



Effect of Video Package on Students' Academic Achievement in Agro-Climatology in Nigeria Certificate in Education Awarding Institutions in Bauchi State

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ABSTRACT

The purpose of the study was to determine the effect of video package on teaching agro-climatology for agricultural education students' academic achievement in NCE Awarding Institutions in Bauchi State. To accomplish this, three research questions were formulated to guide the study and three null hypotheses were tested. The study adopted quasi experimental research design. The area of the study was Bauchi state of Nigeria. The population comprised of 747 NCE Agricultural Education Students of NCE awarding institutions in Bauchi State, the sample size was determined using Krejcie and Morgan table of sample size determination, where 320 students were selected randomly. The instrument for data collection was achievement test. The data collected was analyzed using mean, standard deviation and t-test. The findings of the study revealed that the level of students' academic achievement between experimental group (G1) and control groups before the treatment was equal in NCE awarding institutions in Bauchi State on agro-climatology, Agricultural education students taught agro-climatology in experimental group achieved higher mean than the students in the control group in NCE awarding institutions in Bauchi State and Agricultural education students taught agro-climatology in experimental group retained higher mean than the students in the control group in NCE awarding institutions in Bauchi State. The study concluded that the use of video package for teaching and learning agro-climatology helps in improving students' achievement when compared with the conventional lecture method.

ARTICLE INFO

Article History

Received: December, 2019

Received in revised form: Jan., 2020

Accepted: May, 2020

Published online: June, 2020

KEYWORDS

Video Package, NCE, Agro-climatology, Bauchi State

INTRODUCTION

Agricultural climatology is the study of climate as it relates to the agricultural sector and its effect on

agricultural production. It mainly deals with the interaction between climatic factors. The main aim of Agricultural climatology is to apply climatological information for the



purpose of improving farming practices and increasing agricultural productivity both in terms of quantity and quality (Prasad, 2015). Agro-Climatology is one of the practically oriented courses offered under Agricultural Education Programme developed by the National Commission for Colleges of Education (NCCE, 2012). Teaching practical skills-based course like agro-climatology is quite different from teaching theory-based subjects, as such; teaching agro-climatology requires innovative approaches (Augustine, 2010). In view of the above, producing a video package as a medium for instructional delivery that will show step-by-step illustrations of practical activities and facilitation of the concept of climate as it relates to the agricultural sector is of paramount importance. This is because teaching using video package will help students learn and master the subject (Sankara, 2011).

To this effect, Euler (2013) posit that video package for teaching and learning process is a technological information process which can be used to present instructional events that are designed and produced for learning situation. Prasad (2015) highlighted that video package is clearly an instructional medium that is compelling and generates a much greater amount of interest and enjoyment than the more traditional printed material. Using sight and sound, video is perfect medium for students who are auditory or visual learners. With the added use of subtitles each student then has the choice to watch, listen to, or read each presentation. Video package for teaching helps to stimulate and engages students creating interest and maintaining their interest for longer periods of time, and it provides an innovative and effective means for educators to address and deliver the required curriculum content (Euler,

2013). Video package provides a means of interactive instruction and is a very flexible medium. Having the ability to stop, start and rewind is absolutely valuable. It provides the option to stop each video and challenge students to predict the outcome of a demonstration and elaborate on, or debate a point of historical reference. Video package also provide the option to rewind a section of the video to review a segment to ensure that learners understand a key concept (John, 2009). John (2009) also stated that using the right video service should help teachers to minimize lesson preparation time by enabling them to easily identify and select the right video for the lesson and draw upon the other resources provided by that service to enhance the learning outcomes, and the quality and benefits of each lesson.

Thus, producing video package through research and innovations would help to achieve sustainable agriculture (Sani, 2016). Therefore, producing and determining the effect of video package for NCE Agricultural Education students would significantly equip the graduates with necessary skills and knowledge on climatic condition, instrument for measuring climatic condition, weather forecast and climate change phenomenon (Agbulu, 2018). Production and determining the effect of video package on students' academic achievement in Colleges of Education would present a new paradigm shift for enhancing teaching and learning agricultural climatology. It is on these notes that the present study intends to envisage the effect of video package on teaching Agro-climatology for agricultural education students' academic achievement in NCE Awarding Institutions in Bauchi State.

The soaring rate of failure in agro-climatology by NCE I students of NCE awarding institutions which is attributed to abstract nature of the course, lack of



equipment and facilities for practical demonstration of the course contents, teacher's competency, resistance to change and lack of innovations has generated an outcry amongst the students (Nura, 2010). This situation is suspected to the use of traditional lecture method of teaching by teachers of agro-climatology. On the same vein, the bewildering situation gave rise to the government and scholars to advocate for new strategies for teaching agro-climatology that would enhance understanding, improves learning, make learning interesting and concrete, simplify teaching and yield result which will be less costs effective. Also, the relevance of video package in dissemination of knowledge and skills cannot be underestimated. According to Zubairu (2016), the use of video package in teaching and learning of agro-climatology needs to be considered due to the increasing need for knowledge on climate change and its impact on agricultural production practices. Despite the need for exploring new approaches for facilitating the teaching and learning of agro-climatology in the Nigeria, empirical evidence shows that using traditional classroom teaching method does not yield the expected results from the outcomes of teaching and learning of agro-climatology. Moreover, the assertion of Shande (2013) indicated that inadequacy of equipment and facilities for practical demonstration of the agricultural education has generated an outcry amongst the students of agricultural education which agro-climatology is an integral part of the programme and has affect the quality of the graduates. Therefore, determining the effect of video package on teaching Agro-climatology for agricultural education students' academic achievement in NCE Awarding Institutions, it will also help the students to learn some concept with ease and better understanding; thereby improving the

students' performance and provide a sensory experience that allows concepts to actually become an experience (Chado & Okworri, 2015). Hence, the needs for production and determining the effect of video package on teaching Agro-climatology for agricultural education students' academic achievement in NCE Awarding Institutions in Bauchi State.

Research Questions

The following research questions guides the study: -

1. What is the mean difference between the students taught agro-climatology using video package and those taught using lecture teaching method at pre-test in NCE Awarding Institutions in Bauchi State?
2. What is the mean difference between the students taught agro-climatology using video package and those taught using lecture teaching method at post-test in NCE Awarding Institutions in Bauchi State?
3. What is the mean difference in the retention-test of Agricultural Education Students in NCE Awarding Institutions who learnt agro-climatology in the experimental group and those in the control group?

Research Hypotheses

- H₀₁:** There is no significant difference between the mean achievement of Agricultural Education Students in NCE Awarding Institutions who learnt agro-climatology in the experimental group and those in the control group in the pre-test.
- H₀₂:** There is no significant difference between the mean achievement of Agricultural Education Students in NCE Awarding Institutions who learnt agro-climatology in the experimental group and those in the control group in the post-test.



H₀₃: There is no significant difference between the retention-test of Agricultural Education Students in NCE Awarding Institutions who learnt agro-climatology in the experimental group and those in the control group.

METHODOLOGY

The study adopted quasi-experimental research design. The design was considered suitable because the study sought to determine the effect of video package on teaching Agro-climatology for

agricultural education students' academic achievement in NCE Awarding Institutions in Bauchi State. The population of the study was Seven Hundred and Fourty Seven (747) NCE I Agricultural Education Students of NCE awarding institutions in Bauchi State. Simple random sampling technique was used to select the sample size of the respondents. Data collected were analyzed using mean and standard deviations in answering the research questions while the hypotheses were tested using t-test statistics at 0.05 level of significance.

RESULTS

Table 1: Mean Scores and Standard Deviation of Pre-test for Experimental Group (G1) and Control Group (G2)

| Variables | n | Mean | Std. Deviation | Remarks |
|-----------------------------------|-----|------|----------------|---------|
| Experimental Group (G1) Post-test | 160 | 3.68 | 0.94 | Low |
| Control Group (G2) Post-test | 160 | 3.81 | 0.98 | Low |

Source: Field survey, 2020

The result presented in Table 1 revealed that the t-test analysis of the mean scores and standard deviation of pre-Test for experimental group (G1) and control group (G2) was 3.68 and 3.81 respectively. This indicates that there was no significant difference in the mean score

for experimental group (G1) and control group. Therefore, this indicates the level playground for both groups. The result revealed that the mean and standard deviation is very low for both groups which also represent a similar level of attainment by the groups.

Table 2: Mean Scores and Standard Deviations of Post-tests for Experimental Group (G1) and Control Group (G2)

| Variables | n | Mean | Std. Deviation | Remarks |
|-----------------------------------|-----|-------|----------------|---------|
| Experimental Group (G1) Post-test | 160 | 31.26 | 5.40 | High |
| Control Group (G2) Post-test | 160 | 20.93 | 5.59 | Low |

Source: Field survey, 2020

Research question 2 was answered by the result shown on Table 2. From this result, the post-test mean scores shows a wide gap between the scores of the experimental group (G1) who were taught agro-climatology using video package and the control group (G2) taught using the institutions' traditional instructional

methods as it indicates the mean of G1 and G2 with scores 31.257 and 20.931 and standard deviation of 5.40 and 5.59 respectively. Therefore, students in experimental group achieved higher than the students in the control group.



Table 3: Mean Scores and Standard Deviations of Retention-test for Both Experimental Group (G1) and Control Group (G2)

| Variables | n | Mean | Std. Deviation | Remark |
|----------------------------------|-----|-------|----------------|--------|
| Experimental Group (G1) Pre-test | 160 | 29.43 | 5.10 | High |
| Control Group (G2) Pre-test | 160 | 14.41 | 5.12 | Low |

Source: Field survey, 2020

The answer to research question 3 is displayed on the Table 3 above. The result in the table shows that, the mean score of retention test of the experimental group (G1) was 29.428 with standard deviation 5.10 while the mean score of the retention test of the control group (G2) is 14.405 with a standard deviation of 5.10 and 5.12

respectively. The result indicates that the treatment applied on the experimental group has a great effect on their ability to retain what they have learnt as it shows an observable difference between the two groups. Therefore, students in experimental group retained higher than the students in the control group.

Table 4: t-test Analysis of mean achievement of Agricultural Education Students in NCE Awarding Institutions who learnt agro-climatology before the treatment (pre-test)

| Group | Mean | n | SD | T | df | P-value | Decision |
|--------------|------|-----|------|-------|-----|---------|----------|
| Experimental | 3.68 | 160 | 0.94 | -.875 | 318 | .387 | Accepted |
| Control | 3.81 | 160 | 0.98 | | | | |

Source: Field survey, 2020

A paired sample t-test was conducted to compare the mean performance of experimental and control group before the treatment (pre-test) of Agricultural Education Students in NCE Awarding Institutions who learnt agro-climatology before the treatment, there was no significant difference in mean

performance of experimental group at pre-test (M= 3.68, SD=0.94) and control group [(M=3.81, SD= 0.98; t= -.875, P>.05 (.387)] thus the null hypothesis was accepted. This signifies that there was no significant difference in the mean performance of the experimental and control groups before the treatment.

Table 5: t-test Analysis of mean achievement of Agricultural Education Students in NCE Awarding Institutions who learnt agro-climatology after the Treatment (post-test)

| Group | Mean | n | SD | t | Df | P-value | Decision |
|--------------|-------|-----|------|-------|-----|---------|----------|
| Experimental | 31.26 | 160 | 5.40 | 1.996 | 318 | .000 | Rejected |
| Control | 20.93 | 160 | 5.59 | | | | |

Source: Field survey, 2020

A paired sample t-test was conducted to compare the Mean achievement of experimental and control after the treatment (post-test) in NCE awarding institutions in Bauchi State, there was a significant difference in score for

experimental group (M= 31.26, SD=5.40) and Control group [(M=20.93,SD= 5.59; t= - 1.996, P <.05(.000)] thus the null hypothesis was Rejected. This signifies that there was a significant difference in the mean



achievement of experimental and control after the treatment.

Table 6: Mean of retention-test of students taught agro-climatology using the video package in the experimental and control group after the treatment in NCE awarding institutions in Bauchi State.

| Group | Mean | n | SD | t | df | P-value | Decision |
|--------------|-------|-----|------|-------|-----|---------|----------|
| Experimental | 29.43 | 160 | 5.10 | -.648 | 318 | .000 | Rejected |
| Control | 14.41 | 160 | 5.12 | | | | |

Source: Field survey, 2020

A paired sample t-test was conducted to compare mean retention of students taught agro-climatology using the developed video package in the experimental and control group after the treatment in NCE awarding institutions in Bauchi State, there was no significant difference in score for experimental group

(M= 29.43, SD=5.10) and Control (M=14.41, SD= 5.12; t= -.648, P< .05(.000) thus the null hypothesis is Rejected. This signifies that there was significant difference in the mean retention of students taught agro-climatology using the produced video package in the experimental and control group after the treatment.

FINDINGS OF THE FINDINGS

- i. The level of students' academic achievement between experimental group (G1) and control groups before the treatment was equal in NCE awarding institutions in Bauchi State on agro-climatology.
- ii. Agricultural education students taught agro-climatology in

- experimental group achieved higher mean than the students in the control group in NCE awarding institutions in Bauchi State.
- iii. Agricultural education students taught agro-climatology in experimental group retained higher mean than the students in the control group in NCE awarding institutions in Bauchi State.

CONCLUSION

The use of video package for teaching and learning agro-climatology to Agricultural education students in NCE awarding institutions in Bauchi State helps in improving students' achievement and retention of the concepts of agro-climatology when compared with the conventional lecture method.

- climatology for effective teaching and learning of agricultural education students in NCE awarding institutions in Bauchi State.
2. There is need for teachers to adopt the use of the video package in teaching agro-climatology in order to improve students' retention abilities among agricultural education students in NCE awarding institutions in Bauchi State.
3. There is need for NCE awarding institutions in Bauchi State to incorporate the use of video package for teaching agro-climatology in agricultural education programme.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made: -

1. The video package should be used as teaching aid for instruction delivery on the principles and concepts of agro-



ACKNOWLEDGEMENTS

The authors wish to acknowledge Tertiary Education Trust Fund (TETFund) and the management of Adamu Tafawa Balewa College of Education Kangere, for financially supporting the research.

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