

Effectiveness of Lagos State Alternative Instructional Media for Senior Secondary School Students During Covid-19

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Abstract

COVID-19 epidemic caused one of the most major disruptions to education all over the world, which led to abrupt closure of schools for several months, causing important stakeholders to adapt fast strategies of educational broadcasts on television and radio as a viable alternative instructional media to limit the possible learning gap caused by the pandemic. Theory of Multiple Intelligences and Theory of Constructivism were employed for this study. Descriptive research design was adopted using survey method with questionnaire as the instrument. Purposive sampling technique was used to choose Ojodulo local government area, while total enumeration sample was used to pick the senior secondary school, and systematic sampling was used to select 251 students. Findings revealed that 51.8% did not understand all the topics in the term's scheme of work on taught on Radio and Television educational broadcast during Covid-19. 53% of the students disagreed that the objectives of the lessons were well understood on radio and television than physical class, and 52.2% disagreed that they learnt faster via radio and television educational broadcast during Covid-19 than physical class before Covid-19, while 69.8% indicated that their rate of assimilation was not effective because learning on radio and television does not seem real unlike physical class. The study concludes that students could not substantially benefit maximally from the broadcast educational programmes due to some of the challenges of not being able to relate to the teachers as it is done in physical class, making the alternative instructional tool of radio and television minimally effective.

Keywords: Instructional media, COVID-19, Students, Educational programmes, Nigeria

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I. Introduction

COVID-19 epidemic caused one of the most significant disruptions to education in history, affecting more than 90% of the world's student population (UNICEF, 2020). Approximately 1.2 billion students were out of school as a result of pandemic-related measures, with school closures affecting 73.8 percent of the world's school population (UNESCO, 2020a). In Nigeria, school closures affected 36,400,000 primary and secondary school students (UNESCO, 2020a). Academic activities were put on hold in many countries all over the world. In India, academic activities were put on hold till the middle of the year, by individual institutions and states even before the countrywide lockdown commenced 25th March, 2020 and prolonged to the fifth phase until 30th June, 2020 with some relaxations in no infection areas. Bhutan first declared closing of schools and institutions and reduction of business hours during the second week of March, 2020 (Kuensel, 2020), the complete nationwide lockdown was implemented from 1st August, 2020 (Palden, 2020). In Nigeria, the Nigerian Federal Ministry of Education approved the shutdown of all learning institutions on March 19, 2020 (Nlebem, 2020), and on 29th March, 2020, the Federal Government declared a 14-days lockdown of all commercial activities of its major cities; Lagos, Ogun (close proximity to Lagos) and Abuja between the hours of 11p.m on Monday, 30th March 2020, this was inclusive of restriction on inter-state travelling of residents in order to curb the widespread of the virus as these were observed states with the highest track wave of the virus (Mbah, 2020). Students' academic activities were halted due to fear for rapid spread of the virus and this led to students' academic

activities being physically halted for the period of six (6) months; the effect of which placed an increase in the rate of out-of-school children.

The abrupt closure of schools caused severe disruptions in Nigeria's educational system, including learning modalities, access to school-related services, parenting routines, and the Federal and State Ministries of Education's crisis management capacities. Students were at home for several months, causing important stakeholders to adapt fast strategies to limit the possible learning skip caused by the pandemic. Although this has had an impact on education access, quality, and equity, it prompted a global rethinking of education delivery. To ensure that learning never ceased, many countries including Nigeria turned to online-based distant education and educational broadcasts on television and radio which have proven to be a viable alternative instructional media, where online learning is not an option (Kuwonu, 2020).

To alleviate the impact of school closures, the federal and state governments, as well as the private sector in Nigeria, adopted numerous learning interventions employing technological platforms, internet-based tools, and conventional media. In swift response to bridge the huge learning-gap created by the pandemic, the Lagos State government under the leadership of Governor Babajide Olusola Sanwoolu in collaboration with the Ministry of Education under the leadership of the Commissioner for Education, Honourable Folashade Adefisayo and some Non-profit making organizations exercised the use of radio and television stations such as Lagos Television (LTV), WAZOBIA MAX, Naija F.M (102.7), Eko FM, Radio Lagos to capture broadcast educational for primary and secondary school students within the state from 30th March, 2020 (EduCeleb, 2020a). The broadcast was streamed into a batch of two slots, it took place Mondays through Fridays between the hours of 12 noon and 5.30 p.m.; the first stream was 12 noon – 1p.m and covered primary classes which also treated English Language and Mathematics. The second stream covered Junior Secondary School 1-3 also aired lessons in Mathematics and English Language for 3 days in a week between the hours of 4 p. m and 5.30 p.m., senior secondary schools between 11-4pm, Monday to Friday (EduCeleb, 2020b). The need for alternative instructional media especially radio and television is highly essential in bridging the learning gaps created by unforeseen scenarios around the world, especially during COVID 19 pandemic. Therefore, this study aims to find out the effectiveness of Lagos State's alternative instructional media for senior secondary school students during COVID-19 pandemic.

Statement of the problem

The COVID-19 pandemic posed particular problems to Nigeria's already precarious educational system (Obiakor&Adeniran, 2020). To ensure that learning never ceases, Lagos state government increased Educational broadcast programmes on television and radio designed to keep the students engaged during the lockdown period and also to reduce the spread of the virus. However, the setting-up and use of radio and television as instructional media tools to provide alternative learning present major challenges, such as non-availability of educational content in audio-visual formats, difficulties to produce content in quantity and quality in short time, and the absence of pre-existing partnerships for the design and broadcasting of the educational content. On the part of the students, learning on radio and television was not without some challenges which include accessibility of the instructional media, learning within home environment, power failure, and inability to relate with the teachers which they were used to in physical classes which may affect their learning process, hence the need to assess the effectiveness of Lagos State's alternative instructional media for senior secondary school students during COVID-19 pandemic.

Objectives of the Study

The other objectives are to:

- i. Examine the effectiveness of instructional media ((Radio and Television) in covering the term's scheme of work during Covid-19.
- ii. Find out the perceived impact of instructional media (Radio and Television) on learning outcome of students during Covid-19
- iii. Examine the factors militating against the effectiveness of alternative instructional media ((Radio and Television) during Covid-19.

Research Questions

- i. How effective are the instructional media ((Radio and Television) in covering the term's scheme of work during Covid-19?
- ii. What are the perceived impacts of instructional media (Radio and Television) on learning outcome of students during Covid-19?
- iii. What are the factors militating against the effectiveness of alternative instructional media ((Radio and Television) during Covid-19?

II. Literature review

Concept of Instructional Media

Romiszowski (1981: 339) cited in Ihebuzor and Ihebuzor (2015) described instructional media to include not only electronic communications media, but also such devices as slides, photographs, teacher-made diagrams, charts, real objects and handouts that we use in the practice of prepared instruction. In a similar vein Adeniregun (n.d), Kadzera (2006) cited in Tuimur and Chemwei, (2015) opined that instructional media are objects which are envisioned to help the teacher to teach more effectively and enable the students to learn more readily. Instructional media are information carriers intended explicitly to fulfill objectives in a teaching-learning situation. Instructional media is "the term given to the medium's use in formal learning systems, whether primary or higher education" (Berman, 2008, p. 2). For this study, the term refers to broadcast devices (radio and television) used in the teaching and learning processes to facilitate students' achievement of instructional objectives. It overcomes the impediment of space to reach a wider audience and, consequently, does not disregard rural and isolated people of having the advantage of learning outside the classroom (Berman, 2008). Thanks to its immediacy, it "remains a viable medium that has proven educational worth in terms of both pedagogical importance and geographical reach" (Hammond, Asemanyi, Okae- Anti, & Wornyo, 2016, p. 16) as it brings ready-made lessons to students, even those living in remote regions.

Broadcast Media as Instructional Tool

Broadcasting is a fundamental means of delivering information, thoughts, ideas, and entertainment to the general public and private sector in practically every country on Earth. It refers to the transmission of electromagnetic audio signals (radio) or audio-visual signals (television) to a large population via widely available standard receivers (Ogunmilade, 1998). Information has traditionally been disseminated via radio and television stations, both national and local. Radio and television education (Cauchemez, Ferguson, Wachtel, Tegnell, Saour, Duncan, & Nicoll, 2015) refers to a medium that uses formal delivery of specific course materials. Radio and television are commonly utilized to supplement instructional materials and provide opportunities for telephone conversations before COVID19 through educational broadcasting programmes in Nigeria. Radio and television programs have been developed in Nigeria to aid students in rural areas who are unable to access other kinds of education due to a bad internet connection. Following the COVID19 outbreak, many countries, primarily in the West, shifted from traditional to online teaching and learning. While schools were temporarily closed, this adjustments gave educational possibilities for pupils. On the other hand, because many developing nations, have low levels of technology and economic development, it was vital for the Ministry of Education to embrace radio and television to facilitate the transition to online learning. Radio and television sets are less expensive than computer sets/systems and are easier to transport globally. Broadcast media enables low-cost access to information, i.e. it is cost effective to transmit knowledge, as a single teacher can teach millions of students simultaneously nationwide/globally.

Broadcast media's potential as a highly effective educational delivery method is illustrated by its unique traits and advantages that set it apart from other electronic media. According to Dike (2015), broadcast media as an educational delivery technology and instructional tool has the capability of simultaneously distributing signal to several audiences located in different locations. It possesses the ability to provide a sense of immediacy to information and events as they happen. Broadcast media have universal value because they can overcome literacy and social class barriers, as their signals do not discriminate against humans based on their socioeconomic and educational backgrounds. In terms of adaptability, broadcast media enables different times to fit the daily student's lifestyle, allowing learners to use them at their convenience. They aid in the conceptualization of subject content by providing a sense of reality. They establish the necessary conditions for students to capture and convey real-world events and experiences using audio-visual equipment, rather than simply recounting or describing them abstractly. According to Khadijah (2020), broadcast media, due to their audio-visual characteristics, have a significant direct and indirect influence on students, making learning more engaging, motivating, concrete, efficient, and successful.

Theoretical framework

The study was premised on Theory of Multiple Intelligences and Theory of Constructivism. Theory of Multiple Intelligences was developed by Dr. Howard Gardner, Co-director of project zero at Harvard University Graduate School of Education in 1983. This theorist holds that our school systems which imitate our culture, teach, test, renitence, and give incentives primarily depends on two kinds of intelligence- verbal and logical-mathematical without reference to others. Gardener opined that students reflect how they learn and what interest them. Gardner named at least five separate intelligences that humans may comprise. If educators teach their students knowing that there are other intelligences besides only verbal and logical, then students will have better chances of learning. The [intelligences] include visual/spatial, body/kinetic, musical, and interpersonal

intelligences. Gardner has recognized each of these intelligences as equally important to learning. These intelligences provide the fundamentals of visual arts, music dance, and drama, and through these art forms, most students will not only find the ways for communication and self-expression, but the tools to produce meaning and learn almost any subject effectively. Relating this theory to this study, during broadcast educational programme lecture, students are guided into discovery by exploring audio-visual characteristics which aid in their learning process.

The theory of constructivism was developed by John Dewey and was promoted by the ideas of educators like Rousseau, Montessori and Jerome Bruner in Early 19th century. The theory of constructivism holds that learning is contextual, done as a whole, that knowledge exists only in the learner, that learners transform input, that learners explore, organize and observe their environment while teachers are supportive in learning process. The proponents are of the views that human beings do not learn by imbibing external sources, but rather learn by activity making or own meaning. The proponents are of the view that students learn through active participation in classroom activities, that imagination is the gateway to learning from past experiences that are carried into the presents. Relating this theory to the present study, it shows that when students are allowed to participate in the classroom activity by performing different roles, they can explore information on their own develop their cognitive structures and this would promote their interest and achievements in their respective secondary subjects in school. It is important to note that the theory stresses the importance of 'learning by doing' (role playing) therefore, if students are allowed to explore information on their own, it would bring their imagination or aesthetic world with the cognitive world of the students which invariably promote the interest and achievement of students in radio and television educational broadcast.

Empirical review

In the study of Usha and Sharma (2003) on "Bridges to Effective Learning through Radio" the study focused on the audience's perceived need for a radio channel dedicated exclusively to educational programming and provided respondents with an opportunity to suggest possible program content and formats. When the respondents were asked about radio station devoted to educational programming, most of the respondents agreed that radio stations are devoted to educational programming, a finding the researcher says reinforces the need for such educational broadcast service. However, when the researchers inquired from the respondents whether radio should be used for educational purposes, nearly half of the respondents did not favor the use of FM radio. Results also revealed that respondents did not want ostentatious anchors to host educational broadcasts. Instead, respondents were generally looking toward GyanVani programs to fulfill personal and defined educational goals (e.g., certified vocational courses, coaching for entrance exams, current information on careers, and courses). Finally, the study revealed that educational radio programs are broadcast at a time not preferred by the target audience. Despite all the intervention in the education sector to improve academic performance of children and youths, the impact of these television and radio learning programmes becomes difficult to be assessed. According to Kakamad and Fatah (2018) students who watch T.V programmes less than 3 hours a day perform better academically than those who spend over 3 hours watching television programmes in a day. This study finds that television viewing has a fairly negative effect on the academic achievement. This means the more students spent time viewing television the less grade they will achieve in their school. It was argued that most students especially boys spend many hours watching games or playing video games instead of watching educational programmes. On the other hand, other researchers like Hoffreth (2010) studied 'Home media and children's achievement and behavior' found the opposite result. They found that television can be a positive force in student's lives and that with the proper parental supervision television can improve student's academic achievements. In another study by Khadija (2020) titled Educational Radio Broadcasting During the Covid 19 Lockdown: Attitudes and Challenges Faculty of Arts and Humanities Sais-Fez Students as a Case Study, the study seeks to find out the challenges that students encounter using radio broadcasts in their learning during the Covid 19 lockdown. Findings reveal that students consider radio educational broadcasts as a learning aid, but not a real substitute for in-class education, that has an effective impact on students' learning during the Covid 19 lockdown. As for the challenges encountered by students, most of them are overcome as the audios were available on the faculty's platform, and students can replay them any time according to their time and pace of learning.

III. Methodology

Research design

For the purpose of this study, the descriptive research design with use of survey method was considered appropriate. According to Ponto (2015) survey research allows for a variety of methods to recruit participants, collect data and utilize various methods of instrumentation.

Population of study

The population for this study are the Senior Secondary students in state owned schools within Ojodu Local Government, Lagos State with total population of 4287 (<https://lagoschoolsonline.com/schools/profile/1234>)

Sampling size and Sampling technique

The sample size was determined using sample size calculator with confidence interval of 6 at 95% confidence level which gave a total of 251. Total numeration sampling was used to select all the four state owned schools in Ojodu Local Government, Lagos State. Proportionate sampling was used to select sample size in each of the school as follows:

BabsFafunwa Millennium Secondary School: 1497 students, sample size = 87

Agidingbi Senior Grammar School: 823 students, sample size = 48

Oke-Ira Senior Grammar School: 950 students, sample size = 56

Omole Senior Grammar School: 1017 students, sample size = 60

Using the already stratified classes of senior secondary 1 class to senior secondary 3 class in the state owned schools, systematic sampling technique was used to select every 5th person on the class register across the strata to select 251 students.

Instrument for Data Collection

The research made use of questionnaire as the instrument for data collection to draw relevant information from the students. The instrument was subjected to face and content validity; while test retest pilot study was carried out using students from another local government that is not part of the selected schools for the research but have the same attributes. The result was subjected to Cronbach alpha to determine the reliability coefficient of the instrument at 95% confidence intervals.

Method of Data Collection

A total of two hundred and fifty one (251) copies of the questionnaire were administered by the researchers. All the copies of questionnaire were properly filled and used for analysis of data.

Method of Data Analysis

Data collected were analysed using the simple frequency counts and percentages.

IV. Results

The findings of the study using the research questions as guide are presented in tables. When asked if the students have access to the alternative instructional media, all the students affirmed that they have access either to television or radio, or both of them. Majority of the students also affirmed that they tuned in to the broadcast educational programmes at the scheduled time for the various subjects.

Research Question 1: How effective are the instructional media(Radio and Television) in covering the term's scheme of work during Covid-19?

Table 1: Effectiveness of Radio and Television Educational Broadcast in Covering the Term's Scheme of Work during Covid-19

Statements	Strongly agree F %	Agree F %	Disagree F %	Strongly disagree F %	Mean (\bar{x})	Standard deviation
I was taught all the term's topics on Radio and Television educational broadcast during Covid-19	59 (23.5%)	66 (26.3%)	66(26.3%)	60(23.9%)	2.49	1.10
I was able to understand all the topics in the term's scheme of work on Radio and Television educational broadcast during Covid-19	58(23.1%)	62 (24.7%)	66 (26.3%)	64 (25.5%)	2.46	1.11
During broadcast, each of the topics were taught extensively before proceeding to the next one.	60 (23.9%)	68 (27.1%)	64 (25.5%)	59 (23.5%)	2.51	1.10
The calculation and practical aspect of the scheme were taught effectively via radio and television educational broadcast during Covid-19	66 (26.3%)	67 (26.7%)	59 (23.5%)	59 (23.5%)	2.55	1.11

Table 1 revealed from the mean values that the students mainly disagreed that radio and television educational broadcast was effective in covering the term's scheme of work during Covid-19. Table 1 implies that on the average the students could not substantially benefit maximally from the broadcast educational programmes.

Research Question 2: What are the perceived impacts of instructional media (Radio and Television) on learning outcome of students during Covid-19?

Table 2:Impact of Instructional media (Radio and Television) On Learning Outcome of Students during Covid-19

Statements	Strongly agree F %	Agree F %	Disagree F %	Strongly disagree F %	Mean (\bar{x})	Standard deviation
Radio and Television educational broadcast stimulated my reading habits during Covid-19	14(5.6%)	121 (48.2%)	105 (41.8%)	11(4.4%)	2.55	0.67
Radio and Television educational broadcast helped me to focus more on my studies during Covid-19	62 (24.7%)	68 (27.1%)	63 (25.1%)	58 (23.1%)	2.53	1.10
The objectives of the lessons were well understood on radio and television than physical class	56 (22.3%)	62 (24.7%)	66 (26.3%)	67 (26.7%)	2.43	1.10
I willingly attended to assignments and class exercises on radio and television educational broadcast during Covid-19	60 (23.9%)	69 (27.5%)	64 (25.5%)	58 (23.1%)	2.52	1.09
I learnt faster via radio and television educational broadcast during Covid-19 than physical class before Covid-19	58 (23.1%)	62 (24.7%)	67 (26.7%)	64 (25.5%)	2.46	1.10
I observed a positive change in my learning ability when taught on radio and television educational broadcast during Covid-19	15 (5.98%)	90 (35.9%)	88 (35.1%)	58 (23.1%)	2.25	0.88
I easily understood what was taught on radio and television educational broadcast during Covid-19.	60 (23.9%)	67 (26.7%)	63 (25.1%)	61 (24.3%)	2.50	1.10
I easily remembered what were taught on radio and television than physical class	61 (24.3%)	60 (23.9%)	62 (24.7%)	68 (27.1%)	2.45	1.13
My rate of assimilation was not effective because learning on radio and television does not seem real unlike physical class.	86 (34.3%)	89 (35.5%)	64 (25.5%)	12 (4.8%)	2.99	0.88
After Covid-19 period, I was able to proceed to the next term's scheme of work without deficiency in the previous term's scheme	62 (24.7%)	67 (26.7%)	59 (23.5%)	63 (25.1%)	2.51	1.12

Table 2 revealed from the mean values that the students mainly disagreed that instructional media (radio and television) had a great impact on learning outcome of students during covid-19. Table 2 implies that majority of students rate of assimilation during physical class was higher than when learning on radio and television educational programmes during covid-19, and did not observe a positive change in their learning ability.

Research Question 3: What are the factors militating against the effectiveness of alternative instructional media during Covid-19?

Table 3:Factors Militating Against the Effectiveness of Radio and Television Educational Broadcast during Covid-19.

Statements	Strongly agree F %	Agree F %	Disagree F %	Strongly disagree F %	Mean (\bar{x})	Standard deviation
I could not express myself when I needed to ask questions on radio and television educational broadcast during Covid-19	64 (25.5%)	62 (24.7%)	66 (26.3%)	59 (23.5%)	2.53	1.11
I could not relate with the teacher on radio and television during educational broadcast during Covid-19	65 (25.9%)	64 (25.5%)	60 (23.9%)	62 (24.7%)	2.53	1.13
Lack of teachers' attention to individual need	66 (26.3%)	62 (24.7%)	64 (25.5%)	58 (23.1%)	2.54	1.12
The time allocated for the broadcast were too limited	67 (26.7%)	74 (29.5%)	62 (24.7%)	58 (23.1%)	2.60	1.11
I encountered power supply failure most times when I needed to tune to the broadcast at the scheduled time	62 (24.7%)	63 (25.1%)	62 (24.7%)	64 (25.5%)	2.51	1.10

Table 3 implied that more than half of the students experienced some challenges that militated against the effectiveness of radio and television educational programmes during COVID-19.

V. Discussion

This study aimed to examine the effectiveness of Lagos state alternative instructional media for senior secondary school students during Covid-19. All the students have access to the alternative instructional media, all the students affirmed that they have access either to television or radio, or both of them. Majority of the students also affirmed that they tuned in to the broadcast educational programmes at the scheduled time for the various subjects. Table 1 revealed that 50.2% of the students disagreed that all the term's topics were taught on Radio and Television educational broadcast during Covid-19 and 51.8% did not understand all the topics in the term's scheme of work on taught on Radio and Television educational broadcast during Covid-19. However,

51% of the students agreed that each of the topics were taught extensively before proceeding to the next one, but majority of the students disagreed that the calculation and practical aspect of the scheme were taught effectively via radio and television educational broadcast during Covid-19. Table 1 implies that on the average the students could not substantially benefit maximally from the alternative instructional broadcast educational programmes. This results corresponds with the study of Usha and Sharma (2003) who opined that despite all the intervention in the education sector to improve academic performance of children and youths, the impact of television and radio learning programmes difficult to be assessed.

The study also sought to find out the perceived impact of instructional media (Radio and Television) on learning outcome of students during Covid-19. Table 2 revealed that 53.8% agreed that Radio and Television educational broadcast stimulated their reading habits during Covid-19, and 51.8% agreed that Radio and Television educational broadcast helped them to focus more on their studies during Covid-19. This might be due to the audio and visual characteristics of the broadcast educational programmes. This result agreed with Theory of Multiple Intelligences that opined that if educators teach their students knowing that there are other intelligences besides only verbal and logical, then students will have better chances of learning. However 53% of the students disagreed that the objectives of the lessons were well understood on radio and television than physical class, and also 52.2% disagreed that they learnt faster via radio and television educational broadcast during Covid-19 than physical class before Covid-19. Table 2 implies that instructional media (radio and television) did not a great impact on learning outcome of students during Covid-19, as 51.8% of the students could not easily remember what they were taught on radio and television than physical class, and 69.8% indicated that their rate of assimilation was not effective because learning on radio and television does not seem real unlike physical class. This results collaborates the findings of Khadijah, (2020) who reported that though students consider radio educational broadcasts as a learning aid, but not a real substitute for in-class education.

It was also the objective of this study to examine the factors militating against the effectiveness of alternative instructional media (Radio and Television) during Covid-19. Table 3 revealed that half of the students (50.2%) agreed that they could not express themselves when they needed to ask questions on radio and television educational broadcast during Covid-19, 51.4% of the students could not relate with the teacher on radio and television during educational broadcast during Covid-19 and 51.0% of the students agreed that there was lack of teachers' attention to individual need on radio and television educational programmes. Table 3 implied that more than half of the students experienced some challenges that militated against the effectiveness of radio and television educational programmes during COVID-19. The results agreed with the study of Khadija (2020) who opined that many of the respondents of the study stated that in-class lessons generally could not be compensated by radio broadcasts. The respondents maintained that being in contact with professors and classmates motivated them to participate, discuss and ask questions to get a full understanding of the lesson. Others regarded educational radio broadcasting as a generally boring way of learning lacking face-to face interaction. This results of this study also agreed with the theory of constructivism which affirms that that human beings do not learn by sucking up external sources, but rather learn by activity making or own meaning, and that students learn through active participation in classroom activities.

VI. Conclusion

This study concludes that senior secondary students in Lagos state barely recorded a considerable impact on their learning outcome during COVID 19 with the broadcast educational programmes. Half of the students could not substantially benefit maximally from the broadcast educational programmes due to some of the challenges of not being able to relate to the teachers, who were not able to attend to the individual needs of the students as it is done in physical class, making the alternative instructional tool of radio and television minimally effective.

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