Effect of ADIMA and Permissive Strategies on Academic Performance in Christian Religious Knowledge of Pupils with Mild Intellectual Disability Ibadan, Oyo State

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Abstract
The study determined the effect of ADIMA and Permissive teaching strategies on academic achievement in Christian Religious Knowledge of pupils with mild intellectual disability. The moderating effect of verbal ability was also examined. The study adopted the pretest posttest control group quasi experimental research design using a 3x2 factorial matrix. Twenty-seven pupils were purposively selected to participate in the study. The participants were trained in solving a pattern of the Thurston letter series task.- Participants in group one were exposed to ADIMA instructional strategy. Those in group two were exposed to permissive instructional strategy, while the control group were taught using conventional strategy. Fourteen sessions were held over seven weeks. A pretest of CRK test was given before and it was readministered as posttest after the intervention from the three groups-. Data were analysed using Analysis of covariance. Results revealed that there was a significant effect of treatment on academic achievement of pupils with mild intellectual disability. The main effect of gender was not significant. Similarly, there was no significant interaction effect of treatment and gender on academic performance in CRK. Based on the findings it is recommended that teachers of pupils with mild intellectual disability should adopt the two instructional strategies to enhance CRK performance of pupils with mild intellectual disability.

Keywords: Academic performance, ADIMA, intellectual disability, permissive

Introduction

Receiving quality education is an important cornerstone in the lives of pupils with intellectual disability. This can be achieved by adopting instructional methods that will ensure that learning takes place among pupils with intellectual disability and in turn improve their academic performance. Pupils with mild intellectual disability persistent poor performance has been partly ascribed to inadequate teaching and instructional methods adopted by teachers. Academic performance refers to what the pupils have learnt or what skills the pupils has learned and is usually measured through assessments like standardized tests, performance assessments and portfolio assessments (Santrock, 2006). The first step to helping a student become more motivated and engaged, and thus enhancing their academic performance, is using instructional methods that will encourage effective participation in learning activities.

Pupils who possess high sense of control and feel secure in the classroom will more active when learning. This is because they will approach learning with enthusiasm and vigor. (Skinner & Green, 2008; Maulana, Opdenakker, Stroet, & Bosker, 2013). The school system is established to facilitate teaching and learning to empower students with knowledge and skills for positive living in the society. Anyichie and Onyedike (2012) observed that it is expected that classroom learning should be transferred into solving problems in real life. However, according to Duze (2011), the present educational system in Nigeria seems not to be achieving the desired goals and objectives due to noticeable evidence of decline in standard of education and quality. This can be observed in the academic performance of pupils with intellectual disability. Okpala in Awolabi (2003) observed that the conventional teaching method widely adopted in Nigerian classrooms is more teacher-centred than learner-centred. Bala (2006) noted that the use of lecture method in which the teacher is most active often creates frustration and learning difficulties for some students.

Students need to develop a sense of control by having a structured classroom environment and by experiencing a caring and trusting relationship with teachers (Skinner & Greene, 2008). This can be developed when the teaching methods is pupil centred. All pupils with intellectual disability should have a respectful, caring, and positive learning environment that enhances the joy of learning and academic performance. The nature of the instructional method adopted in any learning environment has a powerful influence on how well pupils achieve educational outcomes (Asiyai, 2014). When teachers adopted methods encourages pupils participation, they improve the classroom and environment, which results in improved academic performance. Teacher effectiveness refers to the teacher's ability to transfer information to students. Wright, Horn & Sanders. (1997) were of the view that teachers have a remarkable effect on students' achievement.

Although studies have provided positive findings on content knowledge as a foundational component of Pedagogical content knowledge (PCK) and important for teaching (Abell, 2007; Davis, Petish, & Smithey, 2006), it is also worthy to note that mastery of subject matter alone without pedagogical knowledge cannot make one an effective teacher but "teachers' understanding of how to help students understand specific subject matter" according to Magnusson et al. (1999) can make teacher effective. One of the noted five components of PCK according to Magnusson, Borko & Krajcik (1999) is "knowledge of instructional strategies". This component is rooted on pedagogical knowledge of the teacher. Empirical evidence has shown that studies on effects of using 422 the learning cycle method in teaching (Qarareh, 2012), Demonstration strategy (Giridharan & Raju, 2016), jigsaw method (Abdulkadir, 2016), concept mapping (Qarareh, 2010), experiential and generative learning strategies (Adeyemi & Awolere, 2016), computer simulations (Okwuduba et al., 2018) on academic performance of pupils.

Most of these innovative instructional strategies proved to be significant when compared with conventional strategies used. For example Abdulkadir, (2016) carried out a study on effect of jigsaw method with 63 students studying elementary science education for the period of seven weeks. An independent sample t-test was

used for data analysis and the research reveals that jigsaw method enhances academic performance of pupils. Consequently, the selection of strategies should be in accord with an individual population of students and the particular subject matter (Erdem, 2012). The choice of strategies and tactics relies upon the selected learning activities and thus "the key to (teaching) method is to bring about the desired learning in students by selecting the proper strategies and tactics and consequently the proper content and techniques" (Clark and Starr, 2001). According to Nbina and Obamamu (2011) teachers should match how to teach with what and to whom to teach, in developing a variety of methods for facilitating student achievement of determined outcomes.

Statement of the Problem

It is in view of the foregoing, that this study was initiated to examine the effect of ADIMA and permissive methods of teaching on the academic performance of pupils with mild intellectual disability

Hypotheses

1. There is no significant main effect of treatment on achievement of pupils with mild intellectual disability
2. There is no significant main effect of gender on achievement.
3. There is no significant interaction effect of treatment and gender on pupils' achievement.

Methodology

Research Design

This study will adopt the pretest-posttest-control group quasi experimental design with a 3x2 factorial matrix.

The research design is represented as follows:

ADIMA	E_1	O_1	X_1	O_4
Permissive Method	E_2	O_2	X_2	O_5
Control Group	C	O_3		O_6

O_1, O_2 and O_3 are the pretest in the study while O_4, O_5 and O_6 are the posttest, E_1 represent the experimental group one (1) in the study, E_2, represent experimental group two (2) while the C represent the control group in the study.

Participants

Participants in the study were pupils with mild intellectual disability who were selected using purposive sampling from three different special schools in Ibadan, Oyo state. Based on assessment of intelligent quotient of pupils 27 pupils were selected for the study. The schools for pupils with intellectual disability were selected to reflect geographical coverage of Ibadan. The schools are: Child Clinic, Department of Special Education, Faculty of Education, University of Ibadan (8), Adeyanju Taiwo Special Centre, Bodija Ibadan (7), and Cheshire Home for Handicap, Ibadan (12). The three schools were then assigned randomly to treatment group each

Inclusion Criteria

The criteria for selection of participants were based on the following:

1. Participants must be classified as pupils with mild intellectual disability, as identified by Slosson intelligence Test (SIT) and must have intelligent quotient between 52-68
2. Pupils with intellectual disability from schools that have at least five(5) pupils with intellectual disability
3. Pupils with intellectual disability must not be defective in hearing, speech and visual. That is absence of the following sensory organs, such as hearing impairment, speech impairment and visual impairment.

Instrumentation

The instruments used for data collection were:

1. Slosson intelligence Test (2005)
2. Instructional guide on Adima strategy -
3. Instructional guide on Permissive strategy
4. Achievement Test in CRK (r= 0.87)

Procedure for data collection

A teacher each in the selected schools serve as research assistant after they were trained so as to ensure efficiency on the job. Treatment was administered to the two experimental groups, Group one was treated with ADIMA, while group two was treated with Permissive strategies of instruction and the third group which is the control group was also exposed to the conventional method of teaching used by classroom teachers. Treatment lasted seven weeks. Concepts taught were Forgiveness, Peace, Love, Obedience and Prayer.

Method of data analysis

The data collected were analyzed using Analysis of Covariance (ANCOVA) at 0.05 level of significance, while adjusted marginal means was used to determine the direction of significance.

Results

Ho 1: There will be no significant main effect of treatment on academic performance of pupils with mild intellectual disability.

Table 1: Summary of ANCOVA showing the pre-post-test effects of treatment, gender and socio-economic status on academic performance of pupils with mild intellectual disability

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	880.867[a]	9	97.874	59.318	.000	.964
Intercept	3739.735	1	3739.735	2266.506	.000	.991
Treatment	569.875	2	284.937	172.689	.000	.945
Gender	.052	1	.052	.032	.860	.002
Treatment * Gender	1.705	2	.852	.517	.604	.049
Error	33.000	20	1.650			
Total	6572.000	30				
Corrected Total	913.867	29				

a. R Squared = .964 (Adjusted R Squared = .948)

Table 1 shows that there was a significant main effect of treatment on academic performance of pupils with mild intellectual disability in Ibadan, Oyo State ($F_{(2, 20);}$ = 172.689, p<.05, η^2=.945). This implies that the treatments contributed significantly to the variation in participants' academic performance in Bible knowledge of pupils with mild intellectual disability in Ibadan, Oyo State. The eta value of .945 shows that the treatments had a contribution of about 95% to academic performance in Bible knowledge of pupils with mild intellectual disability in Ibadan, Oyo State. Therefore, the null hypothesis was not accepted.

Table 2: Adjusted Marginal Mean showing the direction of difference in academic performance of pupils with mild intellectual disability between the treatment and control groups

			95% Confidence Interval	
Treatment	Mean	Std. Error	Lower Bound	Upper Bound
Permissive Method	16.000[a]	.462	15.035	16.965
ADIMA Method	19.250[a]	.428	18.357	20.143
Control	6.813	.508	5.753	7.872

Table 2 showed that participants taught using the ADIMA method group obtained the highest mean score ($\bar{x}$ =19.250) followed by participants in permissive method with a mean score ($\bar{x}$ =16.00) while control had a mean score of ($\bar{x}$ = 6.813). This shows that participants' performance in Bible knowledge based on ADIMA teacher better was better where compared to participants in permissive and the control group.

H0 2: There will be no significant main effect of gender on academic performance of pupils with mild intellectual disability

The results presented in Table 1 shows that there was no significant main effect of gender on academic performance of pupils with mild intellectual disability in Ibadan, Oyo State ($F_{(1,29);}$ = .032, p>.05, η^2=.002). This implies that gender did not contribute significantly to the variation in participants' scores on academic performance of pupils with mild intellectual disability in Ibadan, Oyo State. The eta value of .002 shows that gender had a contribution of less than 1% to academic performance of pupils with mild intellectual disability in Ibadan, Oyo

Table 3: Adjusted Marginal Mean showing the direction of difference in academic performance of pupils with mild intellectual disability between gender

			95% Confidence Interval	
Gender	Mean	Std. Error	Lower Bound	Upper Bound
Male	13.500[a]	.378	12.711	14.289
Female	13.100[a]	.406	12.253	13.947

Table 3 showed that male participants who are male obtained a higher mean score ($\bar{x}$ =13.50) while female participants had a mean score of ($\bar{x}$ = 13.10). This shows that male participants had better academic performance than female participants.

Ho 3: There will be no significant interaction effect of treatment and gender on academic performance in Bible Knowledge of pupils with mild intellectual disability.

The results presented in Table 3.0 shows that there was no significant interaction effect of treatment and gender on academic performance of pupils with mild intellectual disability in Ibadan, Oyo State ($F_{(2,28);}$ = .514, p>.05, η^2=.049). This implies that the interaction effect of treatments and gender did not contribute significantly to the variation in participants' scores on academic performance of pupils with mild intellectual disability in Ibadan, Oyo State. The eta value of .049 shows that the interaction of treatments and gender had a contribution of about 5% to academic performance of pupils with mild intellectual disability in Ibadan, Oyo State. Therefore, the null hypothesis is accepted.

Table 4: Adjusted Marginal Mean showing the direction of difference in academic performance of pupils with mild intellectual disability by interaction of treatment and gender

				95% Confidence Interval	
Treatment	Gender	Mean	Std. Error	Lower Bound	Upper Bound
Permissive Method	Male	15.000[a]	.524	13.906	16.094
	Female	16.500	.642	15.160	17.840
Adima Method	Male	19.255	.556	18.090	20.410
	Female	19.250[a]	.642	17.910	20.590
Control	Male	7.000	.718	5.502	8.498
	Female	6.625	.718	5.127	8.123

Table 4 showed that female participants in permissive method had a higher mean score ($\bar{x}$ =16.50) while male participant in permissive had a mean score of ($\bar{x}$ = 15.00). In Adima method group, male participants obtained a higher mean score ($\bar{x}$ =19.255) while female participant in Adima had a mean score of ($\bar{x}$ = 19.250). This shows that male participants in Adima method of teaching group had the best academic performance than those in permissive and the control group.

Discussion of Findings

Main effect of treatment on academic performance in CRK

The result shows that treatment had significant main effect on academic performance in Bible knowledge of pupils with mild intellectual disability. This is in line with assertion of Hesson and Shad (2007) who posited that appropriate teaching method promotes interest, analytical research, critical thinking and enjoyment of the teaching-learning process among students. Specifically, the lower academic performance of pupils taught with conventional teaching method (which is teacher-centred method) confirms the observation of Bala (2006) and Zacharia, Chin and Daud (2010) that the method often creates frustration and learning difficulties for students leading to low academic performance. The effectiveness of the result may be due to the teaching strategy that enable pupils to learn at their own pace making. This is supported by Jaramillo (1996) who stated that teachers activate effective learning when pupils are taught students concepts that are just above their current skills and knowledge level. This motivates them to excel beyond their current skills' level. In addition, Raymond (2002) pointed that students are guided and supported through learning activities that serve as interactive bridges to get them to the next level. As a result, the learner develops or constructs new understandings by elaborating on their prior knowledge through the support provided by more capable others

Main effect of gender on academic performance in Bible Knowledge

The result shows that there was no significant main effect of gender on academic performance in Bible knowledge of pupils with mild intellectual disability. This is not consistent with the observation of Jegede (2010) who reported that male subjects were significantly better than their female counterparts. However, the finding did aligned with the findings of Muhammad (2014) and Opara and Waswa (2013) who concluded base on their separate studies that there was no significant difference in academic performance based on gender.

Interaction effect of treatment and gender on academic performance in CRK

The result shows that the interaction effect of treatment and gender on academic performance in CRK of pupils with mild intellectual disability was not significant. The findings is not consistent the assertion of Lawal (2009) that female subjects were significantly better than their male counterparts and that there was a significant difference between the male and female subjects in their ability to solve quantitative problems. This implies that the use of demonstration method is good for both boys and girls. Odubunmi and Onafowokan (2003), observed no difference in performance based on gender when the subjects were taught using Hands-on experience method of teaching

Conclusion

Based on the findings of the research study, it could be concluded that the use of ADIMA and Permissive method of teaching enhances effectives teaching and learning pupils with intellectual disability. The reason is that these methods exposed them to new way of learning and they find learning more interesting. The teachers of pupils with mild intellectual disability do not possess the necessary skills that can make them utilize the effectiveness of ADIMA and Permissive teaching method pupils with mild intellectual disability in our environment and these causes a lot of problems cause most times the pupils with mild intellectual disability does not understand what the teacher teaches cause the teachers generalize and does not have enough patient in teaching these pupils. Asides from these, most of the teacher see the method as mere wasting of time because all these teachers are not trained special teachers.

Recommendations

Based on the findings of the study, the researcher recommends the following:

1. Teachers should use ADIMA and Permissive method in teaching pupils with mild intellectual disability because it enhances academic performance in Bible Knowledge.
2. Teachers should be properly trained in the area of using different methodologies in teaching pupils with mild intellectual disability.
3. Schools of pupils with intellectual disability should appeal to non- governmental organizations, private sectors, individuals and industries to assists them in procuring modern and relevant materials for successful teachings.
4. Teachers should develop positive attitude towards the use of these methods of teaching
5. Government should endeavor to supply special schools with current curriculum, teaching aids and qualified teachers who are specially trained in the field of special education in other to know appropriate methods to use in teaching pupils with special needs.

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