

The Use of an Old Set Top Box for Education TV as Home Learning Media

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Abstract—The Covid-19 outbreak has spread globally and entered Indonesia since March 2020. Since then, a Work from Home (WFH) system has been implemented and is required to carry out online learning for every educational institution. Online learning is a new challenge for educators, students and parents, where the need for computers / laptops, cellphones and quotas is very much needed. However, economic limitations at the time of the pandemic caused limitations to meet very large cellphones and quotas. Therefore, so that learning at home runs easily and is enjoyable for students affected by the Covid-19 pandemic. Therefore the researcher wants to use the used STB (Set Top Box) media to become educational TV as a home learning media. The results of this utilization include (1) used STB users are greatly helped by the use of a bigger and clearer TV screen than cellphones, so that students are able to see more clearly the material being studied; (2) the operation is very easy because it is based on android; and (3) the device is easy to carry anywhere. However, this STB is not equipped with a built-in speaker/headset, microphone and camera, so for the use of certain applications such as zoom applications, additional tools are needed in the form of a speaker / headset (for device users who do not have built-in speakers), microphones and additional cameras so that users can listen, respond and show videos when in a meeting.

Keywords—set top box, learning media, geography

I. INTRODUCTION

The massive spread of the Corona virus in various countries has forced us to see the fact that the world is changing. We can see how the changes in technology, economy, politics and education in the midst of the crisis due to Covid-19. Change requires us to be prepared, respond with attitudes and actions as well as always learn new things. Indonesia is not alone in finding solutions for students to keep learning and their

educational rights are fulfilled. Until April 1, 2020, UNESCO recorded that at least 1.5 billion school-age children were infected with Covid 19 in 188 countries, including 60 million in Indonesia.

All affected countries have tried to make their best policies in maintaining the continuity of educational services. Indonesia also faces several real challenges that must be resolved immediately: (1) technological imbalances between schools in big cities and regions, (2) limited teacher competence in the use of learning applications, (3) limited resources for the use of educational technology such as the internet and quotas, (4) teacher-student-parent relations in online learning that are not yet integral (Dr. Gogot Suharwoto).

The implementation of the physical distancing policy which then becomes the basis for implementing learning from home, with the use of information technology that applies suddenly, often shocks educators and students including parents and even everyone in the house. Information technology learning has indeed been implemented in the last few years in the education system in Indonesia. However, online learning that took place as a surprise from the Covid-19 pandemic, shocked almost on all fronts, from districts / cities, provinces, centers and even the international world.

As the spearhead at the lowest level of an educational institution, the principal is required to make quick decisions in responding to a circular from the Minister of Education and Culture which requires schools to implement learning from home. Educators are shocked because they have to change the system, syllabus and learning process quickly. Students stammered because they got piles of assignments while studying from home. Meanwhile, parents feel stressed when accompanying the learning process with assignments, in addition to having to think about the survival and work of each

other in the midst of a crisis, TV is a short cut access for children that can be used as a learning media without interrupting each person's work. old.

Based on the problems that are befalling the world, especially Indonesia in terms of learning media at home, researchers want learning efforts at home become easily and fun for students affected by covid 19. This research will develop STB into educational TV as a geography learning media at home.

II. RESEARCH METHODS

A. Research Method

This a research & development method which refers to the ADDIE development model (Analysis, Design, Development, Implementation, Evaluation). This model from Dick and Carry has a more complete and systematic description and a development model that accommodates IT.

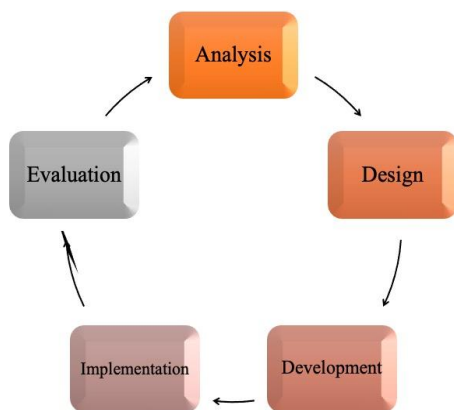


Fig. 1. ADDIE.

According to fig 1. the ADDIE stages in this study is explained as follows:

- Analyze stage, at this stage, information is collected on the types of applications needed by students for learning at home.
- Design Stage, the results of the analysis will be grouped according to the purpose of the application.
- Develop Stage, in this stage, the used STB is formatted and re-coded according to the design that has been designed.
- Implementation Phase, after the development is carried out, the STB will be tested on students to be used as a learning medium. At this stage, students will provide criticism and suggestions regarding the use of STB.
- Evaluation Stage, this stage is carried out to evaluate the use of STB in students and revisions are made according to student criticism and suggestions.

B. Tools Research

The tools used in this research and development are described as follows.

1) *STB, adaptor and HDMI*: One set an old STB, adaptor, HDMI as the main tool of this research and development. This tool is designed to be an Android- smart TV that can be installed with android applications. HDMI used for transferring images, audio, video from STB to TV. The adaptor used for transferring electric to the STB.



Fig. 2. STB, adaptor and HDMI.

2) *Mouse*: The mouse used for pointer on the display which can be used for many actions. Selecting the application by clicking the application will be open or execute the program and scrolling to access other application.



Fig. 3. Mouse.

3) *USB male to male cable*: USB male to male cable at both ends is used to connect or extend the USB cable allowing to connect STB to a TV.



Fig. 4. USB male to male cable.

4) *TV*: TV as a display and audio that has been connected to STB.



Fig. 5. TV.

5) *The WiFi Modem*: The wifi modem to connect internet networks with TV. It can be used to various devices such as smartphones, laptops, tablets, and computers without limitation on the number of devices connected.



Fig. 6. Modem and WiFi.

III. RESULTS AND DISCUSSION

A. Applications

The analysis results showed there are six main applications that student used for home learning: ZOOM, Ruang Guru, Smart Youtube, Google Earth, Browser and Whatsapp.

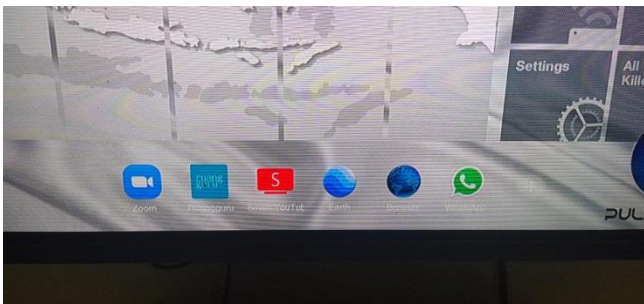


Fig. 7. ZOOM, Ruang Guru, Smart Youtube, Google Earth, Browser and Whatsapp on TV.

TABLE I. FUNCTION OF APPLICATIONS

No.	Application	Function
1.	Zoom	Zoom was used by student as virtual classroom with video. Zoom become popular among students because it simple and easy to access. Student spent extra time using zoom because the teacher used it to deliver the learning material every day.
2.	Ruang Guru	Ruang guru was used by student to get some learning material. The learning material by Ruang guru is presented systematically. Also there are some tests can be used for self training.
3.	Smart Youtube	Smart Youtube was used for watching videos that relate with the subject. The teacher shared some smart youtube links to student to watch. Smart Youtube become students favourit, they can watch music video and other fun video they need.
4.	Google Earth	Google earth is a great tool for social studies lessons. Google earth can be used as a map but there are many other information can be found by students on google earth: Places, cultural, land, river, sea, history, video and picture of places on earth.
5.	Browser	Browser was used for student to find some information they need. Most of the time the student use browser when they working on their homework. There are so much information Texts, videos, pictures and audios can be found in browser.
6.	Whatsapp	Whatsapp is the main tool for teacher and student to communicate. Teacher used chat group to share virtual classes to students. Sometimes the teacher will give some assignment via whatsapp group chat.

B. Advantages

The results of the implementation to students, it is known that the use of used STB as educational TV as a home learning media has several advantages and advantages. This can be the main reason for the use of used STB as educational TV as a home learning media. These advantages are described as follows:

1) *Wide screen*: Compared to Android, the TV has a wider screen. Students can see the material display more clearly than on android. Videos or images can be viewed in a large and clear full screen display. This of course really supports students in learning at home.

2) *Relatively inexpensive costs*: The cost is relatively cheap because the goods used are those that are no longer used, namely used STBs. This used STB is an indihome STB service that has been disconnected and usually this STB is not taken back by the indihome party. By utilizing this used goods, it can be used as an electronic learning media based on educational TV. Due to using used goods so that the costs incurred are relatively cheaper. This service only requires a used STB along with a male to male USB cable and an Android cellphone to connect it to the internet network.

The price of a used STB set, HDMI cable and male to male cable in Langsa City ranges from Rp. 350,000 - Rp. 400,000. The root and installation costs range from Rp. 150,000 - Rp.

200,000. Compared to the price of a set of used rooted STBs, it is much cheaper than the new STB with its limitations in use.

3) *Easy installation*: Installation of this STB is relatively easy, you only need to connect to the TV via HDMI and connect this tool to the internet freely using any internet connection. It can also be done using a hotspot from an Android cellphone as long as the internet network is stable, for tube TVs or TVs that don't support HDMI, you can add AV to RCA PLUG and PLAY cables.

4) *Parents monitoring*: Parents can easily monitor when students online learning using TV at home. The TV is in the middle of the room, so parents can see directly or at any time without any restrictions or without being intrusive.

C. Advantages

The results of the implementation to students, we found obstacles and shortcomings in using the use of an old STB for education tv as home learning media:

1) *Internet network*: Langsa City does not have equal internet network access. However, network access to enjoy educational TV services can use a hotspot from HP. If the internet network is not stable, this will make the STB not function optimally and the learning process through educational TV will also be hampered. This is because STB services are not like ordinary TV antennas. But will be able to work connected to the internet network. This internet network access for students who live in urban areas such as the homes of students in the sub-district language area will be more fluent compared to the homes of students who are in rural areas such as in the village of Kuala Bahasa.

2) *Different types of TV*: There are 2 types of TV in each student's house, namely LED TV and Tube TV. The LED TV has a Super HD screen while the tube TV has a convex screen and is predominantly an SD screen. Students who use tube TV have difficulty seeing the display on a relatively small TV screen.

3) *Completeness of tools*: Maximum use in certain applications such as cameras that require additional tools, namely and a microphone. However, there are some students who have not owned this tool. If these two tools are not available, then learning using zoom is not optimal, in other words learning is not interactive. Therefore, users must spend additional funds to meet these needs.

IV. CONCLUSIONS

The Indonesian Minister of Education issued a circular stating that starting on April 1st, 2020 all learning systems at all levels of education have switched the learning system to an online system. This is one of the ways to prevent the transmission of the Covid-19 pandemic that is hitting the

world. Since all learning systems switch to online systems, it is not uncommon for most of the economic community downward to feel burdened by this because they have to spend money to buy an android cellphone that supports learning applications besides that, parents of students must prepare money to buy internet quota.

Utilizing used STBs as one of the supporting factors at this time is because, using this used STB does not require expensive costs, the price range of 300 thousand can already make smart TV a learning media for educational TV. In addition, students no longer need to use their parents' cellphones because the features or applications that support the learning process can be displayed on the student's TV screen.

Learning using used STB on TV should be equipped with a keyboard, mouse, microphone and camera. In addition to these tools, the use of LED TV is recommended so that the quality of the display on the screen is clearer. Complete tools will provide convenience in using STB in learning.

Students who do not have laptops or computers or personal cellphones are very enthusiastic about using TV as a learning medium. This is because students no longer need to wait their turn to use their parents' cellphones. In addition, the function of a TV that uses the STB is almost the same as a laptop with other additional features. Thus the use of used STB for educational TV as a learning media can be an alternative for families who are unable to provide androids or laptops for their children to study.

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