *et al.*, 2020). Monchai *et al.*, (2013) describes cooperative learning as strategy where students are assigned to perform specific academic task. Cooperative learning strategy has been found to be effective in learning a variety of task to enhances performance (Baron, 2004). Cooperative learning is also said to be effective in promoting higher thinking skills, problem solving abilities and greater meta-cognitive awareness and interest in an academic endeavour (Woolfolk, 2004).

Timberlake (2002) states that cooperative learning strategy provides students with opportunity to engage in active interaction such as social construction in the learning process in this learning situation teacher no longer delivers a vast amount of information but uses a variety of hands-on activities in promoting learning among the students' groups. Cooperative learning is not restricted to increases in academic performance it also enhances students' interest and motivation in learning (Odoh, 2013).

Interest is the disposition of students to engage in a particular discipline over time when students show interest in a subject, they are more willing to engage in learning (Jolly *et al*., 2019). Aliyu (2017); Aliyu and Ibrahim (2019) opined that interest influences student's performance however the lack of interest is a factor discouraging most students from learning. Interest and academic performance are psychological constructs influences students to instructions using cooperative learning strategy.

In view of the afore mention role of cooperative learning strategy on students' interest and academic performance the present study investigated effects of cooperative learning strategy on students' interest and academic performance in welding fabrication.

Objective of the Study

The study examined effect of cooperative learning strategy on technical school students' interest and performance in welding fabrication and specifically sought to:

i). determine difference in interest of students taught welding fabrication using cooperative learning strategy and those taught using lecture methods.

ii). determine difference in performance of students taught fabrication using cooperative learning strategy and those taught using lecture methods.

Research Questions

1). What is the difference in interest of students taught welding fabrication using cooperative learning strategy and those taught using lecture method?

2). What is the difference in performance of students taught welding fabrication using cooperative learning strategy and those taught using lecture method?

Hypotheses

H_{01}: There is no significant difference in interest of students taught welding fabrication using cooperative learning strategy and those taught using lecture methods.

H_{02}: There is no significant difference in performance of students taught welding fabrication using cooperative learning strategy and those taught using lecture methods.

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Literature Review

Constructivism theory is the construction of knowledge and scientific study of the environment, constructivism emerged as a powerful model for explaining how knowledge is produced. Wilson (1991) describes constructivism learning as students' active involvement in learning. Joydip (2018) views constructivist theory as process of knowledge construction, further stated that human being acquire knowledge by participating actively in learning. Constructivist learning unlike lecture methods is more of students centred learning (Saul, 2024).

Cooperative Learning Strategy

Cooperative learning has received significant attention among researchers as an educational learning strategy due to its positive effects on students' academic performance. It turns the students into an effective element in the educational system more so dialogue and debate, increase academic achievement and psychological harmony, and develop problem-solving skills (Ali & Ali, 2011).

Cooperative learning refers to instructional process in which students work in small groups consisting of two or more members with each group performing a specific. Al-Heela (1999) state that cooperative learning is one of the teaching methods advocated by contemporary educational movement. Cooperative learning is considered one of the modern educational methods that links school reality because it is based on the formation of a coherent, heterogeneous group that can be organized into small workgroups as it fulfils the students' psychological needs (Abu Amira, 2000).

Students Interest

Dewey (1975) views interest as specific relation between person and object. Interest is described as "being engage or entirely taken up with an activity (Dewey, 1913). Interest is predictive of motivation and engagement when students developed interest in subject they are motivated to learn and acquire knowledge coherently (Schiefele, 1996). Construct of interest places emphasis on attributes such as emotion, perceive value, knowledge and engagement (Renninger & Hidi, 2011). Students' interest is characterized by cognitive and affective component of learning (Krapp, 2004). Interest in the context of emerging empirical research promotes development of new theoretical approaches and psychological construct in learning such as curiosity. Interest contributes to competency, self-determination and the willingness to face challenges in process of learning (Vallerand, *et al.* 1994).

Academic Performance

Academic performance is defined as the outcome of information and competencies that student obtains during a certain stage of academic (Abdel-Hamid, 2010). Academic performance is mastering of skills and knowledge student can possess after being exposed to educational process (Al-Salakhi, 2013). Academic performance is the student's ability to comprehend prescribed academic subjects (Al-Hassan, 2008). Education and psychologist are more interested in students' performance due to its great importance on their academic life (Al-Jalali, 2011). Al-Shalhi (2013) states that poor academic performance is one of the problems most students encountered due to inappropriate method of teaching.

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Various studies such as Samuel e*t. al.* (2023) found a significant positive effects of cooperative learning on students' academic performance. Isa (2023) in his study on effect cooperative learning strategy and Inquiry Methods on students' performance in Geometry found cooperative learning and inquiry method improves students' academic performance. Theresa and Aniekan (2023) study on effect cooperative learning strategy on performance in biology found cooperative learning strategy has positive effects on students' performance in biology. Menakaya *et al* (2022) in their study on effect of cooperative learning on achievement in English found students exposed to cooperative learning perform better in English compare to those taught using lecture method. Jacob *et al.* (2022) examines the effect of cooperative learning strategy on students' performance in biology found significant a difference in performance of students taught using cooperative strategy. Gladys and Jinadu (2020) examines the effect of cooperative learning strategy on students' attitude and performance found significant effect of cooperative learning strategy on students' academic performance in chemistry.

Methods

Quasi-experimental design of non-equivalent pre-test and post-test group was adopted for this study. Population consists of 132 Senior Secondary Two SS 2 students in Government Science Technical College Karkarna Jigawa North West. Sample of 40 SS 2 students who participated in the study was obtained using random sampling. Instruments for data collection were Welding Fabrication Interest Questionnaire WFIQ and Welding Fabrication Performance Test WFPT. Validity of the instruments were ascertained by expert technical education and educational psychology. Split half reliability coefficient of 0.72 was obtained for WFPT while reliability coefficient of 0.62 was obtained for WFIQ using Cronbach's alpha. Data were analysed using mean, standard deviation and independent sampled t-test at 0.05 significant level.

Results

Table 1: Independent sample t-test of Pre-test Interest Score between the Experimental and Control Group.

Group	t	df	Sig.	Mean Difference	Std. Error
Experimental	.126	38	.900	.20202	1.59
Control		36.493		.20202	

Table 1 gives the pre- test interest t- value as (0.12) at p value 0.900 indicating there is no significant difference on students' interest in welding fabrication prior to the intervention cooperative learning strategy.

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Table 2: Independent sample t-test of Pre-test Performance Score between the Experimental and Control Group.

Group	t	df	Sig.	Mean Difference	Std. Error Difference
Experimental	-.203	38	.840	-.57071	2.8
Control	-	34.4	.	-.57071	

Table 2 gives the pre-test performance score t-value (-0.20) at p value 0.840 indicating there is no significant difference in students mean performance score in welding fabrication prior to the intervention.

Table 3: Independent sample t-test of Post-test Interest Score between the Experimental and Control Group.

Group	t	df	Sig.	Mean Difference	Std. Error
Experimental	8.51	38	.000	41.11	4.83
Control		36.909			

Table 3 gives the post- test interest t- value as (8.51) at p value 0.000 indicating there is significant difference of students' interest in welding fabrication as a result of the intervention.

Table 4: Independent sample t-test of Post-test Performance Score between Experimental and Control Group.

Group	t	df	Sig.	Mean Difference	Std. Error Difference
Experimental	10.8	38	.000	41.01	3.78
Control		37.77			

Table 4 gives post- test performance score t- value as (10.8) at p value 0.000 indicating there is a significant difference of students' performance in welding fabrication as a result of intervention.

Discussion

The findings of this study revealed that students who were taught welding fabrication using cooperative learning strategy achieved higher mean scores than those taught with lecture method. This result was in line with Gull and Shehzad (2015); Altun (2015); Egbulefu, Amaele and Sunday (2015) Gladys and Jinadu (2020); Samuel e*t. al.*, (2023); Isa (2023), Theresa and Aniekan (2023), Menakaya *et al* (2022), Jacob *et al.* (2022) who reported cooperative learning strategy has positive effect on students' academic performance than those taught using lecture method.

Findings also reveals students taught welding fabrication using cooperative learning strategy had higher interest scores than those taught using lecture teaching

method this agrees with Igboanugo (2011) who reported that cooperative learning strategy enhances students' interest in chemistry. Umar, *et al* (2014) in support of present study reported cooperative learning strategy significantly affected students' interest.

Conclusion

Student's interest is a factor influencing academic performance cooperative learning strategy has positive effect on students' interest and academic performance. Students taught using cooperative learning strategy perform better than those taught using lecture method. Implication of this study it will bring to awareness of educational policy makers need for a more rigorous campaign on adoption of cooperative learning strategy by teachers in the class room.

Recommendation

Based on findings the study recommends the adoption of cooperative learning strategy in enhancing students' interest and academic performance.

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