Functional Literacy in Reading Comprehension: Relative Effectiveness of Using Interactive Video Instructional Mode and Tutorial Video Instructional Mode in Teaching

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Abstract

The study investigated the relative effectiveness of the use of Interactive Video Instructional Mode (IVIM) and Tutorial Video Instructional Mode (TVIM) in teaching. It investigated this using Junior Secondary School Three (JSS 3) students' performances in reading comprehension in Makurdi Local Government Area of Benue State. The research was guided by three research questions and three null hypotheses. The study adopted the quasi-experimental research design of pre-test, post-test of non-equivalent experimental groups. A sample of 83 JSS 3 students was sampled from two secondary schools from the study area was done using simple random sampling technique. Data were collected using Reading Comprehension Performance Test (RCPT) and analysed using mean and standard deviation to answer the research questions. Analysis of Covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance. The result showed that there was no significant difference in the effect of TVIM on male and female students' mean reading comprehension performance scores. The research therefore recommended, among other things, textbooks, workshops and seminars on English Language teaching.

Key words: Functional literacy, reading, relative effectiveness, interactive video instructional mode, tutorial video instructional mode.

Introduction

One of the goals of every educational system is to develop permanent literacy and critical thinking skills in learners to solve educational problems or tasks at school and life after school. Developing effective reading skills in students is therefore a veritable tool for achieving permanent literacy and critical thinking skills in learners for critical growth and development (Muodumogu, 2012). This therefore implies that students should be helped to acquire reading comprehension skills that would enable them progress at school and later in the world of work.

Any child who cannot read effectively is on the disadvantage at school. This is because the ability to read effectively is used as a yardstick for the assessment of the level of human development and achievement in every education system of a country. As averred by Uguma and Timothy (2015), achievement in academics is a function of preparedness on the part of students; it takes their commitment to engage in worthwhile academic endeavours. Effective reading is thus measured in terms of an individual's performance, competence and astuteness in discharging professional and leadership duties (Slavin, 2011; Muodumogu, 2012). This means that the skill of reading should be effectively taught and learnt at school. In spite of the crucial role of reading in the life of a learner, most Nigerian public schools are failing in equipping students with the needed reading skills to face English Language tasks. Muodumogu (2012) affirms that high percentage of learners in public schools in Nigeria are unable to read, and those who do read, are unable to use reading as a tool for learning and therefore cannot be said to be strategic in their reading. The problem of this study is brought to bear on this ugly trend. Oyetunde (2013) attributes this problem to poor instructional methodologies arising from poor understanding of the nature of reading and the inadequate preparation of teachers. Considering the need to improve on this trend, this study sought a paradigm shift from the conventional instruction of reading to a research-proven interactive strategy like the interactive video instructional mode. This way, the study would be able to ascertain the relative effectiveness of interactive video

instructional mode and the conventional method on male and female students ' performance in reading comprehension.

The conventional instruction is a teacher-based approach that yields very little. Muodumogu and Unwaha (2013) observe that conventional method does not give enough in the teaching and learning process. This therefore may tend to affect the achievement of students in reading comprehension. Obi-Okoye (2004) also reports that the conventional method of teaching does not give learners much assistance and participation in the learning process. Osokoy (2010) reveals that there is a significant difference in the mean achievement scores of students taught using video instruction and those taught English using the conventional strategy. The mean difference was in favour of the video instruction.

The interactive video instructional mode could be much more effective in activating students' crucial thinking skills in the reading process than the conventional method. IVIM is a current instructional trend that puts learners in control over the amount of material covered, how often it is presented and through what medium it is presented (Anderson. 2009). The interactive video instructional mode provides a medium through which students can randomly and quickly access a visual and audio database. According to Osokoy (2010), interactive video instructional mode is a media based instruction that allows the user, not the designer to control the sequence, pace and what to look at and what to ignore in a reading content. This instructional strategy enables students to learn faster and retain information longer when it is presented using interactive video instructional mode.

The learning achievement of students in reading comprehension could also be improved by using the Tutorial Video Instructional Mode (TVIM) activity. TVIM takes the characteristic of the self- instruction device, a "teaching machine" developed by Pressey in 1926. TVIM takes on the responsibility for the main teaching without active participation of the teacher. The tutorial mode is an instruction activity, a self-instructional course, designed and packaged on a video

clip, consisting of frames, stimuli, questions as well as responses. The mode requires that learners go through the frames and respond to the questions at the end of each frame or video clip. In essence, the tutorial mode makes the video a teaching machine by using the principles of programmed instruction. The characteristics of the mode include text presentation in the learning process, anticipating a feedback and an appropriate reinforcement based on learners' performance (Anderson, 2009).

Anderson (2009) asserts that TVIM activity is a computer-based education or instruction whose purpose is to assist users in learning how to use parts of software, programmed for a particular purpose using applications like operating system interface, programming tools or video game. It allows users to participate in real-time lectures and online tutorial using web. Ijiga (2014) reports that there was no significant difference in the effect of TVIM activity on male and female students' mean reading comprehension achievement scores. Osokoy (2010) affirms that video instructional strategy like TVIM activity had a significant effect on students' achievement in English language.

The process of teaching reading using interactive video instruction mode involves three stages. The teacher as the facilitator first designs a group video and audio-based chat that allows learners to read at their own pace after school and write their opinions. The teacher then guides the learners' critical thinking skills using questions based on the video and clips. The students go through the video clip again and attempt the questions sent in by the teacher. In this way, learners may become proactive and cognitively engrossed in the reading process to solve language tasks. This method would complement the position of Uguma and Akpama (2013) that English Language teachers should endeavour to teach students all that the curriculum content specifies for students to learn before they are exposed to the external English Language examination. On this premise, this study sought to find out the relative effectiveness of IVIM and the conventional method in enhancing students' achievement in reading comprehension based on gender.

The interactive video instructional mode may be gender friendly. Gender over the years, has proven to be an important moderator variable in teaching and learning. Hornby (2010) defines gender as the state of being a male or female by sex traits. Muodumogu and Unwaha (2013) reveal that girls are as intelligent as boys and both can cope equally with intellectual activities. However Nnachi (2007) reports that female students have an edge over male students in language aptitude.

This study, based on the foregoing, therefore sought to investigate the relative effectiveness of interactive video instructional mode and tutorial video instructional media on male and female students' achievement in reading comprehension in Makurdi Local Government Area of Benue State, Nigeria.

Research questions
        The following research questions guided the study.
1.   What would be the difference in the effectiveness of IVIM and TVIM activities on students' mean reading comprehension performance scores?
2.   What is the difference in the effect of IVIM activity on male and female students' mean reading comprehension performance scores?
3.   What would be the difference in the effect of TVIM activity on male and female students' mean reading comprehension performance scores?

Hypotheses
        The following null hypotheses were formulated and tested at 0.05 alpha level of significance:
1.   There is no significant difference in the relative effectiveness of IVIM and TVIM activities on students' mean reading comprehension Performance scores.
2.   There is no significant difference in the effect of IVIM activity on male and female students' mean reading comprehension performance scores.

3.   There is no significant difference in the effect of TVIM activity on male and female students' mean reading comprehension performance scores.

Methodology

The study adopted a quasi-experimental design of pre-test, post-test non-equivalent experimental groups. The experimental group 'A' was exposed to the Interactive video Instructional Mode (IVIM) while the experimental group 'B' was taught using the Tutorial Video Instructional Mode (TVIM). The reason for the adoption of quasi-experimental design was because the design allows researchers to select and assign intact classes and learners to different instructional groups.

The population of the study comprised 2,573 Upper Basic Three students from public secondary schools in Makurdi Local Government Area of Benue State. The study therefore sampled 83 male and female students in two intact classes from two secondary schools using simple random sampling technique. This study employed Reading Comprehension Performance Test (RCPT) as instrument for data collection. The RCPT was an instrument that consisted of ten multiple choice questions in line with the current secondary school English curriculum for Upper Basic Three learners. The format of the RCPT was adopted from the Basic Education Certificate Examination (BECE, 2018). The content of the RCPT for pre-test and post-test were reshuffled. However, data collected were analysed using mean and standard deviation to answer the research questions while Analysis of Covariance (ANCOVA) was used to test the null hypotheses at 0.05 level of significance.

Results

The analysis and interpretation of the study were based on the three research questions and three null hypotheses. The decision rule was that if p = value was less than the specified alpha level of 0.05, the null hypothesis was therefore rejected, but if proven otherwise, it was accepted.

Research question 1

What would be the difference in the relative effectiveness of IVIM and TVIM activities on students' mean reading comprehension performance scores? The result of the data analysis is as presented in Table 1.

Table l: Mean difference in the relative effectiveness of IVIM and TVIM activities on students' mean reading comprehension performance scores

Group	N	Pre-test mean	Std. deviation	Post-test mean	Std. deviation
IVIM	48	19.40	4.854	31.10	7.546
TVIM	35	19.14	4.954	30.89	8.181
Mean difference		0.26		0.21	

Table 1 shows the difference the relative effectiveness of IVIM and TVIM activities on students' mean reading comprehension performance scores. Students exposed to IVIM have a post test mean of 31.10 while those exposed to TVIM have a mean of 30.89. This gives a post test mean difference of 0.21 in favour of those exposed to IVIM.

Research question 2

What is the difference in the effect of IVIM activity on male and female students' mean reading comprehension performance scores? The result of the data analysis is as presented in Table 2.

Table 2: Mean difference in the effect of IVIM activity on male and female students' mean reading comprehension performance scores.

Group	N	Pre-test mean	Std. deviation	Post-test mean	Std. deviation
Male	28	19.69	4.905	30.75	7.501
Female	20	18.61	4.807	31.60	7.776
Mean difference		1.08		0.85	

Table 2 shows the difference in the effect of IVIM activity on male and female students' mean reading comprehension performance scores. Male students have a post test mean score of 30.75 while the females have a mean score of 31.60. This gives a mean difference of 0.85 in favour of the female students.

Research question 3

What is the difference in the effect of TVIM activity on male and female students' mean reading comprehension performance scores? The result is as shown in Table 3.

Table 3: Mean difference in the effect of TVIM activity on male and female students' mean reading comprehension performance scores.

Group	N	Pre-test mean	Std. deviation	Post-test mean	Std. deviation
Male	24	19.42	4.99	30.21	8.973
Female	11	18.80	4.90	32.36	6.233
Mean difference		0.62		2.15	

Table 3 shows the difference in the effect of TVIM activity on male and female students' mean reading comprehension performance scores. Male students have a post test mean score of 30.21 while the females have a mean score of 32.36. This gives a mean difference of 2.15 in favour of the female students.

Hypothesis 1

There is no significant difference in the relative effectiveness of IVIM and TVIM activities on students' mean reading comprehension performance scores. The result of the data analysis is as presented in Table 4.

Table 4: ANCOVA for the significant difference in the relative effectiveness of IVIM and TVIM activities on students' mean reading comprehension scores

Source	Type III sum of squares	Df	Mean square	F	P
Corrected model	13.594[a]	2	6.797	.110	.896
Intercept	4257.792	1	4257.792	68.961	.000
Pre	12.628	1	12.628	.205	.652
Strategy	.793	1	.793	.013	.910
Error	4939.394	80	61.742		
Total	84778.000	83			
Corrected total	7277.491	111			

Table 4 shows the significant difference in the relative effectiveness of IVIM and TVIM activities on students' mean reading comprehension performance scores. The table gives F $(_2.80)$ = 0.013, and p = 0.910. Since p is greater than 0.05 (alpha level), the null hypothesis is accepted. This means that there is no significant difference in the relative effectiveness of IVIM and TVIM activities on students' mean reading comprehension performance scores.

Hypothesis 2

There is no significant difference in the effect of IVIM activity on male and female students' mean reading comprehension performance scores. Table 5 is the result of the data analysis.

Table 5 shows the significant difference in the effect of IVIM activity on male and female students' mean reading comprehension performance scores

Source	Type III sum of squares	Df	Mean square	F	P
Corrected model	182.709[a]	2	91.355	1.648	.204
Intercept	1524.440	1	1524.440	27.508	.000
Pre	174.280	1	174.280	3.145	.083
Gender	17.287	1	17.287	.312	.579
Error	2493.770	45	55.417		
Total	49115.000	48			
Corrected total	2676.479	47			

Table 5 shows the significant difference in the effect of IVIM activity on male and female students' mean reading comprehension performance scores. The table gives $F_{(2}, 45) = 0.312$, and p = 0.579. Since p is greater than 0.05 (alpha level), the null hypothesis is accepted. This means that, there is no significant difference m the effect of IVIM activity on male and female students' mean reading comprehension scores.

Hypothesis 3
There is no significant difference in the effect of TVIM activity on male and female students' mean reading comprehension performance scores. The result is as presented in Table 6.

Table 6: ANCOVA for the significant difference in the effect of TVIM activity on male and female students' mean reading comprehension performance scores.

Source	Type III sum of squares	df	Mean square	F	P
Corrected model	110.483[a]	2	55.241	.816	.451
Intercept	2926.112	1	2926.112	43.248	.000
Pre	75.444	1	75.444	1.115	.299
Gender	22.176	1	22.176	.328	.571
Error	2165.060	32	67.658		
Total	3566.000	35			
Corrected total	2275.543	34			

Table 6 shows the significant difference in the effect of TVIM activity on male and female students' mean reading comprehension performance scores. The table gives $F_{(2}, 32) = 0.328$, and p = 0.571. Since p is greater than 0.05 (alpha level), the null hypothesis is accepted. This means that, there is no significant difference in the effect of TVIM activity on male and female students' mean reading comprehension performance scores.

Discussion of findings
The discussion of findings in this study was based on the analysis of the three research questions and three null hypotheses. The analysis

of the treatments cut across the relative effectiveness of IVIM and TVIM strategies on male and female students' performance in reading comprehension. The finding revealed that there was no significant difference in the relative effectiveness of IVIM and TVIM strategies on male and female students' mean reading comprehension performance scores. This may be because both strategies are collaborative and interactive oriented aimed at enhancing the cognitive skills of the learners. The mean difference between two the groups was in favour of IVIM strategy but not significant. There was also no significant difference in the mean performance scores of students exposed to IVIM and TVIM in reading comprehension. This is in line with the earlier finding of Anderson (2009) that video clip instruction was better than the regular instructional routine, as students exposed to the strategy achieved higher scores in their reading comprehension task. This implies that video instructional strategies like IVIM and TVIM, among other collaborative learning strategies, are effective and research-proven activities for improving students' achievement in reading comprehension.

The finding further revealed that there was no significant difference in the effect of IVIM strategy on male and female students' mean reading comprehension performance scores. This may be because interactive video instructional mode (IVIM) gives equal opportunities to male and female students in an intact class to improve on their learning needs. This finding agrees with the finding of Osokoy (2016) that video instructional strategy has no significant difference in its effect on male and female students' performance in English Language. This implies that IVIM strategy is an effective language model for improving students' performance in English Language skills especially reading comprehension without gender bias.

The result of the study further revealed that there was no significant difference in the effect of TVIM on male and female students' mean reading comprehension performance scores. This may be because TVIM strategy is an effective language activity that gives equal opportunities to male and female students to develop their cognitive skills through watching video clips on a particular topic or subject

matter. This finding is in line with the finding of Ijiga (2014) that video instructional mode has no significant difference in its effect on male and female students' performance in reading comprehension. Apeh (2017) affirms that TVIM has no significant difference on male and female students' mean reading comprehension performance scores. This implies that TVIM is not a gender sensitive language teaching model and as such it should be used in enhancing both male and female students' performance in English Language skills especially in reading comprehension. The educational and instructional implication of these findings is that teaching to improve students' learning outcome can be effective when video instructional mode strategies are used among other collaborative models to stimulate students' cognitive skills to solve language problems or tasks.

Conclusion

In line with the findings of the study, it was therefore concluded that IVIM and TVIM strategies are effective and interactive processes of instructional language models that develop communicative and linguistic competence in learners as they discuss a reading content. It was also concluded that interactive and learners-centred language strategies like IVIM and TVIM are research-proven to be effective reading comprehension instruction activities for improving students' achievement in reading comprehension across gender.

Recommendations

Based on the findings of this study, the researchers made the following recommendations.

1. Curriculum planners and designers should work in collaboration with English Language textbook writers to incorporate IVIM and TVIM strategies into the students' reading programme for secondary schools.

2. Teacher education should be repositioned to empower teachers to acquire modern and interactive language strategies like IVIM and TVIM models for teaching reading comprehension to both male and female students without disparity.

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