

# **TV-E: An Innovation in Indonesian Education system<sup>10</sup>**

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## **Abstract**

The geographical condition of Indonesia is very wide and in the form of an archipelago. This condition has hampered the efforts of the government to maximize the education spread in the country, especially in terms of the people's equal access to the education. Seeing that some other countries have utilized the media of television to carry out their education services to their people, Indonesia decides to develop an education television to cope with the problems.

Ministry of National Education (MONE) of the Republic of Indonesia through Pustekkom (Center of Information and Communication Technology for Education) –manages and broadcasts education programs through television. The efforts of Pustekkom in developing education broadcasting through television was initiated by the study carried out by the MONE in 1975. This study investigated the potential of satellite for education. By conducting some efforts, Pustekkom could eventually establish an educational television called TV Edukasi (TVE) which was launched by the Minister of National Education on October 12<sup>th</sup>, 2004.

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The broadcast time of TVE during its trial was 4 (four) hours per day and starting from May 2007, it has been 24 hours a day and 7 days a week. The content of the broadcasting also increased. In 2007, the number of programs to be produced 5,163 programs (for formal, informal and non-formal education as well as educational news/information). To broaden its coverage as well as its content, TVE cooperates with some local TVs, cable TVs as well as some international TVs. The viewers of TVE at the beginning (2004) were around 5,556,000 people and it became 17,120,000 people in 2005. In 2007, with the collaboration between Pustekkom with national TV (TVRI), some local TVs, and cable TVs, the number of TVE viewers is expected to significantly increased by now. In other side the collaboration with some international TVs and some departments have enriched TVE programs.

TVE is supported by some working teams of 59 people as producers, directors, cameramen, lighting men, soundmen, VCR operators, etc. In terms of facility, TVE has 2 studios in Jakarta, 1 studio in Surabaya, some OB Production sets, MCR, transmission equipments, etc.

By applying the system of Internet Protocol Television (IPTV) in the future, TVE plans to become an interactive TV that can be accessed via internet. By attending interactive TVE programs, the viewers can conduct interactive communication with the presenter, speaker, teacher, tutor, or lecturer.

## **Introduction**

This time, the Indonesian national education still faces some problems that require serious handling, i.e.: 1) low education equity and access broadening; (2) low education quality, relevance, and competitiveness; and (3) weak organization, accountability and image of the education management.

To cope with those problems, the Ministry of National Education (MONE) has determined the National Policy on the Development of Education consisting of three pillars: (1) Equity and Expansion of Access; (2) Quality, Relevance, and Competitiveness; and (3) Governance, Accountability, and Public Image. Those three pillars are the foundation to gain the vision of national education that is *To Develop Smart and Competitive Indonesian People*.

There are some factors that contribute in creating those problems, such as the geographical condition of Indonesian Republic. Geographically, Indonesia is 5.193.252 square km has 17.508 islands, 80.000 km coastal line, and 247 millions population. It obviously hampers the education service to all learners to be wholly extensive and with equal quality.

The conventional efforts to solve education problems as have been carried out so far have, in fact, not fully succeeded in coping those problems. Therefore, a synergic effort is needed. It is by combining and utilizing the growth of science and technology from various educational resources.

Based on that fact, MONE makes a policy to utilize the information and communication technology to support the efforts to solve the educational problems. One of the technology forms that is believed to be able to support the problem solution is television.

The utilization of television media as part of the information and communication technology, which is especially to support the improvement of equity and expansion of education access; education quality; and accomplishment of 9-year compulsory basic education (*Wajardikdas*), is based on the consideration of theoretical and experiences in utilizing the television as education media as well as study and research that have been carried out.

## **Television as Education Media**

### ***The Power of TV Media***

In the study of mass communication, the theory which is called “Cultural Norms” regards that media has not only direct effect towards individual but it also has effect towards culture, collective knowledge as well as norm, and values of a society (*Sandjaja, 1994*). Related to this case, *Denis McQuail and Sven Windahl (1996)* explain the Communication Model of Comstok. According to this model, television should be regarded equal with every personnel experience, action, and observation that can create understanding or action. Television teaches not only behavior, but it also acts as stimulant for the viewers to imitate the behavior that have been learned from various sources. This shows that television media has become a powerful media in affecting the viewers.

Seen from the view of production technique, television can strengthen certain messages to the learners, such as through “close-up” technique, graphic/animation application, picture taking angles, editing technique, and other tricks creating special impression to the target in accordance with the purpose (*Oos M. Anwas, 1999*).

According to Kathleen Hall Jamieson (in *Jalaludin Rakhmat, 1991*), television is as media dramatizing and sensationalizing the message content. *Jalaludin Rakhmat (1991)* also explains that the picture of the world in television is actually the picture of the world that has been processed. In this case, *Jalaludin Rakhmat* calls as “Creative Hands”. The first creative hand is camera, motions, takes, and angles that create impression towards the viewers.

Not only the content can reach various remote areas, but also the system of the broadcasting. By using the technology of satellite and

equipped with relay system, the TV programs can be enjoyed from all over areas of Indonesia. This means that the disparity of education access can be reduced, and the national standardization of the quality can be improved.

### *The Potential of Television as Education Media*

By quoting Skomis' opinion, *Rusdi Muchtar (1996)* stated that: compared to other media, television has special characteristic because it is the combination between the audio and visual. Television media can also give stimulation, can trigger, can make an effect someone to do something or give example, behavior internalization process, various participation forms, and self adjustment (*Brown, 1977:34*).

Beside enriching the viewers' knowledge, television is also a very powerful media in affecting their mindset as well as attitude and behavior (*Sri Hardjoko, 1994:4*). Meanwhile, *Suprpti Widarto (1994:7)* states that television programs have a very strong penetration capability so that it can change someone's attitude, opinion or behavior in relatively short time.

The same opinion is expressed by *Alatas (1994:3)*. He stated that television media has penetration potential to affect attitude, view, lifestyle, orientation and motivation of the society.

The television potential as education media is clearly expressed by *Perin (1977:8)* stating that television media as *a prime source of news* has capability to support the accomplishment of the targeted purpose because it has the capability to give motivation as well as stimulus and it can reach the targeted society from all age ranks.

More detail, *Henich, Molenda and Russel (1982:214)* stated that television can present motion pictures along with the audio; can reach

broad target; can be recorded and replayed whenever we want. In relation to that opinion, *Gavriel Salomon (1977:55)* stated that the television potential as education media is its capability to show concretely a process of event or change that is impossible to be observed with bare eyes.

From those opinions, it can be concluded that television media has big potency to be utilized as education media or learning media.

### ***Research on Education TV Utilization***

To give stronger foundation for television media empowerment as education/learning media, we need to see the result of some research on education television utilization in some other countries.

Almsted and Graf (in *Wilkinson, 1984*) reported their study result on geometrics teaching through television. The students of grade 10 were taught geometrics only through television, while the students of grade 4 and 6 were taught to read through television with the chance to encounter (asking) if necessary. The result showed that 85% students of grade 10 passed the New York Regents examination, and 30% of that number reached the score of above 90. While the students of grade 4 and 6 who learnt to read through television spent time of 10 month in average to get over the test that had been standardized for a subject with 9 month period.

One of the school systems that firstly integrated television fully to its all education programs is Hagerstown in Marylan (US). From this school experiences, it is found that: the students of elementary school in country areas had their average mark increase significantly. The students of Junior High School had their Math scores increase from 31% to 84%, and for the standardized problem solving, their scores

increased from 33% to 68%. The interesting thing is that when television was introduced as an additional learning source, the rate increased nationally from 28% before utilizing TV (1958) to 45% (1959), 46% in 1960 and 50% in 1961.

Another study carried out by Chu and Schramm (in *Wilkinson, 1984*) expressed the following observation towards the result of the research on instructional television: “it is no doubt that children and adults learn a lot from instructional television, like what they receive through other experiences that can be made in line with them, different experiences such as seeing someone do something. The effectiveness of television as education media has now been well demonstrated in more than 100 experiments and hundreds of other comparisons carried out in several places in the world, in developing countries, industrial countries, or developed countries in every level from Kindergarten until education for adults and for various subject as well as methods.

In Indonesia, the indication gives the expectation for the success of education television can be seen from the result of research done by *Lyli Rompas (Tempo, May 12th, 1984)* for the thesis in 1983, proving that there will not any difficulty when the school subject is given through television. According to Lyli, the teaching through television can even improve the students’ learning ability, especially the students having pictorial ability, as long as the presentation is interesting. This research is in line with several research in some other countries. The point is that they regard that teaching through television is common and feasible for their subjects.

With its characteristics and excellence, television media has power in delivering education/learning messages. The research on positive impact of television utilization for education showed that TV has potency to support the efforts of education quality improvement.

It can be concluded that television media utilization is a must to support the efforts of education problem solving especially in equity as well as extension of access to the learning sources and education quality improvement.

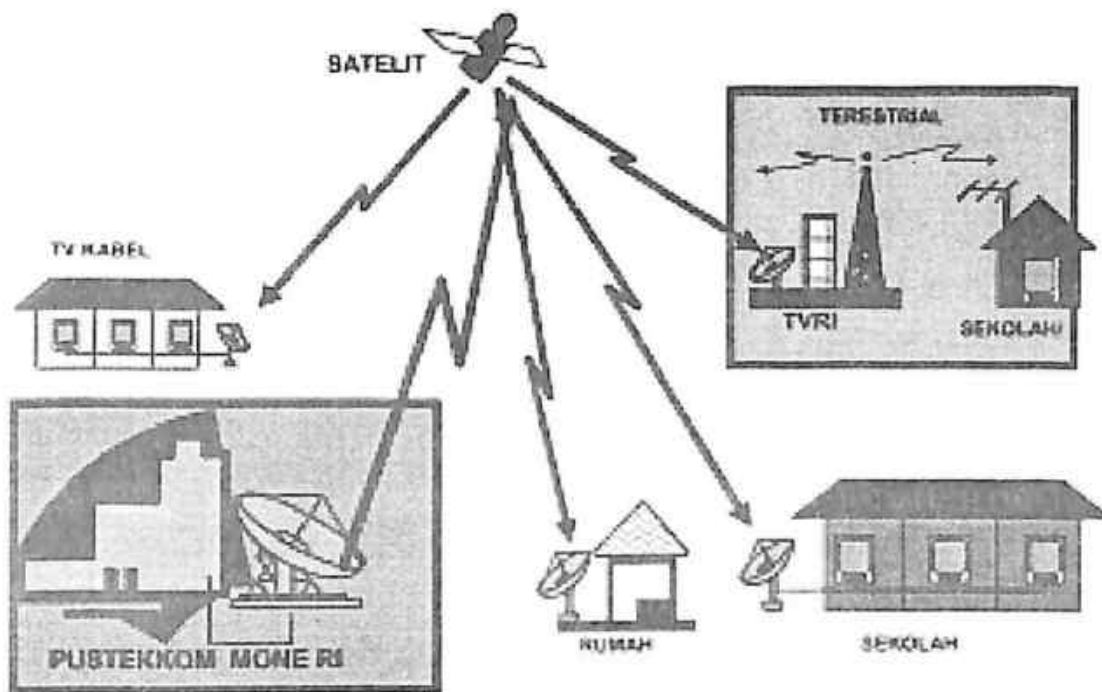
## **Televisi Edukasi**

Televisi Edukasi (TV-E) is television specializing itself in education broadcasting, to provide education and learning information for the learners from all lines, levels and kinds of education. TVE was launched by the Minister of National Education of Indonesian Republic, on October 12th, 2004. Education television has a role to solve education problems, especially to support the equity and extension of education access, education quality improvement, and the accomplishment of 9-year compulsory basic education (*Wajardikdas*).

### ***Broadcast System***

To support the purpose, TV-E should be able to be enjoyed by all education community openly (terrestrial). However, considering that establishing terrestrial television needs a huge amount of money, MONE decided not to develop terrestrial television infrastructure. Therefore, “narrowcast” system is then developed. It is by putting the materials up to the satellite, and everyone can have access to the materials provided by using the parabola antenna (TVRO) wherever they are in Indonesian region.





By using this system, education broadcasting can be enjoyed from all over Indonesia, and even by the people in ASEAN region, because the coverage of the satellite of Telkom-1 includes ASEAN countries and part of North Australian region.

The broadcast materials produced by Pustekkom are up-linked to the satellite of Telkom-1, so that school that have receiver facility (TVRO and TV receiver) will be able to access the TV-E programs. There are lots of citizens having their own parabola antenna (TVRO) in some areas like Aceh, Riau, Kepulauan Riau, West Kalimantan, East Kalimantan, Maluku, North Sulawesi and North Maluku.

Up to this time, all Junior High School/SMP and Religious Junior High School/MTs (state and private) amounting 35.198 schools; and 5.000 Elementary School/SD and Religious Elementary School/MI have been equipped with TV-E receiver set consisting of parabola antenna, TV 29", DVD Player, and generator set in some schools that do not have access to electricity.

### ***Broadcasting Network***

Besides using the parabola antenna, some people can have access to TV-E programs by using their conventional television sets because Pustekkom (MONE) has made some cooperation with TVRI and some local TVs in some regions to relay the programs of TV-E with terrestrial system. In addition, the people subscribing to national cable TVs (Telkom Vision) and local cable TVs in their regions can access TV-E without parabola antenna (TVRO).

Up to this time, there are 52 local TVs and 20 cable TVs that have become the partners of TV=E, spreading in Nangroe Aceh Darussalam, Riau, Kepulauan Riau, Bengkulu, West Sumatera, Banten, West Java, Central Java, D.I. Yogyakarta, East Java, Bali, East Kalimantan, Nusa Tenggara Barat, Nusa Tenggara Timur, South Sulawesi, Sulawesi Tenggara, North Sulawesi, Gorontalo, Maluku, and Papua.

### ***Broadcasting Materials***

The production of TV-E broadcasting materials up to 2007 has reached 5.163 modules. For 2005 broadcasting, Pustekkom produced 949 modules designed for TV-E. In 2006, 1,500 modules were produced (for formal, in-formal, and non-formal education; as well as education information and news), added with 528 modules to help the students of Junior High School (SMP)/Religious Junior High School (MTs) face the National Exam. In 2007, 2,186 modules are being produced for all education levels and lines as well as for education information and news.

Here is the complete data of the modules to be produced in 2007.

Broadcast Materials /Module		Amount
1.	Kindergarten	196
2.	Elementary School	468
3.	Junior High School	2.152
4.	Senior High School	473
5.	Vocational Senior High School	145
6.	B Package	71
7.	C Package	67
8.	University	78
9.	Public	827
10.	Education Information/News	322
11.	Early Age Child Education (PAUD)	130
12.	Courses	130
13.	Equalization	104
Total		5.163

### ***Outstanding Programs***

Out of those programs, some are outstanding programs that the viewers like most. Some of them are “*Aku Cinta Indonesia*” that was popular with its abbreviation *ACI*. This serial program that was targeted for Junior High School students was full of moral education messages with some education fillers such as biology, math and so forth.

Another program that has become favorite is “*Laskar Anak Bawang*”, that is a *sinetron* for kids at elementary school age. This program teaches friendship, honesty, and good moral. There is also a program dedicated to improve the society’s interest in reading (out of school education) which is packed in the form of education *sinetron* with the title of “*Rahasiamu tak habis kubaca*”.

2006 production has made an English education program for Junior High School students that also becomes a favorite for the viewers. The program, that is designed to help Junior High School students face the National Exam, is in fact also liked by the society even the teachers because the presentation is interesting and easy to understand.

### ***Broadcasting Time***

Since launched on October 12th, 2004, TV-E has increased its ability in terms of its coverage capacity, broadcasting time, the material variance, and presentation format from year to year. In its broadcasting trial, TV-E was on air for 4 (four) hours a day, with 2 (two) hours of material broadcasting and 2 (two) hours of replay. Broadcasting time addition was done from year to year after that and now it has 24 hour broadcasting time a day.

	1 Aug - 31 Dec 2004 4 hours	1 Jan - 31 Jul 2005 8 hours	1 Jan- 31 Dec 2006 14 hours	1 Feb- 1 May 2007 16 hours	2 May 2007 24 hours
BROADCAST TIME	Mon to Sat 07.00-11.00 Western Indonesian Time (WIT)  Sun and Holliday (Off Air)	Mon to Sa 07.00-11.00 WIT 13.00-17.00 WIT  Sun and Holliday (Off Air)	Mon to Sat 07.00-21.00 WIT  Sun and Holliday 07.00 WIT- 17.00 WIT	Mon to Sat 05.00-21.00 WIT (16 hours)  Sun and Holliday 05.00-17.00 WIT (12 hours)	

## ***Human Resources***

As Pustekkom is an institution running in broadcast material development and then broadcasting them, the quality of its products depends highly on the quality and amount of the human resources. Up to 2007, TV-E has had got some working teams in production and broadcasting.

1. Producer	3 people
2. Directors	10 people
3. Cameramen	7 people
4. Lightingmen	3 people
5. Soundmen	3 people
6. VCR Operators	2 people
7. Technicians	6 people
8. Unit Managers	6 people
9. Art Setters	4 people
10. Graphic Designers/Animator	2 people
11. Make Up Perons	2 people
12. Editors	6 people
13. Reporters	5 people
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	59 People

## ***Facilities***

To support the production and the broadcasting of TV-E, Pustekkom has the following facilities:

### ***Production Studio***

- 2 (two) studios equipped with multi camera system, lighting system, sound system, and MCR in Jakarta
- 1 (one) studio in Surabaya

### *OB Production (Production equipment outside of the studio)*

- 4 (four) units of news coverage equipment (Jakarta )
- 2 (two ) units of news coverage equipment (BPMTV Surabaya)
- 3 (three) sets of portable production equipment (Jakarta )
- 1 (one) set of portable production equipment (BPMTV Surabaya)
- 1 (one) set of Outside Broadcast production (3 cameras per set)
- 1 (one) unit of Medium OB-Van

### *Master Control Room (MCR)*

- Broadcast Control Room which is integrated with broadcast production studio, News Editing Studio, and Transmission Room.
- Play out system with 2 units of video servers/data storages with the capacity of 2 x 1.2 Tera byte that can store the broadcast materials for about 240 hours.

### *Transmission Equipment*

Up-Link Satellite

### *Supporting*

In addition to the above infrastructures, Pustekkom also has:

- 1 (one) complete audio production studio
- 1 (one) Multimedia and Graphic studio

### *Achievement and Award*

Since its establishment in 1979, Pustekkom with the support of facilities and official policies in the level of Ministry or Pustekkom has got talented human resources in television field who have created some achievement and award in film and television field.

Some award from inside the country or from abroad have proved the quality of programs resulted by the excellent and quality human resources of Pustekkom.

Up to this time, the achievement in television field in abroad was reached in “Japan Price” in 1992 through the program of Math education for Junior High School Students with the title “lingkaran”.

Here is the list of awards received by TV-E.

No.	Program Title	Kinds of Award	Year
1	<i>Mencari Batas Semu</i>	<i>Piala Citra</i>	1989
2	<i>Tana Toraja</i>	<i>Piala Citra</i>	1991
3	<i>Prosesi 17 Kilometer</i>	<i>Piala Citra</i>	1992
4	<i>Lingkaran</i>	<i>Japan Prize</i>	1992
5	<i>Laor</i>	<i>Piala Citra</i>	1994
6	<i>Basuki Abdullah</i>	<i>Piala Citra</i>	1994
7	<i>Induksi Elektromagnetik</i>	<i>Piala Viia Widya</i>	1994
8	<i>Gandrung</i>	<i>Piala Viia Widya</i>	1995
9	<i>Energi Listrik</i>	<i>Piala Viia Widya</i>	1996
10	<i>Anak Jalanan</i>	<i>Piala Viia Widya</i>	1996

## **TV Edukasi in the Future**

Seeing the fast growth of information and communication technology and to improve the viewers’ capability in absorbing the TV-E materials, in the future Pustekkom plans several development stpes.

In the future, to serve the audience more optimally, TV-E will become an interactive TV that is based on IPTV (internet protocol TV). With this system, TV *Edukasi* can be accessed by the users through internet or network. The advantages of this system is that

the users can have interactive communication with the presenter, tutor, teacher, *widya iswara*, or lecturer and a teleconference between the presenter, tutor, teacher, *widya iswara* or lecturer with the some viewers in different parts of Indonesia can also be carried out. With this system, a *video on demand* (VOD) will also be possible. It is where the users choose the modules they need and then they download the chosen modules, and replay them when they need them.

In addition, TV-E also holds Interactive TV with the basis of communication technology. With this system, the viewers who can only access TV *Edukasi* through their television sets can still have interactive communication with the presenter, tutor, teacher, *widya iswara*, or lecturer via phone, sms, or fax.

Therefore, the people who have computer will get the service through internet, WAN, *Jardiknas* or other networks, while those who have not got the access to the internet can still be served by using parabola antenna or through the broadcasting of TVRI, local TVs or cable TVs.

## ***IPTV***

IPTV or IP-TV, Internet Protocol Television, is television whose broadcasting is done by using the facility of Internet Protocol.

If the standard television is now still broadcasted by using the analog transmission system via satellite or cable, IPTV is broadcasted by using the internet digital transmission system.

The advantages of digital television are:

- Interactivity aspect that cannot be given so far by the standard



television. With the existence of interactivity, the viewers can give feedback or response towards the show, starting from determining what program and when to see until participating in the show content sharing with other viewers.

- With the digital transmission format, IPTV broadcast can be designed to be able to explore more the content of a show.
- The existence of choice menu of interactive show, the flexibility of time determination to see (replay, pause, reverse, forward)
- Easiness to copy or store the show that is liked is one of the facilities offered by IPTV.

IPTV broadcast can be realized with some transmission technologies. The standard television uses broadcast transmission, while the television transmission through internet uses the mode of *unicast* and *multicast*. Unicast transmission usually uses the protocol of http, udp or rtp, while multicast transmission uses udp or rtp. Because the number of the viewers is very big, the standard television broadcast is carried out in broadcast system, while in IPTV is carried out in multicast mode for the reason of efficiency of internet sources. Multicast transmission enables the delivery of one single data unit from the broadcaster to all viewers who want to enjoy or see the show content.

## Case Study

After several time on air, study case or research on the impact of TV *Edukasi* towards the students' achievement needs to be done. Therefore, in 2007 a research was done in *SMP Al Muslim, Sidoarjo*, East Java, to know whether there is any difference in the math learning result of the grade IX students before and after utilizing the TV-E broadcasting. Therefore, this research is aimed to analyze

and describe the impact of TV-E program utilization toward the math achievement of grade IX students in *SMP Al Muslim, Sidoarjo*.

In this research, all grade IX students in *SMP Al Muslim, Sidoarjo* became the respondents, or the population of grade IX students in *SMP Al Muslim* which was 33 students.

Before the TV-E program was utilized in *SMP Al Muslim* structurally, a measurement toward the math achievement of the grade IX students was carried out. Then, after one semester the learning teaching process in grade IX classes was done by utilizing the TVE programs.

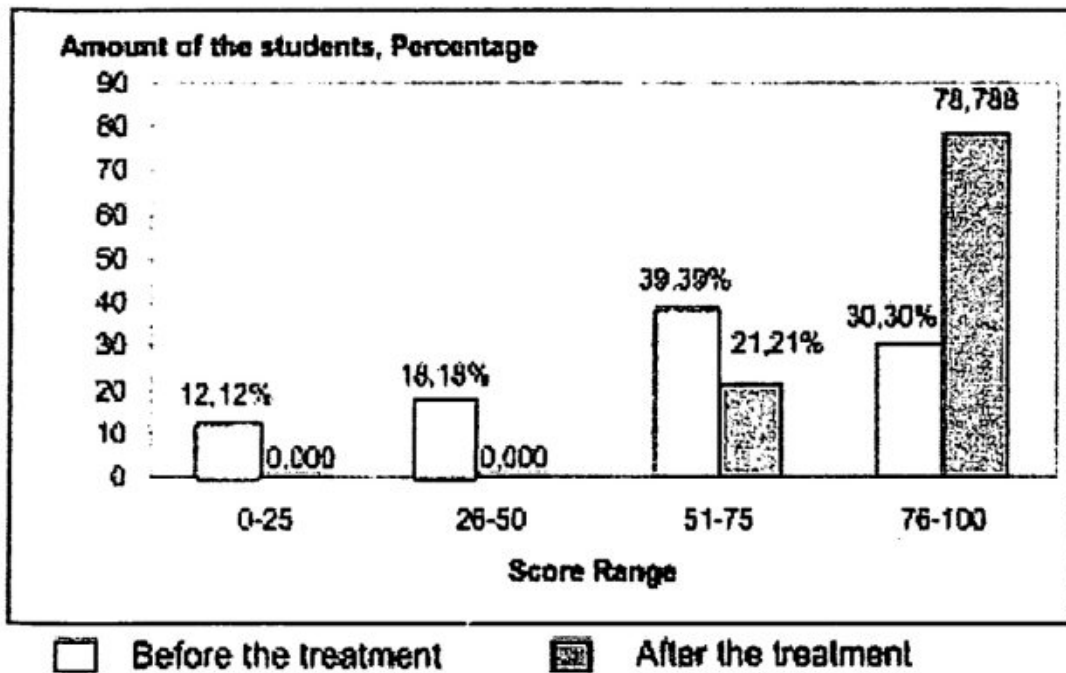
The result of the research showed an increase of math scores of the grade IX students of *SMP Al Muslim* after they utilized the TV-E programs in their learning teaching process. It can be seen below:

Achievement	Frequency	Percentage
0-25	4	12,121
26-50	6	18,182
51-75	13	39,394
76-100	10	30,303
Amount	33	100

***Math Learning Achievement  
Before The Teaching Treatment with TVE programs***

Achievement	Frequency	Percentage
0-25	0	0,000
26-50	0	0,000
51-75	7	21,212
76-100	26	78,788
Amount	33	100

## Math Learning Achievement After The Teaching Treatment with TVE programs



Statistically, from the result of the research, it can be seen that the difference average of the math learning achievement before the teaching with TV-E programs and after the teaching with TV-E programs is 21,606 with the standard deviation of 24,310. The result of the t statistic calculation is the value of minus 5,106 and significance of 0,000.

With the significance result of 0,000, it is valid to state to deny  $H_0$  stating that there is no difference in math learning achievement of the grade IX students of SMP which was without TV-E program utilization and that with TV-E program utilization. Because the level of the significance is lower than alpha 0,05, it can be concluded that the teaching with TV-E program utilization gives significant impact.

Therefore, it can be concluded that there is some difference in math learning achievement of grade IX students of SMP without TV-E program utilization and that with TV-E program utilization.

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