

Design and Applied Technology

CASE STUDY

The Advancement of Digital Video





CASE STUDY

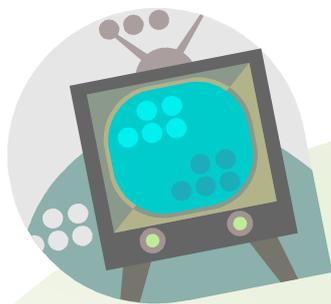
Design and Applied Technology

Students should be made aware of the relevance of the technology they are studying to the real world. Case studies on technology and design enable students to put their learning into an authentic context.

Authentic Context: Through the study of the High Definition Television (HDTV) broadcasting development in Hong Kong, students could explore the social impacts of digital media development

Topics Covered:

Compulsory Part	Strand 3 : Value and Impact
Elective Part	Module 2 : Creative Digital Media



The Advancement of Digital Video



Author

Mr Hui Ka-man

Lecturer, Department of Communication Design and Digital Media

Hong Kong Design Institute

Project Coordinators

Mr Li Yat-chuen

Senior Training Consultant

Institute of Professional Education And Knowledge, VTC

Mr Tsang Siu-wah, Ephraim

Training Consultant

Institute of Professional Education And Knowledge, VTC

The copyright of the materials in this Case Study belongs to the Education Bureau of the Government of the Hong Kong Special Administrative Region.

Duplication of materials in this Case Study may be used freely for non-profit making educational purposes only. In all cases, proper acknowledgements should be made. Otherwise, all rights are reserved, and no part of these materials may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior permission of the Education Bureau of the Government of the Hong Kong Special Administrative Region.

© Copyright 2010

Note by the Institute of Professional Education And Knowledge, VTC:

Every effort has been made to trace the copyright for the photographs and images in this Case Study as needed. We apologize for any accidental infringement and shall be pleased to come to a suitable arrangement with the rightful owner if such accidental infringement occurs.



Overall Expectation

As technology goes fast, people will not only confine electronic communication to e-mails and voice mails. Nowadays, video is another popular tool for communication. Digital video exists over ten years. This case study will lead students to go through the evolution of video technology, from analog to digital. Students can understand why the qualities of different video formats are different and how they affect broadcasting. Students are also required to investigate how does the new technology affects our lives and the impacts it brings to our society.

Part 1 - History: From Film to Video

Students should first understand the development history from cave drawing to digital video.

Beginning

Humans have been making images for at least 16,000 years. Our Ice Age ancestors recorded their daily livings through the cave painting at Lascaux, France, Altamire and Spain; they want to do the same thing as us today – to communicate a message to the audiences.



Cave painting of auroches (Bos primigenius primigenius) in Lascaux, France

Source: <http://www.petermaas.nl/extinct/speciesinfo/images/Lascaux-aurochs.jpg>

From Picture to Film

Human beings had tried many ways to capture the scene of motion in their art. In 1890, Thomas Edison and his employee, William Kennedy Laurie Dickson, built the first camera – the “Kinetograph” and make a five-second silent film. Since then, images are recorded on the film strips.



Filmstrip of Butterfly Dance (ca. 1895), an early Kinetoscope film produced by Thomas Edison

Source: <http://www.thehenryford.org/exhibits/pic/1999/99.nov.html>

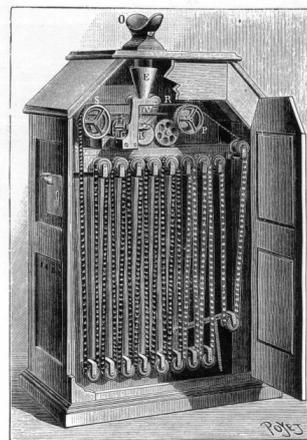


Illustration showing cutaway image of Edison Kinetoscope

Source: <http://www.victorian-cinema.net/machines.htm>

Television Video

Motion Picture movie had been developed since Thomas Edison, innovations to enhance the motion picture system such as sound, colored film, wide screen and stereo would follow in the decades to come. Another important media “Television” came into the market in 1930s. The word “Television” refers broadcasting and receiving radio signals that carry video content. Video, then, tends to means electronic image content. In 1931, Vladimir Kosma Zworykin and his team created the first successful electronic camera tube, making it practical for television.

Digital Video

Digital video came from the combination of two major technologies in the history:

- 1) TV, Film and video which have their roots in waveform, or simply called analog technology
- 2) The development of the computer, with its digital language of 1 and 0



Analog format was used at the very beginning of Thomas Edison's first camera invention – the usage of film to record and present images. Film and non-digital video (such as VHS tape) are described as analog because they are using physical representations of chemical reaction and electric signal to record the image. Celluloid film uses chemical reaction of the dyes material to record the image and analog video is based on what are called continuously variable signals, fluctuating voltages stored on magnetic tape or some other media. In video, the changing of the voltage convey into picture or sound information.

Modern computers process information with digital data. The digital process information, including pictures, to a series of 0's and 1's. Starting in the late 70s to the early 80s, several types of video production equipment such as digital video effects (DVE) units were introduced. They were operated by digitizing a standard analog video input. The process helps to correct or enhance the video signal, or to manipulate and add effects to the video.

The media giant, Sony, introduced Sony D-1 format in 1986. It was the first time for digital video to be widely used in the commercial media production industry. The format recorded an uncompressed standard definition component video signal in digital form instead of high-band analog forms. In consumer market, the introduction of DV tapes in 1996 allowed people to easily create their home video and promote popularity of computer editing.



Sony D1 Video Tape Recorder (source: [www. Wikipedia.com](http://www.Wikipedia.com))

Consumer digital video first appeared in the form of QuickTime, Apple Computer launch its first versions of time-based and streaming data video formats in 1991, though of low-quality at first. Consumer digital video increased rapidly in quality, first with the introduction of playback standards such as MPEG-1 and MPEG-2 (adopted for use in television transmission, VCD and DVD media).



Activities:

A) Demonstration

Students should investigate and tell us the differences between the following image recording media:

- 1) Film
- 2) Analog storage media – Analog audio tapes and VHS
- 3) Digital storage media – Compact Disc, DVD, Digital Video Tape

B) Conduct a site visit to a Film and TV production company or education institute with the following facilities:

- 1) Traditional Film Production facilities
- 2) Digital Film Production facilities

Explain the differences between Traditional Film Production Workflow and Digital Film Production Workflow.



Digital Film Color Grading (left) and Digital Film Scanner and Output system (right) in Hong Kong Design Institute



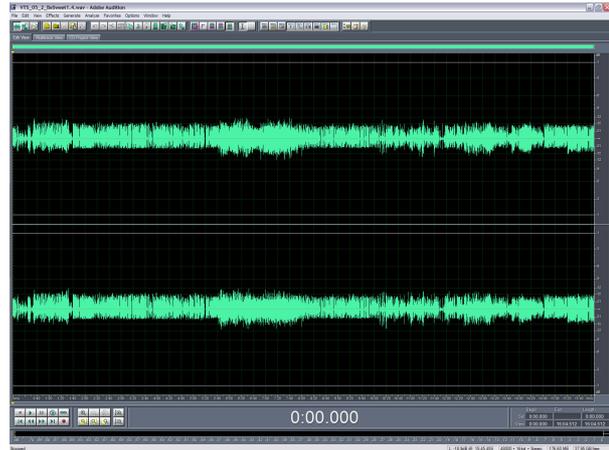
Part 2 - Digital Video Technology Development – TV production

Digital video technology is developed from the basis of film and analog video production. We should first understand their differences and then find out how digital technology affects our daily life and society.

1) Analog and Digital - The Digital Difference

a) The Analog world

TV, film and video capture light and sound as they fluctuate along a wave, recording gradations in light intensity and brightness, gradual shift in color, and subtle changes in sound amplitude and frequency. These changes are recorded along a continuum. We refer to this as analog recording.



The audio waveform – computer converts analog wave into audio signal

b) Digital world

It is of no doubt to say that digital is different from the analog format. First of all, its recording data is in binary codes – 0 and 1. A digital video camcorder takes millions of samples of the analog world as seen and heard through the camera and stores them in unchangeable code.





2) TV broadcasting

a) Film and TV broadcast system

Standard film stocks such as 16 mm and 35 mm recorded at 24 or 25 frames per second. For video, there are two frame rate standards: NTSC, and PAL, which shoot at 30/1.001 (about 29.97) frames per second and 25 frames per second, respectively. In China and Hong Kong, we use PAL standard in our Television broadcast system. In PAL system, the picture resolution is 768 pixels (width) x 576 pixels (height).

b) Digital TV and High Definition Television

Digital video is used for movie making. Digital television (including higher quality HDTV) started to spread in most developed countries in early 2000s. Digital video is also used in modern mobile phones and video conferencing systems. Digital video is also used for Internet distribution of media, including streaming video and peer-to-peer movie distribution.

As of 2007, the highest resolution demonstrated for digital video generation is 33 megapixels (7680 x 4320) at 60 frames per second (UHDV), though this has only been demonstrated in special laboratory settings. The highest speed is attained in industrial and scientific high speed cameras that are capable of filming 1024x1024 video at up to 1 million frames per second for brief periods of recording.



Why do we need such “high speed” (1 million Frame per sec.) camera? What are their applications? In what ways it can help to improve our living?





The Case: Watch clearer with HDTV

Extracted from ls.hket.com/hk

<http://ls.hket.com/hk/liberalStudiesTopicsAction.do?action=listdetail&method=N&id=ff80808112e55e160113195d5f1405d5>

2007/09/24

WATCH CLEARER WITH HDTV

Text: Tony Yau

The Director-General of the Office of Telecommunications Authority announced on June 4 in 2007 that the mode that Hong Kong's Digital TV takes is going to be the National Standard.

The Government adopted the method of market-orientation for the two free television broadcasting companies; they are the Asia Television Limited (ATV) and the Television Broadcasts Limited (TVB), to suggest the mode of digital terrestrial TV service they wish to take on. Upon their suggestion, the Director-General will then carry out an assessment towards their chosen modes. The two free terrestrial TV



broadcasting companies have both suggested to the Government that they wish to opt for the national standard. The Office of Telecommunications Authority has finished assessing the relevant proposals, and the Director-General has now decided that it will be the national standard that is to be used as the transmission mode of Digital Terrestrial TV Service.

The Government will make an announcement as soon as possible regarding all the related technical specifications and guidelines of the transmission of Digital TV within buildings and the products for receiving signals. This is to make it all the more convenient for the different buildings' management companies to make the related adjustments to the buildings themselves. Also, convenience is for the manufacturers of the relevant consumer products for the launch of Digital TV.

Based on the rules set up by the Government, the two TV stations will launch a simultaneous broadcasting of both Digital TV and the conventional analogue television by the end of 2007.



When the time comes, people in Hong Kong will not be required to replace their current television sets or add any kind of new equipment. In the future they can still continue watching the four free TV channels in existence now. If then they want to improve the receiving quality of conventional analogue TV and/or if they wish to receive newer digital TV channels including the service of HDTV, they will need to add and install the digital receivers that fit with the specifications in Hong Kong.

Currently, the market does not have any electronic consumer products that can receive digital terrestrial TV. It is suggested that consumers do not have to rush to consider buying receivers for digital terrestrial TV. This is because it is expected that products of digital receivers that match the market specification will only become available on sale in the market in 3 to 6 months after the announcement of the Government.

(Extracted from: Commerce, Industry and Technology Bureau – the Digital TV website)

What is High Definition TV?

Judging by its name, HDTV is a kind of television broadcast with high resolution precision.

Traditional Analogue TV turns moving, motioning sounds and pictures into a series of changing electronic signals. After transmitting these signals to the receiver (television), which will then turns them back into the original forms of sounds and pictures. Digital TV refers to the digitalization of the broadcasting, transmission, receiving and other processes. The decoder receives digital signals and then turns them into TV programs.



The signals that Conventional Analogue TV gives out can be easily interrupted and thus the quality is affected. In contrast, digital signals are much stronger than the analogue signals and that is why they can offer a much clearer sounds and pictures.

Fervent Competition

High Definition technology raises the quality of sounds and pictures effects but they do not help with the quality of the programs themselves. However, via digital TV broadcasting, the number of channels to be broadcasted increases (as now with conventional analogue



television, one TV channel occupies a frequency spectrum; for digital TV, one spectrum can support more channels. One digital spectrum can offer for at least 4 High Definition channels.) Competition in the market becomes fiercer. Even free TV channels can open up more channels to compete with the pay TV, promoting a diversified development of the TV industry at the same time giving the TV audience more choices.

TVB since its establishment in 1967 has been in operation for 40 years. Even today, it strongly dominates the TV market. ATV, being the main competitor of TVB, has beaten TVB a few times but at the end of the day, ATV fails to surpass TVB in the competition. A regularly high audience rating reflected a contented and almost uncreative attitude in TVB program productions. Even with its strongest TV



dramas, there is a clear lack of creativity. This is evidently shown as TVB has been accused for copying others' works more than once. For example, the latest TV series "The Family Link"¹. The series' structure is more or less the same as the American TV drama "Desperate Housewives"; they are both along the same line. Another example is "On the First Beat"², in which a lot of scenes appear to be the same as that of the movie "Crazy and the City"³. The drama programme "Wars of In Laws 2007"⁴ carried with it the shadow of the movie, "The Devil Wears Prada".

However, with the implementation of digital TV broadcasting, the two free TV channels, TVB and ATV, are going to be running on the same line technically speaking. In addition, ATV has new investment, new management and they have successfully invited two senior staff members from TVB, Louis Rajkumar Page and Ho Ting Kwan, to join the ATV team. With a number of experienced and senior actors, actresses and production staff joining the ATV team, the statement 'ATV is going to become very, very strong and big, this can only benefit the TV audiences in Hong Kong' may not be an empty one.

A new round of a TV war era is about to come. Apart from TVB and ATV, three pay channels: Cable TV, Now TV and Star TV are inevitably dragged into the "war". And the grand opening of the "war" had already started at the 08 Olympic Games...

¹ "The Family Link" was named as 「師奶兵團」 in Chinese.

² "On the First Beat" was named as 「學警出更」 in Chinese.

³ "Crazy and the City" was named as 「神經俠侶」 in Chinese.

⁴ "Wars of In Laws 2007" was named as 「我的野蠻奶奶 2007」 in Chinese.



Dark, Heavy Clouds Shadowing the Olympics

The 08 Beijing Olympic Games was broadcasted in High Definition signals all the way. This was the first in the history of the Olympics. The two free TV channels individually invested a few billions into setting up new channels and building transmission stations. Their goal was of course to make it in time for the broadcast of Olympic Games.



A higher lighting standard was implemented in Shatin Olympic Horsemanhip Competition because of the High Definition Broadcasting system

- ◆ TVB expressed that they invested resources that were three times more than before into making digital broadcasting possible including equipping themselves



with High Definition high-speed recording cameras, High Definition slow-motion machines, etc. In the 2008 Olympic Games, TVB started to operate two High Definition Olympic channels and a number of channels in Standard Definition television (SDTV).

- ◆ As for ATV, they planned to invest a few ten millions Hong Kong dollars into adding more staff and resources to its sports news channels, renting a venue of 5,000 square feet. (Accordingly, rumor has it that TVB is renting a 7,000-square-foot production center, in the hope of making it bigger than the ATV's), reporting the games all the way.
- ◆ Now Broadband TV has approached TVB, tried to negotiate sharing of some of the games or the broadcasting right of the time slots.

The era of High Definition has dawned. For the TV channels especially ATV, this is a perfect opportunity to turn defeat into victory while for the TV audience, we can more clearly, more realistically watch the competency and skills of the Olympic athletes. And after the Olympic Games, hopefully the TV platform of a monopolistic TVB can come to an end and then we will be able to watch more high-quality programs.

Discussion questions:

- 1) Explain the advantages of using digital video against analog video:
 - a) What are the reasons for consumers to buy High Definition TV?
 - b) What are the benefits for TV broadcaster (such as TVB, Asia TV etc) to change their broadcast system to digital signal system?



- 2) What are the benefits and drawbacks for Hong Kong to implement Digital TV broadcasting? Do you think that it can improve the production quality of our media industry? Can it help to attract more audiences to watch TV?



Part 3 - Technology development: Interactive TV

Extract from GAWLINSKI MARK (2003) Interactive television production Oxford; Boston: Focal

INTRODUCTION

Recent developments in technology have really opened up the possibilities for interactive television (ITV). In particular, digital transmission technologies have made it possible to cram a lot more information into a given piece of broadcasting space (bandwidth). This allows broadcasters and television platform operators to parcel extra information alongside the television signal, and on the other hand allow viewers to send information back to the television companies more easily. By using digital and other technologies, viewers and television producers now have a myriad of new and exciting ways to interact.

WHAT IS INTERACTIVE TELEVISION (ITV)?

Interactive television is not new. Since the very earliest days of television, producers have been trying to make their programmes and channels more dynamic and participatory.

Interactive Television in the old days

For example, in the case of children's television, interactive elements often involved desperately trying to get the viewers to sing along, jump up and down or dance around the room.

One early children's programme pushed the boundaries of the often passive relationship between the broadcaster and the viewer. It was called "Winky Dink and You" and featured the adventures of a cartoon character with a star-shaped hairdo. American children in the 1950s were asked to help Winky Dink out of difficult situations by drawing on the television screen using special transparent sheets, which were sold in shops and by post.



Adult viewers have been convinced to the idea of interacting with television in a number of clever ways too. Anything and everything has been tried: asking for feedback, running prize competitions, giving out leaflets with extra information. The telephone, in particular, has



proved itself to be a powerful interactive television communication channel.

Hence, Interactive television can be defined specifically as a dialogue that takes the viewers beyond the passive experience of watching and lets them make choices and take actions - even if the action is as simple as filling in a postcard and popping it into the mail, or drawing a picture on the television screen.

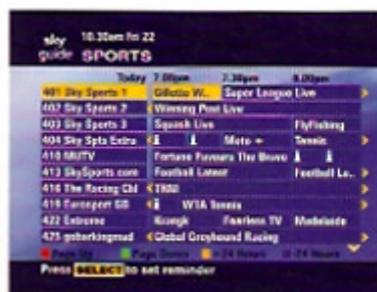
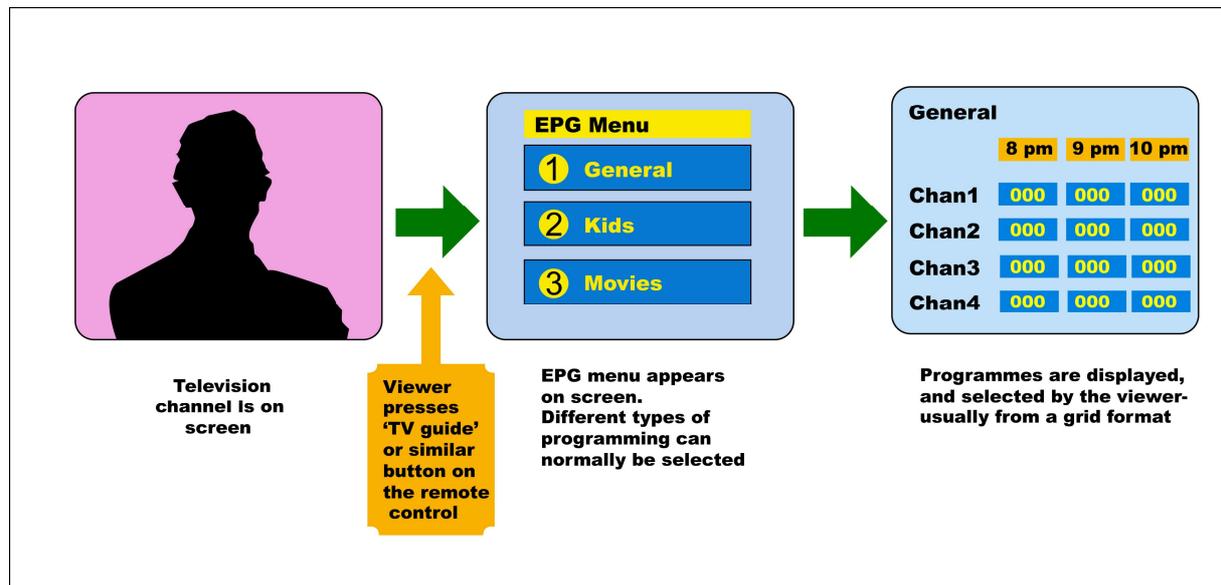
DIFFERENT TYPES OF ITV

In fact, one of the difficulties with interactive television is that there is no generally agreed framework for describing different types of interactivity. Everyone involved in the industry uses different jargon.

DAILY LIFE EXAMPLES

1. Electronic programme guides (EPGs)

One of the most useful and important types of interactive television is the electronic programme guide. It display information about schedules directly onto the television screen and viewers can select programmes to watch from the on-screen list that is a must have on services that have tens and sometimes hundreds of channels to choose from.

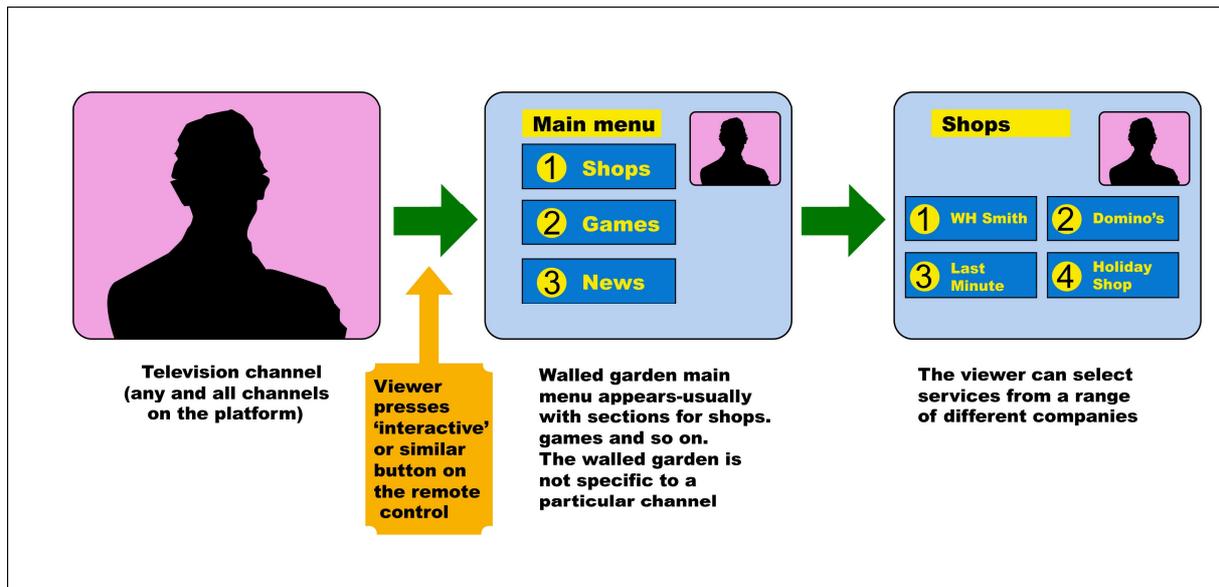




(Images sources: GAWLINSKI MARK (2003) Interactive television production Oxford; Boston: Focal)

2. Walled gardens

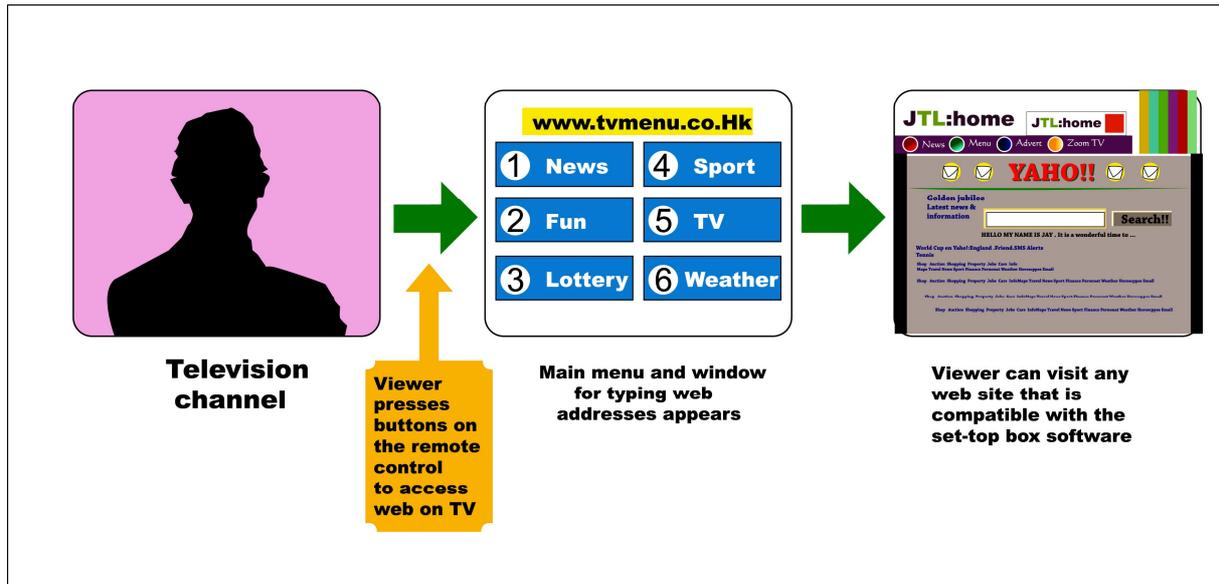
Some interactive television service providers offer a whole collection of different interactive content and services from a variety of different companies under one umbrella. They aim to provide a secure, controlled and easy to understand environment for different types of interactive television, called walled gardens service.



(Images sources: GAWLINSKI MARK (2003) Interactive television production Oxford; Boston: Focal)

3. Internet on television

Internet on television allows viewers to access the millions of information and communication services already available on the Internet. Internet on television services break down the garden wall and give viewers the opportunity to roam beyond the confines of what the service provider thinks is suitable. Viewers can then get all the advantages of the PC Internet but at a much reduced cost, compared to a computer and all in the comfort of their own living room.

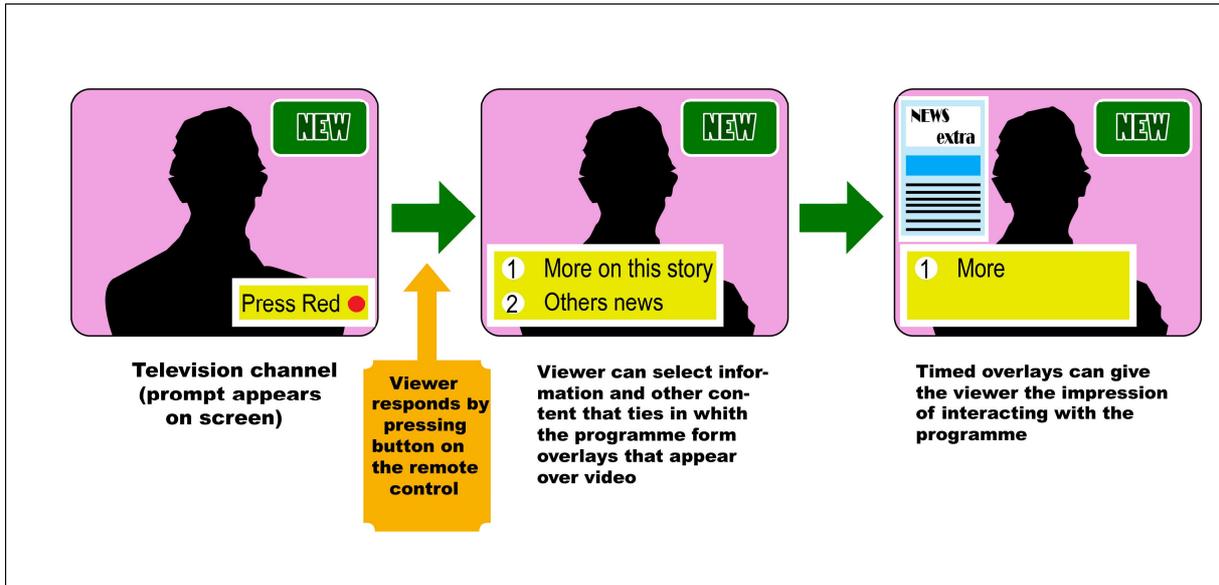


(Images sources: GAWLINSKI MARK (2003) Interactive television production Oxford; Boston: Focal)

4. Enhanced television

It can be defined as any interactive television service that makes an existing television programme better, while that programme is running and shortly afterwards.

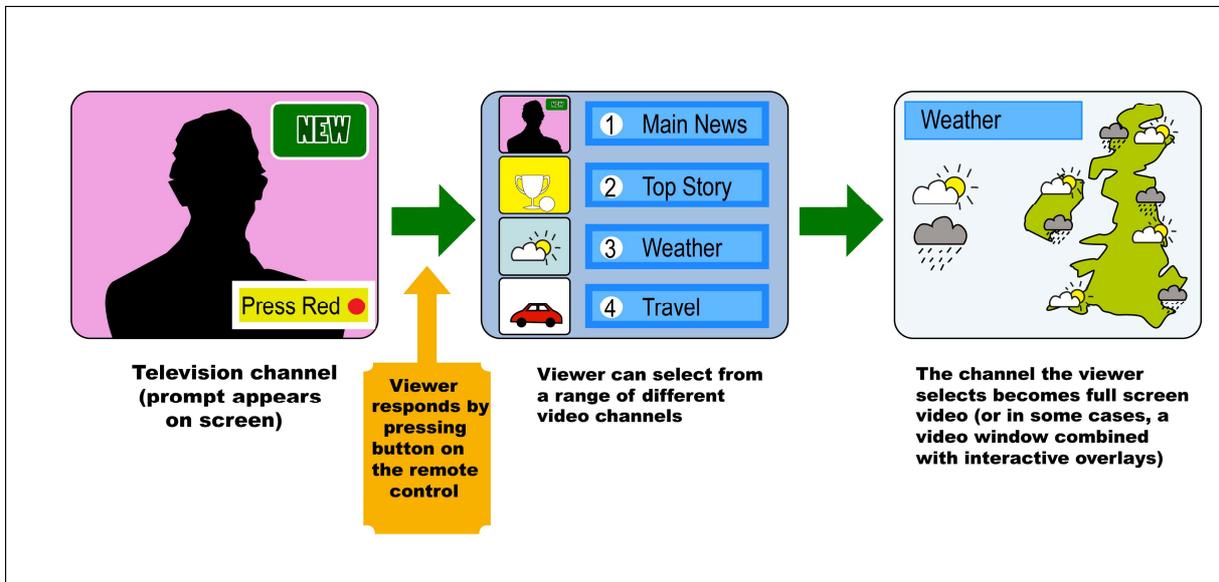
Enhanced television services give viewers the opportunity to answer questions before the contestants on the television or to predict what will happen during football matches and so on. While the host has finished asking a question or just before a player take a shot, a range of different answers or options may pop up on-screen to interact with the viewers.



(Images sources: GAWLINSKI MARK (2003) Interactive television production Oxford; Boston: Focal)

5. Video switching

It allows viewers to switch between a selection of different video and audio streams, related to a single event or programme. With this type of service, viewers are normally taken to some kind of menu, where they can select the video and audio streams they wish to use.



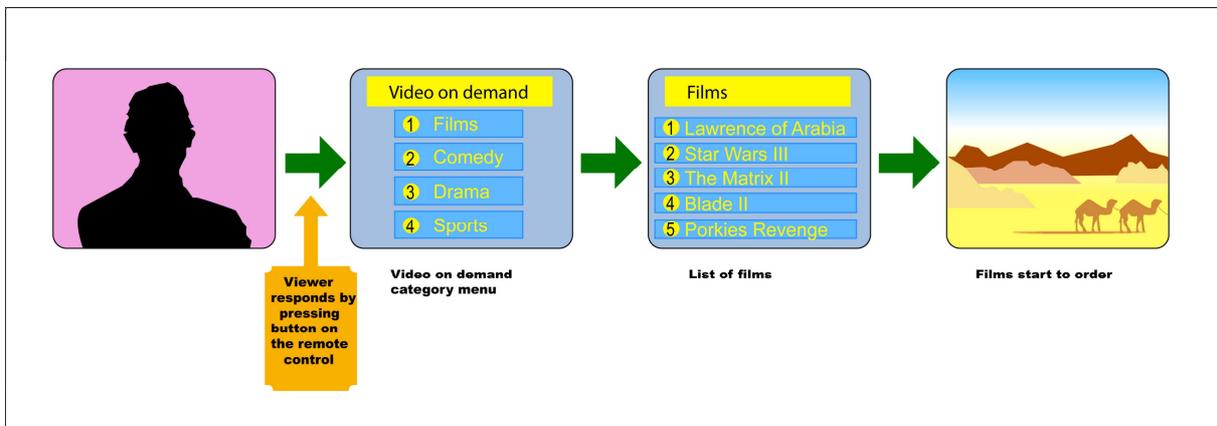


(Images sources: GAWLINSKI MARK (2003) Interactive television production Oxford; Boston: Focal)

6. Video on demand

This service does pretty much the same thing as video rental shops. Video on demand allows the viewer to watch television programmes, sports events and films at any time.

Unlike video shops, viewers can choose from a list of shows displayed on screen, rather than nipping down the high street. Some services also allow the viewer to pause, rewind and forward wind during the programme.



(Images sources: GAWLINSKI MARK (2003) Interactive television production Oxford; Boston: Focal)



Discussion questions:

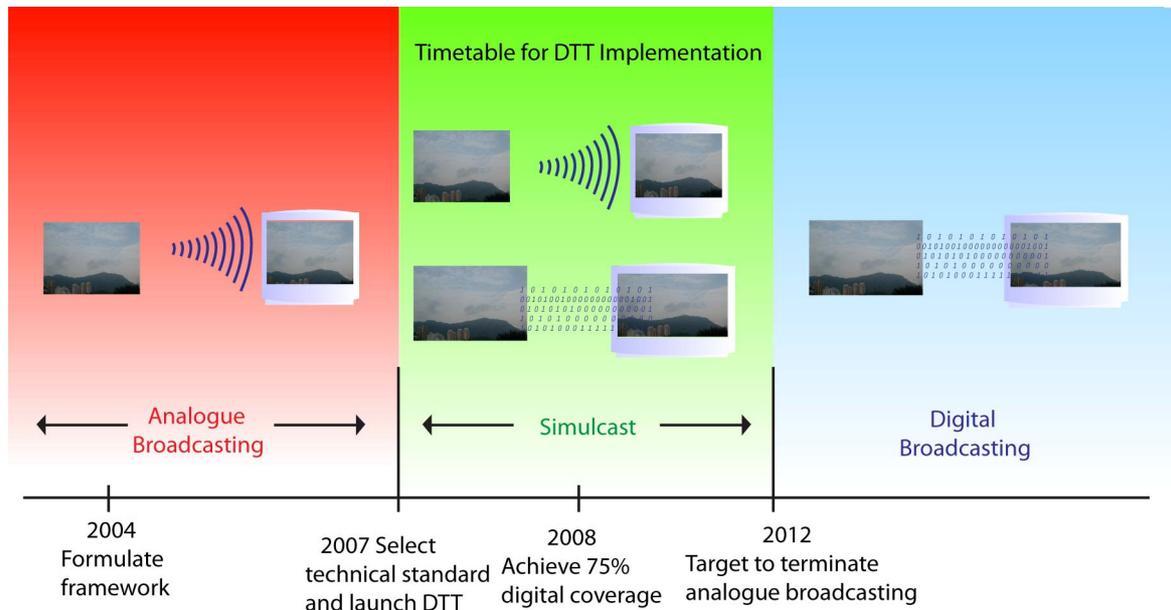


1. In your opinion, what is the definition of interactive television? How is it different from internet broadcasting (such as YouTube)?
2. Why many of the largest companies in the world have invested hundreds of millions of dollars to extend television's capability into interactivity in the Internet era?
3. What will be the future of ITV? Will it merge with Internet?



Part 4 - Impact of Digital TV broadcast to Hong Kong Society: Digital Divide

The schedule of fully Digital Television Format broadcast in Hong Kong is planned as following:



Digital TV is a far more efficient and flexible transmission system than the current analogue system. It allows broadcasters to offer a range of new and different services to the viewers. However, new technology may bring another problem to our society: “Digital Divide”.

Definition of Digital Divide

The term, digital divide refers to the gap between those who can effectively use new information and communication technology (ICT), and those who cannot due to the lack of access to digital technologies or skills to enable them for a wide variety of activities. (Digitaldividenetwork, 2000) While those “information-haves” harness the technology to gain better jobs, further educational advancement, and a higher level of community participation, “information have-nots” are at a growing disadvantage in enjoying the gains and the new opportunities brought by an emerging information-based society.



Looking Further to the Case

Phenomenon of Digital Divide in Hong Kong



The 2008 Information Technology Usage and Penetration (Thematic Household Survey Report No. 37) found that 74.2% of households in Hong Kong have PCs at home and 95% of them indicated that their PCs are connected to Internet. Details on the usage of computer and the Internet as well as the adoption of e-commerce are provided below.

Usage of personal computer

1. Usage of Internet

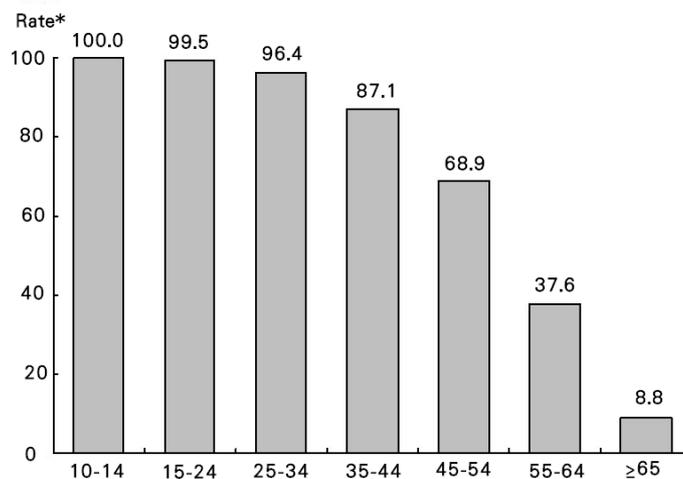
- ◆ The rate of using Internet service was 66.7% among all persons aged 10 or above.
- ◆ 70.9% of people aged 10 or above use PC.

2. Who are at disadvantage?

To have a better understanding on the diffusion of information technology usage (ITU) to the disadvantaged group, more detailed analysis covering the demographic profile, needs, attitudes and difficulties towards ITU will be needed.

3. Age – Elderly are less likely to use ICT.

- ◆ Lower rate in using PC is recorded among the elderly. Only 37.6% and 8.8% of people aged 55-64 and aged 65 or above have used PC respectively.



Rate of persons aged 10 and over who had knowledge of using personal computer (PC) by age



- ◆ The rate of using Internet services is even lower in the two groups above. The rate for people aged 55-64 and 65 or above have used Internet is 30.1% and 7% respectively.

4. **Educational attainment** – The use of ICT is less common among people with lower education or illiterate.

- ◆ People with primary or lower education attainment have the lowest rate of using all forms of Information technology, only 27.4% of them have knowledge to use personal computer. (P. 49)

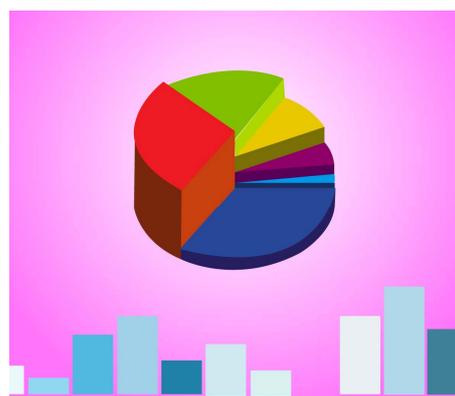


教育程度 Educational attainment	人數 No. of persons ('000)	百分比 %	比率* Rate*
未受教育/幼稚園/小學 No schooling / kindergarten / primary	428.6	9.8	27.4
中學/預科# Secondary / matriculation#	2 755.3	62.8	81.2
專上教育 Tertiary	1 200.4	27.4	97.6
合計 Overall	4 384.2	100.0	70.9

Persons aged 10 and over who had knowledge of using PC

5. **Household income** – Lower income group are much less likely to access ICT than their higher income counterpart.

- ◆ While 100% of people with monthly household income at \$50,000 or above have a PC at home, only 37% of those with monthly household income less than \$10,000 do.





住戶每月入息(港元) Monthly household income(HK\$)	住戶數目 No. of households	百分比 %	比率 Rate
<10,000	242.4	14.2	37.0
10,000 - 19,999	478.7	28.0	80.1
20,000 - 29,999	413.0	24.2	91.9
30,000 - 39,999	237.4	13.9	96.0
40,000 - 49,999	127.9	7.5	98.4
>50,000	210.6	12.3	98.2
合計 overall	1710.1	100.0	74.6
住戶每月入息中位數(港元) Median monthly household income(HK\$)		22,800	

Households with PC at home by monthly household income

- ◆ Only 32.4% of people with monthly household income less than \$10,000 have a PC connected to the Internet, making a huge difference when compared with the highest income group (96.5%).

6. **Occupation** – Home-makers and retired people tended to be the late ICT adopters.

- ◆ The rate of having knowledge of using PC is lower among home-makers and the retired persons, standing at 49.6% and 13.6 % respectively.



	人數 No. of persons ('000)	百分比 %	比率* Rate*
經濟活動身分 Economic activity status	2981.8	68.0	83.1
從事經濟活動 Economically active	1402.5	32.0	54.0
非從事經濟活動 Economically inactive	903.8	20.6	100.0
學生 students	358.2	8.2	49.6
料理家務者 Home-makers	124.8	2.8	13.6
退休人士 Retired persons	15.7	0.4	29.1
其他 Others			
合計 Overall	4384.2	100.0	70.9

Persons aged 10 and over who had knowledge of using PC by economic activity status



Activities:

Students are required to watch the following TV program: “News Magazine - Hong Kong High definition television”, Asia Television Limited, 2007. (『**高清晰度年代·香港**』：亞洲電視，時事追擊，2007)。



Discussions Questions:

- 1) Will another “**digital divide**” come up when Digital TV is fully launched?
- 2) Who are at risk?
- 3) How to solve the problem of “**Digital Divide**” in Digital TV broadcast?

Project presentation

Research questions for group presentation:

- 1) What are the causes for Hong Kong to implement Digital Television Broadcast System?
- 2) How can Hong Kong Government help to avoid “Digital Divide” after the implementation of Digital Television Broadcast System?
- 3) What is Interactive TV? How will it affects our TV industry?
- 4) Nowadays, people are watching Blu-ray or HD-DVD disc in their home entertainment. What are the different between DVD and Blu-ray/HD-DVD? How do those new products affect future home entertainment industry?
- 5) People can easily download digital video from the internet. How do our government and entertainment industry protect the copyrights of movies and solve the problem of privacy?
- 6) People are using mobile phone to watch movie and TV series. How will this trend affect Hong Kong’s future media industry?



References

Useful websites

- ◆ www.broadbandbananas.com
- ◆ www.itvt.com
- ◆ www.itvdictionary.com
- ◆ www.ETVcookbook.org
- ◆ <http://paper.wenweipo.com/2007/10/27/WW0710270007.htm>
- ◆ New Television Broadcasting Standard 「今日香港」
<http://ls.hket.com/hk/liberalStudiesTopicsAction.do?action=listdetail&method=N&id=ff80808113551399011361c674f600e0>
- ◆ Sin Chung Kai, “Bridging the Digital Divide, a vision to a Digital Inclusive Society”, 2001 (Digital TV, <http://www.digitaltv.gov.hk/general/index.htm>)

Bibliography

- ◆ GAWLINSKI MARK (2003) Interactive television production Oxford; Boston : Focal
- ◆ JENS F.JENSEN & CATHY TOSCAN (1999) Interactive television: TV of the future or the future of TV? Aalborg, Denmark: Aalborg University Press
- ◆ JERRY C. WHITAKER (2001) Interactive TV demystified New York: McGraw-Hill
- ◆ SRIVASTAVA, HARI OM (2002) Interactive TV technology and markets Boston: Artech House

Images sources

- ◆ GAWLINSKI MARK (2003) Interactive television production Oxford; Boston: Focal



Worksheet: Presentation Mark Sheet

Name:	()	Class:	
Case Study:	The Advancement of Video		
Group 1	Comments:		
Group 2	Comments:		
Group 3	Comments:		
Group 4	Comments:		
Group 5	Comments:		
Teacher Remarks:			



We encourage collaborative learning throughout this case study; therefore peer assessment and evaluation on their learning were suggested. It is recommended that you take a minute to evaluate and reflect on your own learning after each lesson. A simple checklist rubric is provided. You will also take responsibility to assess the performance of other groups during the final presentation with the scored rubrics. Teacher will take the role as a moderator. The assessment rubrics will make the assessment more accountable and let you have a clear goal to strive for your best.



Self / Peer assessment (checklist)

This assessment rubric can be used to keep your learning progress and schedule. Put “Yes” or “No” after each lesson. Teacher can easily check whether you can meet the lesson objectives.

Student Name: _____		Team: _____		
Focus of Assessment: Teamwork		Date: ____/____/____		
Criteria		Self	Peer	Teacher
1.	I understand the lesson objectives.	Yes / No	Yes / No	Yes / No
2.	I work with team members cooperatively.	Yes / No	Yes / No	Yes / No
3.	I give my views responsibly.	Yes / No	Yes / No	Yes / No
4.	I respect and listen to other members’ ideas.	Yes / No	Yes / No	Yes / No
5.	I can draw conclusion after this lesson.	Yes / No	Yes / No	Yes / No
6.	I am satisfied with my learning today.	Yes / No	Yes / No	Yes / No



Assessment rubrics (Presentation)

Students can use these rubrics for peer assessment of the final presentation. Teacher needs to explain and discuss these criteria with the students.

Peer Assessment for Final presentation																	
Team:								Date:		___/___/___							
Assessors:								Class:									
Focus	No	Scores					Assessment Criteria					Scores					
Knowledge	1	1	2	3	4	5	← Understanding of the topic →					6	7	8	9	10	N/A
	2	1	2	3	4	5	← Content is consistent with the topic →					6	7	8	9	10	N/A
	3	1	2	3	4	5	← Content is supported with evidence →					6	7	8	9	10	N/A
	4	1	2	3	4	5	← Content is at appropriate level →					6	7	8	9	10	N/A
	5	1	2	3	4	5	← Show key concept in content →					6	7	8	9	10	N/A
Attitude	6	1	2	3	4	5	← Show effort in group discussion →					6	7	8	9	10	N/A
	7	1	2	3	4	5	← Show effort in information search →					6	7	8	9	10	N/A
	8	1	2	3	4	5	← Show effort in preparing presentation →					6	7	8	9	10	N/A
	9	1	2	3	4	5	← Show competency in IT skills →					6	7	8	9	10	N/A
	10	1	2	3	4	5	← Show organization skills →					6	7	8	9	10	N/A
Presentation	11	1	2	3	4	5	← Present their views and idea clearly →					6	7	8	9	10	N/A
	12	1	2	3	4	5	← Logical and consistent flow of ideas →					6	7	8	9	10	N/A
	13	1	2	3	4	5	← Have interaction with audiences →					6	7	8	9	10	N/A
	14	1	2	3	4	5	← Show appropriate use of visual aids →					6	7	8	9	10	N/A
	15	1	2	3	4	5	← Have eye contact with audiences →					6	7	8	9	10	N/A
Total Scores																	

* Performance descriptors: 1 is incomplete; 5 is fair; 7 is good; 8 is very good; 9 is outstanding



**Technology Education Section
Curriculum Development Institute
Education Bureau
The Government of the HKSAR**

**Developed by
Institute of Professional Education And Knowledge (PEAK)
Vocational Training Council**