IMSU Journal of Communication Studies
Volume 9, Issue 1, 2025
ISSN: 2682-6321, E-ISSN: 2705-2240
www.imsujcs.com

A QUASI-EXPERIMENTAL STUDY ON THE EFFECTIVENESS OF THE "SCHOOL ON AIR" TELEVISION PROGRAMME ON LEARNING OUTCOMES AMONG SECONDARY SCHOOL STUDENTS IN NIGERIA

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Abstract

This study investigated the effectiveness of the *"School on Air"* TV instructional programme in enhancing secondary school students' learning. Using a quasi-experimental research design, the study involved 150 senior secondary school students in Taraba State, Nigeria, who were divided equally into control and experimental groups. The experimental group was exposed to a 25-minute episode of the *"School on Air"* programme, while the control group was not. Pre- and post-test assessments were conducted to compare learning outcomes between the two groups. The findings reveal that while both groups exhibited poor knowledge before the treatment, the experimental group showed a significant improvement in their understanding of gender nouns after exposure to the TV programme. The study supports the idea that media-based education can be an impactful tool for enhancing learning. This suggests that the "School on Air" programme effectively enhanced students' learning. The study's findings have implications for both educational policy and the theory of social learning.

Keywords: Television, Instructional Programme, Learning, Secondary School, Students

Introduction

Education is a fundamental tool for societal transformation. Nelson Mandela famously stated, "Education is the most powerful weapon which you can use to change the world" (Agbamuche, 2015). It equips nations with the human resources necessary for the effective functioning of various sectors. Without education, no nation can thrive. Broadly, education refers to the process of learning through which knowledge, skills, and values are transmitted from one generation to the next, often through structured teaching and training (Murray, 2023; UNESCO, 2009). Among the various forms of education, formal education—delivered through structured curricula at primary, secondary, and tertiary levels—has gained significant attention due to its direct impact on the development of other sectors.

Over the years, governments around the world, international organisations such as UNICEF and Not-for-profit organizations have invested substantial resources to enhance access to and the quality of education (Heyneman, & Lee, 2016; Okoye*et al*, 2022). Innovations and policies have been introduced in many countries, including Nigeria, to advance formal education.

Modern technologies have been central to these efforts, transforming educational delivery systems (Ogwu, *et al,*2023*)*. In particular, the broadcast media, especially radio and television, have played a crucial role in education since the early 20th century. Educational broadcasting emerged as a phenomenon where programmes are specifically designed to facilitate learning, often complementing formal education systems (Ijeh*et al*, 2017; Nwagbara & Nwammuo, 2013). Educational broadcasting has had a measurable impact globally, improving literacy and cognitive skills among target audiences. Ojebode and Sonibare (2004)

reported that radio was used to teach children in Europe as early as the 1920s and in the United States in the 1940s. Countries such as India, Japan, Kenya, Togo, Cuba, and Tanzania have successfully utilised educational broadcasts to teach subjects like Mathematics, English, healthcare practices, and farming skills (Venniyoor, 2005; Aderinoye & Olajide, 2004; Chandar& Sharma, 2003; Berman, 2008).

In recent years, television's potential as an educational medium has gained global recognition. Programmes like *Sesame Street* and *Dora the Explorer* have demonstrated the efficacy of television in teaching children literacy, numeracy, and cognitive skills (Elliot &Lashley, 2017). In Nigeria, the Nigerian Broadcasting Service (now Federal Radio Corporation of Nigeria, FRCN) pioneered educational broadcasts in the 1960s and 1970s, teaching conventional classroom subjects through radio and television (Ajibade & Alabi, 2017). Television, with its unique audio-visual features, has stood out as an effective instructional tool (Benwari, 2015). Mohammed and Haroun, (2017) noted that television instructional programmes reduce teachers' workload and enhance student engagement by providing expertly produced educational materials.

One of Nigeria's prominent television-based educational programmes is *School on Air (SOA)*, introduced by the Educational Advancement Centre (EAC). The programme covers core subjects required for the Senior Secondary School Certificate Examination (SSCE), including English, Mathematics, Physics, Chemistry, Biology, and Economics (https://eac.edu.ng/school-on-air/).

These subjects are taught by experienced professionals and broadcast on various satellite and terrestrial television stations. The programme aims to support secondary school students and SSCE candidates by supplementing classroom instruction. While the objectives of SOA are commendable, the extent to which it influences students' academic performance remains largely unexplored in existing literature. This study seeks to address this gap by investigating the effectiveness of the *School on Air* programme in enhancing learning outcomes among secondary school students in Nigeria.

Literature Review

Instructional television has been at the forefront of educational innovation for decades, with early contributions by James, Richard, and Fred (1969) underscoring its classroom utility. They described instructional television as a tool involving simple cameras and portable video recorders to magnify images and facilitate the review of student performance.

This foundational understanding laid the groundwork for subsequent explorations of how instructional television can revolutionise teaching and learning processes (Mohammed &Haroun, 2017). Tunde-Awe and Emmanuel (2023) added that instructional television is as a structured programme designed to deliver formal instruction, complemented by teacher-led follow-ups to reinforce knowledge.

Their analysis highlighted the medium's ability to provide access to costly demonstrations, complex experiments, and visual excursions that surpass the capabilities of local teachers, while also presenting up-to-date advancements across disciplines. They further noted the unique attributes of instructional television—such as immediacy, ubiquity, animation, and visual potency—that make it an effective tool for conveying complex concepts.

Empirical studies have demonstrated the effectiveness of instructional television in enhancing educational outcomes. For instance, Schramm (1962), as cited in Muhammad and Haroun (2017), observed significant improvements in student learning attributed to instructional television, with its efficacy evident in schools across the United States and other countries. A notable example is the 1975–76 Satellite Instructional Television Experiment (SITE) in India, which utilised satellite technology to deliver real-time educational content to remote villages. This initiative marked a pivotal step in leveraging media for national educational development, with a specific focus on providing lessons to primary school children.

In Nigeria, several studies have examined the impact of instructional television. Nwabueze and Uju (2014) investigated the influence of "*Telematics,*" a television-based mathematics programme, on secondary school students, reporting substantial academic performance improvements due to consistent

programme exposure. Shettima*et al*, 2020) explored the significance of radio and television learning programmes during the COVID-19 lockdown in Maiduguri, Borno State. Their findings revealed that these programmes significantly enhanced learners' academic achievement ($X^2 = 16.43$; $P > 0.05$) and maintained learner interest ($X^2 = 23.41$; $P > 0.05$).

Contrasting perspectives on television's educational efficacy have also emerged. Ahinda et al. (2014) studied the impact of television on preschool children's academic performance and language acquisition in Kenya, finding that unguided television viewing negatively affected these outcomes. Their findings emphasise the importance of content selection and adult involvement in maximising television's educational potential.

Similarly, Olumorin*et al,*2018) revealed that secondary school students in Ogbomoso were largely unaware of existing educational television broadcasts, despite having access to them. This aligns with the findings of Nwagbara and Nwammuo (2013), who examined the utilisation of instructional television programmes among senior secondary school students in Anambra State. They reported low engagement with these programmes, primarily due to inadequate power supply, lack of encouragement from teachers and parents, and minimal integration of programme content into classroom instruction. Consequently, only a small proportion of students demonstrated improved academic performance as a result of watching these programmes.

Despite extensive research on instructional television, there is a notable paucity of studies employing experimental methods to assess its direct impact on students' learning outcomes, particularly in Nigeria. Existing studies primarily rely on observational or descriptive approaches, leaving a gap in empirical evidence on the efficacy of such programmes in controlled settings. This gap underscores the need for the present study. By adopting a quasi-experimental design, this study seeks to provide robust insights into the effectiveness of Television formal Educational broadcasting in addressing critical gaps and informing evidence-based educational interventions.

Theoretical Framework

The theoretical framework for this study is Bandura's Social Learning Theory, which posits that individuals acquire behaviours, attitudes, and emotional responses by observing role models (Selinger, 2019). Bandura (1986) highlighted that televised modelling could significantly shape learners' attitudes and behaviours, making television a powerful tool for both social and academic learning.

McQuail (2005) further acknowledged that, while television is not the sole source of social learning, it plays a pivotal role, particularly for teenagers, who often internalize behaviours and cognitive processes depicted in educational programmes. This theory provides a strong foundation for examining how the instructional television programme*School on Air* influences students' learning outcomes and behaviour, situating its impact within the broader context of media effects studies.

Hypothesis

Based on the review of literature, the researchers hypothesized that:

H1: Students who are exposed to instructional television programmes, such as *School on Air*, demonstrate significantly better academic performance compared to those who are not.

Research Methods

This study employed a quasi-experimental research design to examine the causal effect of the *School on Air* (SOA) television programme on secondary school students. A quasi-experimental design involves administering treatment in a non-laboratory setting (Apuke & Gever, 2023) and is particularly suited for investigating cause-and-effect relationships (Severin& Tankard, 2001). The study population consists of 4,500 Senior Secondary School 3 (SS3) students in public schools across Jalingo metropolis, Taraba State, Nigeria.

This total population represents the entire number of students in the selected schools. From this population, a purposive sample of 150 students was drawn from ten (10) randomly selected public schools. Purposive sampling was employed to ensure the selection of students who possess specific characteristics relevant to the study, such as their level of exposure to the subject matter under investigation.

This approach allows for a more focused and insightful analysis of the research problem. The sample was divided into control (n=75) and experimental groups (n=75). The quasi-experimental approach enabled a comparison between the treatment group (students exposed to the experiment) and the control group (students not exposed) (Anazor*et al.,* 2023; Zhang *et al.,* 2022).Dual methods were used for data collection. The experimental group was exposed to a 25-minute episode of the *School on Air* TV programme on "Gender Nouns" in English Language, while the control group was not exposed to the programme.

Subsequently, both groups were administered a test on the same topic. To ensure the validity of the instrument, the test questions were derived from the inbuilt questions in the SOA design, which were specifically created to assess audience understanding and provide feedback. The data collected were analyzed using means and standard deviation for descriptive statistics and an independent t-test with a 0.05 level of significance for inferential statistics.

Result

Overall, from the sample size of 150 participants, 75are males and 75 were females. All participants were between the ages of 14 and 18 years. All the copies of questionnaire distributed to both the control and treatment groups were retrieved and found to be adequately completed, hence, used in the analysis below.

Table I: Participants' knowledge of "Gender Nouns" in English Language before Treatment

Group	**M_1**	**SD_1**	**D*f***	***p*-Value**	***T*-value**
Control (n=75)	1.2	0.8	98	0.87	1.5
Treatment (n=75)	1.1	1.9	98	0.87	1.5

$p \leq 0.05$: Significant difference

$p > 0.05$: No significant difference

The data in Table I indicates that participants in both the control and treatment groups had poor knowledge of "Gender Nouns" in English Language prior to the intervention, as evidenced by their mean scores (Control: M_1=1.2,; Treatment: M_1=1.1), which are low on the scale. The standard deviations (Control: SD_1=0.8; Treatment: SD_1=1.9) reflect variability in responses within each group. The *p*-Value (0.87) is not statistically significant, indicating no meaningful difference between the groups at this stage. The T-value (1.5) further supports the absence of significant variation, confirming that both groups were equally lacking in knowledge of the subject before the treatment.

Table II: Participants' knowledge of "Gender Nouns" in English Language after Treatment

Group	M_1	SD_1	D*f*	*p*-Value	*T*-value
Control (n=75)	1.3	0.8	98	0.76	1.2
Treatment (n=75)	3.2	1.4	98	0.03	6.7

$p \leq 0.05$: significant difference

$p > 0.05$: no significant difference

Table II shows a comparison of participants' knowledge of "Gender Nouns" in English Language after treatment. The control group had a mean score of 1.3 with a standard deviation of 0.8, and no significant change was observed as indicated by the p-value of 0.76 ($p > 0.05$). In contrast, the treatment group had a significantly higher mean score of 3.2 with a standard deviation of 1.4, and the p-value of 0.03 ($p \leq 0.05$) confirms a statistically significant improvement in their knowledge. The *T*-value for the treatment group (6.7) further supports the conclusion that the "School on Air" TV programme had a positive impact on learning, leading to a marked improvement in their understanding of gender nouns.

Discussion of Findings

The objective of this study was to assess the effectiveness of the "*School on Air"* TV instructional programme on secondary school students' knowledge of "Gender Nouns" in English Language. The findings, indicate that the treatment had a significant positive impact on the participants' learning. In the pre-treatment phase, both the control and treatment groups had similar, poor knowledge levels. However, after the treatment, the treatment group exhibited a significant improvement in knowledge. This suggests that the "*School on Air"* TV programme successfully enhanced the participants' understanding of gender nouns, while the control group remained largely unaffected.

These findings are consistent with prior literature (Muhammad &Haroun, 2017, Nwabueze&Uju, 2014 and Shettima*et al,* 2020) on the effectiveness of educational television programs. The above studies have shown that well-designed instructional programs can improve learning outcomes, particularly when they cater to the target audience's needs and are designed with engagement in mind.

This study adds to the growing body of research supporting the use of media as an effective educational tool, especially for students in remote areas or those with limited access to traditional classroom learning resources. The significant improvement observed in the treatment group supports the argument that media-based education can be a powerful tool for enhancing students' knowledge.

The result also aligns with the Social Learning Theory by Albert Bandura, which posits that learning occurs through observation, imitation, and modeling (Bandura, 1986; Lyons, & Berge, 2012; Selinger, 2019). In the case of the "*School on Air*" TV programme, students were able to observe and learn about gender nouns through visual and auditory cues, mimicking the behavior modeled in the program. The success of the program in improving knowledge underscores the role of media as an influential source of learning. This upholds the hypothesis that students who are exposed to instructional television programmes, such as *School on Air*, demonstrate significantly better academic performance compared to those who are not.

Conclusion

This study shows that the "*School on Air*" TV instructional programme is effective in improving secondary school students' learning in Nigeria. Students who were exposed to the programme demonstrated a significant increase in their knowledge of topic taught "Gender Nouns" in English Language, compared to

the control group, which showed minimal improvement. This conclusion has implications for theory and Educational Policy as follows.

Implications for Social Learning Theory

The findings support the Social Learning Theory, as the students in the treatment group observed and internalized the educational content presented through the TV programme, leading to improved learning outcomes. This suggests that media, particularly educational television, can play a crucial role in shaping learning behavior and knowledge acquisition.

Implications for Education Policy

The study highlights the potential of media-based learning programme to enhance educational outcomes, especially in areas where traditional educational resources may be limited. Educational authorities and schools may consider integrating such programs into the curriculum to improve student engagement and knowledge retention.

Limitations of the Study and suggestion for further studies

Despite the valuable findings, this study has several limitations. First, the sample size was relatively small (n=100 for each group), which may limit the generalizability of the results to a broader population of secondary school students in Nigeria. Second, the study utilized only one exposure to the treatment (a single episode of the program), which may not fully capture the long-term impact or sustainability of the knowledge gained. These limitations suggest the need for further research with larger samples, a wider range of subject areas, and longer exposure to educational programs.

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