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EFFECTS OF MASTERY LEARNING APPROACH ON ACADEMIC ACHIEVEMNET IN EDU 112 (CHILD DEVELOPMENT) AMONG NCE STUDENTS IN SA'ADATU RIMI COLLEGE OF EDUCATION KUMBOTSO, KANO STATE, NIGERIA

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Abstract

This study investigated the effect of mastery learning approach on academic achievement of students in EDU 112 (Child Development) among NCE students in Sa'adatu Rimi College of Education Kumbotso, Kano State. Nigeria. Three research purposes with corresponding hypotheses were raised and tested in the study. Quasi-experimental research designs (post test only) was employed for the study. The population of the study comprised all NCE 1 students of the College with total number of one thousand six hundred and thirty-three (1633). A sample of three hundred and twenty two students was obtained for the study, using simple random sampling technique. The data collected were analyzed using t-test for independent sample, to test hypotheses of the study. From the findings of the study, it was concluded that, mastery learning approach is the best way of teaching EDU 112 Child Development. Moreover, male students perform better academically in Child Development compared to their counterparts. Finally, gender difference does not influence academic achievement of Child Development among N.C.E students in conventional approach group in S.R.C.O.E. Kumbotso. Based on these findings it was recommended that, lecturers should employ mastery learning approach and involve their students in teaching/learning process in Child Development, so as to enhance the level of academic achievement among students. Female students should be encourage to participate in discovery and mastery learning class so as to meet their counterpart. Parents and guardians should supervise and assist their children in mastering their school activities.

Keyword: Mastery learning approach, EDU 112 Child Development and Academic Achievement

Introduction

Addressing issues related to student's poor academic performance occupies important part of research in education. Cases of failures are still recorded in the fundamental educational courses, among which is EDU 112. Child Development (EDU 112) is one of the core courses of NCE programme in Nigerian colleges of education. The course is taught in the department of educational psychology. This course covers introductory part educational psychology together with part of developmental perspectives.

Certainly, academic achievement is a very important tool with which the success, ability and capability of a student to contribute to the development of a society is measured. The implication of this is that students that perform above the standard set by the society are not only seen as brilliant but as well probable to contribute meaningfully to the sustenance, growth and development of such society, especially, in the future. As a result of this, each society constantly observes the academic achievement of its students at all levels of educational institutions. Academic achievement has always been considered as a very important factor in the educational life of an individual, because good academic records over years predict future success of a person.

Many researches have been conducted within and outside universities to find out the factors responsible for the poor academic achievement among students. More attention was given to the student's factors such as student's emotional intelligence, personality traits, creativity level, socio-economic status and host of others, such as Abubakar (2014), Garba (2010), Shu'aibu (2018) and many more. Whereas, little or no attention is given to the instructional approaches as a factor that can affect academic performance of the students.

One of the fundamental principles governing the validity of classroom instruction which lead to productive and long lasting learning is appropriateness and effectiveness of instructional process. Instructional approach can be seen as a strategy, method and process used in the delivery of the instruction. Method or process of instructional delivery must have more or less effect on academic achievement of the students. One fundamental element of instructional process is teaching method. Productive and rewarding outcomes of instructional process depend upon effective teaching methods and this is why researchers are trying to find out constructive, productive and worthwhile teaching methods at every level. Methods and technique used in teaching and learning in a formal classroom setting has being change overtime, old ones are being replaced by newer and presumably more effective ones. This study was conducted with the view of finding out whether mastery learning approach has an effect on academic achievement in EDU 112 (Child Development).

Mastery Learning

Mastery learning approach is an instructional method where students are allowed unlimited opportunities to demonstrate mastery of the concept being taught (Kiljer, 1981). It involves division of subject matter into units that have predetermined objectives or unit expectations. This strategy allows students to study unit of materials one after another in order to achieve the objectives. Achievement of objectives in mastery learning is only when the students acquires the set of pass

mark of diagnostic test. Students that acquires below stated mark additional time Learning is being prescribes for them as remediation and for students to continue with until the master it. In mastery learning approach teachers were expected to be highly committed to criterion referenced evaluation and to strongly emphasis on feedback and corrections through the Learning experience.

Guskey (2007) asserted that Mastery learning curricula generally consist of discrete topics which all students begin together. After beginning a unit, students will be given a meaningful and formative assessment, so that the teacher can conclude whether or not an objective has been achieved. At this step, instruction goes in one of two directions. If a student does not demonstrate that he or she has mastered the objective, then a series of correctives will be employed. These correctives can include varying activities, individualized instruction, and additional time to complete assignments. These students will receive constructive feedback on their work and will be encouraged to revise and revisit their assignment until the objective is mastered.

The major components of the strategy are:

1. Specifying objectives
2. Division of course content
3. Formative diagnostic evaluation
4. Remedial Instruction
5. Summative evaluation

Basic Assumptions of mastery learning

The belief system of mastery learning starts from two basic assumptions:

1. Virtually all students can learn all important academic content to a level of excellence.
2. The primary function of schools is to define learning objectives, and to help all students to achieve them.

Researchers have made an attempt to explore or find out whether mastery learning approach has an effect on academic achievement of student, which include: Abubakar (2018) conducted a study on effectiveness of learning Biology through mastery leaning approach on students' performance in Biology. The researcher employed quasi-experimental research using two groups of 200 level students from Isa Kaita College of Education Dutsinma. The result from the study revealed that students taught with a mastery leaning in the two groups performed better than students taught with conventional approach to teaching. The study also revealed that there was no significant gender difference in the effect of mastery learning approach between male and female students. The study recommended that mastery learning should be used for teaching Biology for better and brighter performance of the students.

Another study was conducted by Ogan (2012) on the effect of mastery learning on academic performance in geography among senior secondary school students in Oktopo Education Zone, Benue State. The researcher used two classes as groups and later assigned the classes as control and experiment group by employing quasi-experimental research design. The result of end of term examination in geography was used as academic performance of the students. T-test for independent sample was used to find out whether there was difference in performance among the groups. The study revealed that the mastery learning group performed better than the control group (conventional teaching method). Also according to the finding of this study there is no significant gender difference in the effect of mastery learning between male and female students. From the above findings of the study the researcher recommended that mastery learning approach should be use as a method of instructional delivery.

Another study was conducted by Adeyemo and Babajide (2014) on effect of mastery learning approach on students' achievement in Physics. The result from the study revealed that students taught with a mastery leaning in the two groups performed better than students taught with conventional approach to teaching. The study also revealed that there was no significant gender difference in the effect of mastery and conventional approach between male and female students. The study recommended that mastery learning should be used for teaching social studies for better and brighter Achievement of the students.

Similarly, Ibrahim (2015) conducted a study on effect of mastery learning approach on academic performance in chemistry among senior secondary school students in Kano State. The researcher employed quasi-experimental research. Experimental and control groups were obtained to find out the effect of the mastery learning approach on academic performance of the students. The result from the study revealed that students taught with mastery leaning performed better in chemistry than students taught with conventional approach to teaching. The researcher recommended that mastery learning approach should be used for teaching and learning chemistry for good performance of the students.

Toheed and Ali (2019) carried out a study titled; "Effects of Mastery Learning Model on Academic Achievement of Secondary School Students in Mathematics". The researchers formulated three hypotheses to guide the study. Two groups were identified by the researchers, one as the control and the other as experiment group. They employed quasi-experimental research design. An examination conducted on Physic was used to obtain academic performance of the students. T-test for independent sample was used as a statistical tool for data analysis. The study revealed that the mastery learning group performed better than

the control group in physics. Moreover, the finding of this study revealed that there was no significant gender difference in the effect of mastery learning between male and female students. From the findings of this study the researchers recommended that teachers and lecturers should shift their attention to mastery learning approach as a method of teaching and learning.

Previous researches have showed that mastery learning approach has an effect on academic achievement of students in some disciplines. The present study was conducted to justify whether mastery learning approach has an effect on academic achievement of students in EDU 112 (Child Development) and to find out whether mastery learning approach can be recommended as best method of teaching EDU 112.

Purpose of the Study

This study was conducted to achieve the following purposes:

1. To find out whether there is difference in students' academic achievement score in Child Development course between mastery learning group and conventional learning group among NCE students in S.R.C.O.E Kumbotso.
2. To find out whether there is gender difference in academic achievement score in Child Development course among NCE students of mastery learning group in S.R.C.O.E Kumbotso.
3. To find out whether there is gender difference in academic achievement score in Child Development course among NCE students of conventional group in S.R.C.O.E Kumbotso.

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

1. There is no significant difference in students' academic achievement score in Child Development course between mastery learning group and conventional learning group among NCE students in S.R.C.O.E Kumbotso.
2. There is no significant gender difference in academic achievement score in Child Development course among NCE students of mastery learning group in S.R.C.O.E Kumbotso.
3. There is no significant is gender difference in academic achievement score in Child Development course among NCE students of conventional group in S.R.C.O.E Kumbotso.

Method

Research design: Quasi-experimental design (post-test only) was employed for the purpose of this study. The design is appropriate due to the fact that the study involves two groups (experimental and control), which were randomly assigned. No

initial observation was conducted on the two groups; however, experimental treatment was administered to the experimental group only (mastery learning). While, control group was administered with conventional method of teaching.

Experimental Procedure: The duration for lectures of EDU 112 was two hour weekly, the two groups of the study were given the same content, time frame and observation. However, experimental group was administered using mastery learning approach while control group was administered using conventional approach. This experiment was conducted with twelve weeks of lectures. At the end of the semester examination with the same items, time and duration was conducted to both two groups.

Participants of the study

The population of this study covered all N.C.E I (2019/2020 Session) students of Sa'adatu Rimi College of Education Kumbotso, with total number of one thousand six hundred thirty-three (1633) students. The population comprised one thousand one hundred and fifty-nine (1159) male and four hundred and seventy-four (474) female from different schools of the college.

According to the tradition of the college general classes were divided in groups. Likewise, this class was divided into two groups; Group A and B, group 'A' comprised School of Secondary Education Science, Voc. and Tech., Secondary Education Language. And group 'B' comprised School of ECCE and Primary Education, Secondary Education Art and Sos, ANFE & Spe. Edu. In this study group A was randomly selected as experimental group whereas, group B was selected as control group.

The sample size used for the purpose of this study was three hundred and twenty-two (322) out of the population of one thousand four hundred and forty-two (1633) as suggested by Research Advisor (2006) at degree of margin error of 0.05. The sampled students were selected using multi-stage sampling techniques, which include proportionate, stratified and simple random sampling technique. This was done in considering the groups, gender and in reaching individual participant.

Instrument and Procedure for Data Analysis

No instrument was used for data collection in this study. And for the purpose of data analysis 2019/2020 first semester examination score of EDU 112 was used. The Data collected from the required sample was statistically analyzed using SSPS. T-test for independent was used to test hypotheses of the study.

Results:

Ho_1. There is no significant difference in students' academic performance of child development between mastery learning group and conventional learning group among NCE students in S.R.C.O.E Kumbotso.

Table: 1

T-test Analysis on Difference in Academic Achievement Between Mastery Learning and Conventional Approach Group

Approaches	N	Mean	SD	t-value	Df	P-value (2-tailed)
Mastery learning	161	66.21	11.89	9.484	320	.000
Conventional approach	161	52.27	10.48			

Table 1 presents the result from Hypothesis 1 which states that there is no significant difference in academic achievement scores in Child Development course between mastery learning group and conventional learning group. The finding revealed a significant difference (t = 9.484, p =.000) indicating that academic achievement differs between students taught using mastery learning and those taught using conventional approach. However, descriptive statistics shows that students taught with mastery learning performed higher academically (M = 66.21; SD = 11.89) than those taught with conventional approach (M = 52. 27; SD = 10.48). From this finding of the study the null hypothesis was rejected and alternate hypothesis was upheld. That, there is significant difference in academic performance of child development between mastery learning group and conventional learning group in favour of mastery learning group.

Ho_2. There is no significant gender difference in academic performance of child development among NCE students of mastery learning group in S.R.C.O.E Kumbotso.

Table: 2

T-test Analysis on Gender Difference in Academic Achievement Scores Among Mastery Learning Group

Gender	N	Mean	SD	t-value	Df	P-value (2-tailed)
Male	114	65.77	9.36	5.025	159	.001
Female	47	51.43	9.93			

The table 2 indicates that the mean academic achievement score of male students is 65.77, (SD= 9.36) and that of female from mastery learning group is (51.43, SD= 9.93), while df= 331, t-value= 5.025, p= .001. The result of the analysis reveals that

the mean academic achievement score of male students from mastery learning group is significantly higher (t=5.025, df= 159, two – tailed probability at 0.05) than the mean academic achievement score of female students from mastery learning group. Thus, the null hypothesis is rejected since .001 < 0.05. This implies that there is significant difference in academic achievement score in Child Development between the two groups, in favour of male students. This is evident in the fact that the mean academic performance recorded for male (M= 65.76) is significantly higher than that of female (M= 51.43).

Ho_3. There is no significant is gender difference in academic performance of child development among NCE students of conventional group in S.R.C.O.E Kumbotso.

Table: 3
T-test Analysis on Gender Difference in Academic Achievement Scores Among Conventional Approach Group

Gender	N	Mean	SD	t-value	Df	P-value (2-tailed)
Male	114	47.05	5.51	2.103	159	.103
Female	47	46.98	7.70			

An independent sample t-test was used in examining gender differences in academic achievement in Child Development course among students from conventional group. From Table 3, male students had mean score of 47.05 while female students had mean score of M= 46.08. From the t-test analysis (t= 2.103, p= .103, p < .05). The mean score of academic performance for male students (M= 47.05, SD= 5.51) is not significantly greater than that of the female students (M= 46.98, SD= 7.70). Based on the obtained result, the stated null hypothesis was retained. The result revealed that no statistically significant gender difference existed in academic achievement scores in Child Development course among students from conventional group.

Discussion

The findings of this study were discussed and compared with findings of previous researchers. These discussions are carried out based on the issues relevant to the null hypotheses that guided the study.

The first finding of the study showed that there was significant difference in academic achievement score of Child Development course between students of mastery learning group and conventional approach group among NCE Students in S.R.C.O.E. Kumbotso in favour of students in mastery learning group. According to this finding, students taught using mastery learning approach were found to have performed academically better compared to their counterparts taught with conventional approach. The findings of this study agree with that of Ibrahim (2015)

who found that students of mastery learning class had better academic achievement when compared with those in conventional approach class. This can be due to the fact that learners tend to remember what they did by themselves more than what they listen to. The finding of this study also agrees with that of Adeyemo and Babajide (2014) and Abubakar (2018) who found that students taught using mastery learning approach performed better than their counterparts in the conventional class group.

The second finding of the study was that, there was significant gender difference in academic achievement among NCE students in mastery learning group in favour of male students. According to this finding male students performed better academically than their female counterpart. The finding of this study disagrees with that of Adeyemo and Babajide (2014) who concluded that there was no significant gender difference in the effect of mastery learning in academic achievement among the students. This variation may be as a result of difference in culture and location of the participants of the two difference findings.

The last finding showed that, there was no significant gender difference in academic achievement of NCE students in conventional learning group. The finding of this study is in support of the findings of Adeyemo and Babajide (2014) who concluded that there was no significant gender difference in the effect of conventional approach in physic academic performance among the students.

Conclusion

Form the above finding of this study, following conclusions was made by the researchers.

1. It was concluded that, mastery learning approach is the best way of teaching EDU 112 Child Development.
2. Moreover, male students perform better academically in Child Development compared to their counterpart among N.C.E students in mastery learning group in S.R.C.O.E. Kumbotso.
3. Finally, gender difference does not influence academic achievement of Child Development among N.C.E students in conventional approach group in S.R.C.O.E. Kumbotso.

Recommendations

In line with the findings of this study, the following recommendations were made:

1. Lecturers should employ mastery learning approach and involve their students in teaching/learning process of child development, so as to hence the level of academic performance among the students.
2. Female students should take a pen of fully participation in discovery and mastery learning class so as to meet their counterpart.

3. Parents and guardians should supervise and assist their children in mastering their school activities.

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