

INDIVIDUAL AND GROUP LEARNING ON TASK ACHIEVEMENT: IMPACT ON PRIMARY SCHOOL PUPILS IN NIGERIA

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Abstract

Background: The study examined the effect of individual versus group learning experiences on the task achievement among pupils. For pupils, how the learning occurs and what goes on while they are learning impacts on their academic performance. In doing this, teachers use several means to enhance their teaching so as to ensure that the pupils are able to understand what they are taught.

Method: The design was experimental in nature. Data were obtained from twenty four (24) primary six pupils. Two hypotheses were tested using the Mann-Whitney U test.

Results: Results revealed there was a significant difference in the performance of task given to those who were exposed to group learning and those who were exposed to individual learning ($U = 20,000$, $N_1 = 12$, $N_2 = 12$, $p = 0.000$), but there was no significant difference in the performance in task achievement between males and females exposed to individual learning ($U = 11,000$, $N_1 = 6$, $N_2 = 6$, $p = 0.310$) and group learning ($U = 16,000$, $N_1 = 6$, $N_2 = 6$, $p = 0.82$).

Conclusion: From the study, pupils who were exposed to group learning performed better to those exposed to individual learning. Teachers are to encourage pupils to use group learning to improve performance. It is recommended that teachers create a classroom environment that facilitates children's interactions and collaborations. At this stage, collaborative learning may be more beneficial.

Keywords: individual and group learning, performance, task achievement.

1 INTRODUCTION

School achievement has been explained from different theoretical perspectives. These may include cognitive, humanistic, motivational and group theories. Learning is acquiring knowledge or developing the ability to perform new behaviours. Learning is the capacity to build knowledge through the personal re-elaboration of individual knowledge and experience in light of interaction with others and the environment (Sinita, 2000).

Learning experiences can be thought of as how the learning process occurs; specifically, it refers to what goes on while the pupil is learning and how the pupil learns what he or she is been taught. The ultimate goal of teaching is to ensure that the person being taught is able to understand what he or she is taught and at the end can reproduce or say what he was taught. To achieve this, teachers employ a variety of activities and teaching methods to enhance their teachings so as to ensure that the pupils are able to understand and assimilate what they have been taught. These means can either be through group or individual learning. Group learning involves joint intellectual efforts by students and teachers together. Pupils who engage in group learning usually do this in groups of two or more. They work together to achieve a particular aim. In classrooms of groups, students do more of discussions and class participation.

The primary school year is a critical year for all children; a year of transition from preschool programmes or home to formal schooling. Most children arrive in primary school level because they are filled with curiosity, wonder and an enthusiasm to learn about themselves, others and the world. Ackerman, Debra, Barnett & Robin (2005) noted that a teacher's role and responsibility is to nourish this hunger for knowledge and to motivate and challenge the students, as well as to protect and nurture them. They went further to assert that the process of learning for children at this age is as important as performance. Children who see themselves as competent learners tackle challenges with

confidence and develop attitudes and dispositions that encourage their curiosity and eagerness to learn.

While children interact with materials, people, ideas, and events to construct their own understanding of reality, adults observe and interact with children to discover how each child thinks and reasons. As children assist each other in higher levels of learning, they are working in the zone of proximal development. According to Vygotsky, the zone of proximal development holds functions that have not yet matured in children but are in the maturation process (Vygotsky, 1978). When children assist each other in working within the zone during their collaborative interactions, they are given an opportunity to perform at levels they cannot achieve on their own.

Vygotsky stated that learning awakens in children a variety of internal developmental processes that can operate only when they interact with more competent people in their environment and in cooperation with their peers (Vygotsky, 1978). He stressed that children develop in a social matrix that is formed by their relationships and interactions with other children. Children re-evaluate and reconstruct their understanding of the world in a social manner through their collaborative processes with their peers. When children collaborate on an activity, they form an equal relationship that has a common goal. They communicate their ideas and knowledge both verbally and non-verbally at a level that is eventually understood by all of the children involved (Goncu, 1993).

All children are individuals, unique in their abilities, from a rich diversity of backgrounds, beliefs and cultures. All children have the right to be treated with respect, positive regard and dignity. Articles 29 and 30 of the United Nations Convention on the Rights of the Child (1989) state clearly that respect and recognition for the child's own cultural identity, values and language (and that of others), should be part of his/her education. This section explores the importance of attending to diversity issues when working and learning with children.

Individual learning on the other hand is a student relying on him or herself for knowledge base. Individual learning implies that knowledge and cognitive skill are assets that teachers can transfer to the learner (Perkins & Salomam, 1998). When a student learns individually, they take all the information they already have and connect it to what they are experiencing at the moment in time to form a new knowledge. This learning can be described as teacher-centred. The teacher provides the major source of information, assistance, criticism and feedback.

Hohmann & Weikart (1995), using the High/Scope approach posited that learning is viewed as a social experience involving meaningful interactions among children and that since children learn at different rates and have unique interests and experiences, they are more likely to reach their full potential for growth when they are encouraged to interact and communicate freely with peers and adults. These social experiences occur in the context of real-life activities that children have planned and initiated themselves, or within adult-initiated experiences that afford ample opportunity for children's choice, leadership, and individual expression.

According to the (National Strategies, 2009), learning is both individual and social. Young children are not passive learners as they enjoy participating in 'hands-on' and 'brains-on' activities. They actively drive their own learning and development, by the choices they make, the interests they develop, the questions they ask, the knowledge they seek, and their motivation to act more competently. Working with others to achieve shared meanings and goals can promote many benefits for learners that include learning, social, motivational and emotional outcomes (O'Donnell, 2006). In classroom settings, collaboration has been used to help students learn concepts in subjects areas such as mathematics and learn valuable practices such as problem solving. Slavin (1990) also documented the social and emotional outcomes that include building positive relationships among peers, increasing self-esteem, and perspective taking. Collaborating can support young people in learning together with others. Many of these collaborative learning environments, however, typically engage learners in joint problem solving, discussions, brainstorming, or sharing.

School achievement has been explained from different theoretical perspectives and these include cognitive, humanistic, motivational and group theories. Learning theory is the anchor on which this study rests. The theory concentrate on how people learn what they learn by examining how children are able to associate their environment (experiences) with what they learn. This study was also influenced by the social constructivists' perspective. The social constructivists view learning as an active process where learners should learn to discover principles, concepts and facts for themselves, hence, the importance of encouraging guesswork and intuitive thinking in learners (Ackerman, 1996; Brown, Collins & Duguid, 1989). Social constructivists suggest that knowledge is first constructed in a social context and is then appropriated by individuals. According to social constructivists, the process

of sharing individual perspectives which is called – collaborative elaboration (Meter & Stevens, 2000) results in learners constructing understanding together that would not be possible alone.

In primary schools in Nigeria, most teachers are not specially trained in teaching methods. There may not be a positive correlation between being intelligent and being an effective teacher. The place of training is therefore sacrosanct. Identifying pupils' unique learning styles go a long way in meeting their academic needs but teachers find it hard to identify how these kids learn faster. In this context, teachers do not carry out tests to know if the children will perform faster and better when being taught individually or in a group.

1.1 Study Objectives

The objectives of this study are to determine the kind of learning experience that will enable the pupils to perform better in the classroom. Also, this study is designed to ascertain if children learn better when they are taught individually or in a group and to examine the effect of both individual and group learning experiences of children on their ability to their task or class activities. The last objective is to establish the relationship between learning experiences and task achievement.

1.2 Hypotheses

H₁ There will be a significant difference in the task achievement of pupils who were exposed to individual and group learning

H₂ There will be a significant difference in task achievement of male and female pupils who were exposed to individual and group learning

2 METHODS

The design of this study is experimental research design using the independent group design or the between-subjects design. This allowed for the different groups of the subject to be randomly assigned to the various levels of the independent variable.

2.1 Setting and Participants

The experiment was conducted in the classroom. A total of 24 pupils participated with equal number of boys and girls. The age range was between 10 and 12 years ($X = 10.3$). Groups can be formed using self-selection, random assignment or criterion-based selection. Rau and Heyl (1990) noted that smaller groups (of three) contain less diversity and may lack divergent thinking styles and varied expertise that help to animate collective decision making. Conversely, in larger groups, it is difficult to ensure that all members participate. The simple random sampling was utilized for this study. The odd-even method was specifically used. The pupils were assigned numbers and separated into odd and even groups to represent the two groups of the experiment.

2.2 Instrument

The instrument was self-designed and includes a mathematics tests, papers and pencils. The mathematics test was taken from the pupil's textbook. A topic was picked and the pupils were taught after which the test was administered.

2.3 Research Procedure

The independent variable in this study was the method of instruction. This was a variable with two categories – individual and collaborative learning. The dependent variable was the test score. The test was made up of mathematics questions and it lasted for two days.

On the first day, there was a formal introduction of the pupils to the researcher which was more of an interactive session. This was done to gain the trust of the pupils and for them to feel free with the researcher during the experiment. This interaction lasted about 45 minutes and the pupils were told about the session for the next day. They were equally given letters to take to their parents for consent. The letter explained the purpose of the experiment and requested parents to sign a perforated section if they consent.

The researchers also liaised with the subject teacher to determine areas that had been covered and deciding on the new topic to be taught. On the experimental day, we were all seated by 9:00am. The treatment comprised of two parts: the teaching and the testing. Initially, the researcher delivered a common lecture to both treatment groups. The lecture occurred simultaneously to both groups to prevent the effect of extraneous variables such as time of day or week, room lightings and others. After the lesson, all the students were divided into their various groups and taken to the class meant for the experiment. After settling down, the pupils were given their question papers, answer papers and pencils. The first class had the pupils that were tested individually, they were well spaced to ensure there was no cheating. The second class had the pupils doing the group work. In this class, we ensured all the pupils were active. As part of the instructions, students were encouraged to discuss and listen carefully to comments of each member. As experience reveals and with knowledge from group dynamics, group decision making can easily be dominated by the loudest voice or by the student who talks the longest. To mitigate this, every group member was made to contribute his or her ideas. After this, the group arrived at a solution. The two classes started at the same class. The answer sheets were collected and the pupils were gathered together and the answers to the tests were discussed.

2.4 Statistical Analysis

The Mann-Whitney U test was used in analysing the results. It was used because it is a non-parametric test and it is also used for small sample size and ordinal data. The Mann-Whitney U was used to determine the performance in the task achievement of the pupils that were exposed to group learning and those exposed to individual learning.

3 RESULTS

Table 1. Mann-Whitney U test showing the difference between pupils who participated in group and individual learning

Variables	No of Cases	Mean Rank	Sun of Ranks	U observed	Sig.
Group	12	18.33	220.00	2.000	.000*
Individual	12	6.67	80.00		

*: Significant at 0.001 alpha level

In Table 1, the result showed a significant difference in the task achievement of pupils who were exposed to group learning at $U_{10} = 2.000$, .000. This implied that pupils who participated in the group learning performed better than those who were exposed to individual learning. The mean scores of those who participated in the group learning was higher ($X = 18.33$) than those who were exposed to individual learning ($X = 6.67$).

Table 2. Mann-Whitney U test showing the difference in gender between pupils who were exposed to individual and group learning

Individual	No of Cases	Mean Rank	Sun of Ranks	U observed	Sig.
Male	6	7.67	46.00	11.000	.310
Female	6	5.33	32.00		
Group					
Male	6	6.83	41.00	16.000	.82
Female	6	6.17	37.00		

Table 2 shows that there was no significant difference in the task achievement of male and female pupils exposed to individual learning at $U = 11,000$, $N_1 = 6$, $N_2 = 6$, $p = 0.310$ and group learning at $U = 16,000$, $N_1 = 6$, $N_2 = 6$, $p = 0.82$.

4 DISCUSSIONS

The significance in task achievement of pupils exposed to individual and group learning was investigated and the results showed that there was a difference in the performance of the students who were exposed to individual and group learning. From this finding, it was noted that those who were exposed to group learning performed better than those who were exposed to individual learning. Thus, group learning aided task performance. Vygostky (1978) noted that students are capable of performing at higher intellectual levels when asked to work in collaborative situations than when asked to work individually. Group diversity in terms of knowledge and experience contributes positively to the learning process. Those in the collaborative group were able to interact with one another and thereby putting heads together in order to solve the tasks given to them. When students are working in pairs, one partner verbalizes his/her answer while the other listens; asks questions or comments upon what he/she has heard. Johnson, Johnson, Roy & Zaidman (1985) posited that clarification and explanation of one's answer is a very important part of the collaborative process and represents a higher order thinking skill. Gokhale (1995) in her investigation on the effectiveness of individual learning versus collaborative learning in enhancing drill-and-practice skills and critical thinking skills found that collaborative learning fosters the development of critical thinking through discussion, clarification of ideas and evaluation of others' ideas. The study concludes that if the purpose of teaching and learning is to enhance critical-thinking and problem-solving skills, then collaborative learning is more beneficial than individual learning.

The second hypothesis which investigated the significance of task achievement between male and female pupils who were exposed to individual learning revealed that there was no significant difference in task achievement. The result showed that there is no difference in children's performance when they learn individually. Children's successes on task are usually influenced by factors associated to the task which may include language used in instruction, the content of the information which is used in the experiment and familiarity of the material (Donaldson, 1978). The result also revealed that there was no significant difference in task achievement of male and female pupils exposed to group learning. From this result, it was inferred that gender does not determine the performance level of members in a group. This is to say that both sexes have the ability to perform at the same rate when put together in the same group.

4.1 Conclusions

This study shows that the pupils preferred collaborative learning activities. As educators, the utmost concern is to enhance pupils' learning; therefore, obtaining information about their learning preferences could be one of the ways in achieving this. Teachers should be aware of the learning needs of the pupils as well as what they want to experience in the course of their classes. This will assist teachers in selecting activities that would cater for the pupils' learning preferences. Doing this will result in achieving better academic performance (Eslami-Rasekh & Valizadeh, 2004) as well as other positive learning outcomes (Cruickshank, Bainer & Metcalf, 1995). In this study, the collaborative learning medium provided students with opportunities to analyse synthesize and evaluate ideas cooperatively. The informal setting facilitated discussion and interaction. In turn, this interaction assisted the pupils to learn from each other's scholarship, skills and experiences. The pupils had to go beyond mere statements of opinion by giving reasons for their judgments and reflecting upon the criteria employed in making these judgments. Thus, each opinion was subject to careful scrutiny. The ability to admit that one's initial opinion may have been incorrect or partially flawed was valued. According to Bruner (1985), cooperative learning methods improve problem-solving strategies because the pupils are confronted with different interpretations of the given situation. The peer support system makes it possible for the learner to internalize both external knowledge and critical thinking skills and to convert them into tools for intellectual functioning.

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