

Example of essay on timeline of a radio receiver

[Sociology](#), [Communication](#)



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Communication

Communication

Introduction

Radio communication is one of the earliest forms of communication. It involves the transmission of information through electromagnetic waves, traveling at the speed of light. Radio communication has two main components: radio transmitter and radio receiver. A radio transmitter is an electronic device that initiates the communication process by generating radio waves containing information targeting a specific audience. A receiver refers to an electronic gadget that obtains the signals and converts them into an easily understandable format. It consists of the antenna, amplifier, tuner and detector (Lowe, n. d.). The antenna intercepts electromagnetic waves in the air and converts them into alternating current that the receiver understands. The amplifier boosts the strength of weak signals captured by the amplifier. The tuner selects signals of a specific frequency determined by the receiver's manufacturer. Finally, the detector separates the intended

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audio information by converting the alternating current signal to a direct current signal that is amplified by a circuit to produce output in the form of audio, video and digital signals. Most receivers are stand-alone electronic devices. However, others are integrated within other electronic gadgets such as televisions, cell phones, satellite dishes and wireless computer networks. There are numerous types of radio receivers such as consumer audio receivers used in home stereos and home theater systems; communication receivers used in radio communication networks and satellite television receivers among others (Brain, 2014). Consumer audios are further grouped into portable radios and Hi-Fi / Home Theater. Portable radios are mainly transistor radios that receive AM, FM, or shortwave bands.

Radio receivers serve several purposes within the society. These purposes include entertainment through music, shows and programs, news updates, advertisements and educative programs. Radio use is widespread because it is cheaper than other electronic media, can reach large masses within a short time and can be used by illiterate people in the society. Hence, the radio became the first electronic device to offer mass communication.

The practical realization of the radio was preceded by several discoveries traced back to 1821 when Hans Oersted found out the link between magnetism and electricity (Pennsylvania State University, n. d.). In his experiment, he observed that a cable carrying electric current can cause a deflection of the needle of a magnetic compass. From the experiment, he concluded that it is possible to create a magnetic field from an electric current. In 1831, Michael Faraday conducted a series of experiments that proved that changes in a magnetic field can create electric current. As a

result, electric telegraph systems using battery power began to appear in 1837. The experiments conducted by James Maxwell in 1865 also concluded that light was an electromagnetic wave. He used mathematical integration to determine the relationship between electricity and magnetism in a vacuum. The proof of Maxwell's concepts was obtained by Heinrich Hertz in 1887. His experiments confirmed the existence of electromagnetic induction and proved that light was a form of electromagnetic wave. Armed with this information, Guglielmo Marconi conceived the idea that electromagnetic waves could be used as a form of communication. He conducted experiments between 1874 and 1937 and was able to transmit radio signals over a few yards. He was the first person to transmit sound using radio signals across the Atlantic Ocean. His major contribution to radio technology was his invention of a detector or receiver called the coherer that was widely adopted for signal reception. His other successes include invention of a high antenna and receipt of a patent for his radio communication system. While the coherer was one of the pioneering detectors, it had several limitations that prompted the development of magnetic detectors, which were mainly used in maritime transmissions. Their main advantage over coherer was their ability to detect incoming radio signals directly.

Magnetic detectors evolved into valve or tube detectors, based on the pioneering work of Thomas Edison and Fleming in the 1900s (Poole, n. d.). The tubes contained triodes that detected and amplified signals, greatly improving receiver communication. Despite their contribution, valve technology was expensive to manufacture due to the high power requirement of the filaments. Consequently, crystal detectors were invented.

Crystal detectors were the first semi-conductor appliances applied in radio communication and could alternate between modulated radio frequency and audio voltage depending on the user's needs (Poole, n. d.). The unreliability of crystal detectors prompted the development of triodes that contained a third electrode. Triodes enabled the amplification of radio signals that made it possible for receivers to capture distant or weaker signals. In addition, the triode valves could oscillate, facilitating the generation of stable high-frequency signals. Regenerative receivers were invented to maximize on the gains of the triodes. These receivers used more than one valve and made it possible to regulate the amount of feedback. Events such as war prompted further advancement in wireless technology as warring factions looked for efficient ways of transmitting war information.

Post-warfare radio transmission technology include the superheterodyne radio (superhet radio) and transistor radio (Poole, n. d.). The superhet radio originated during the First World War. It could convert high-frequency signals to low-frequency signals, offering higher performance, sensitivity and selectivity levels. Transistors were first discovered in the 1940s, and their use in radio transmission began in the 1960s. Transistor radios could receive both long and medium wavelengths, and consumed less battery power than previous inventions. Transistors evolved into high performance integrated circuits that were cheaper and occupied less space than transistors. Further inventions include the frequency synthesizer that could generate accurate and stable local signals for receivers.

The twenty-first century ushered a new era of radio communication through the development of digital technologies that replaced analog electronics with

software. Modern digital communication technologies include satellite receivers, digital signal processing (used in cell phones, CD players etc.) and PC controlled radio receivers among others.

Cultural Role of Radio Receivers

The radio has had significant impacts on society since its invention. Prior to the 1900s, radios were used to manage maritime navigation. Ships used radio transmissions to communicate with other ships and stations on land. The information relayed over this network was in Morse code format. During this period, the society was mainly concerned with the exploration and trans-Atlantic trading activities. Hence, a communication medium that could send distress signals was needed for safe navigation. The beginning of the 1900s saw the emergence of more advanced radio receivers such as the triodes and tubes. Different companies began experimenting with radio transmission, producing several radio signals that could transmit sound. The society at the time was pre-modern, consisting of segregated communities or colonies that relied on the telegraph and telephone to communicate. However, the government found use for the signals during the First World War in relaying messages to troops, military officials and their families. The 1920s marked the onset of modernity, characterized by industrial revolution and technological advancements. These changes led to the increase of the middle class whose income permitted them to embrace radio technology. Radio networks such as the CBS and NBC cropped. These stations aired a variety of programs, shows and the Harding-Cox presidential elections to millions of listeners. Political movements were rife during this period as people became conscious of their role in determining governance

structures. Hence, political figures and parties used the radio to pass on their ideologies and persuade people to elect them. The radios manufactured in this period were so bulky and expensive that few people could afford to place in their homes. Hence, people congregated in homes that had radios in order to listen to their popular shows. This practice promoted communal values such as sharing and unity. Furthermore, it provided a forum for people to discuss current issues affecting their lives.

The 1930s, also called The Golden Age, marked the highest rate of radio adoption. 12 million people owned radios in 1931 and more than 28 million by 1939. People adopted radio use because they were significantly cheaper and smaller compared to previous ones. The superhet receivers made it possible to contain radio equipment in beautifully designed wooden cabinets that created esthetic appeals in homes. The society still held the old-fashioned values that emphasized the importance of the family unit. Such values were depicted in the kind of programs and shows aired by radio stations such as One Man's Family show (Adams, 2013). This period saw societal investment in entertainment, music and art that reflected cultures from other parts of the country, creating a sense of national unity and pride. Comedies were a way of loosening up after the war.

During the 1940s, transistors were invented. Transistors made it possible to develop compact radios of sizes as small as shirt pockets. The small-sized radios appealed to people because they occupied less space and enabled people to listen to their favorite music and shows outside the home setting. The radio industry matured into a big business consisting of news departments, numerous stations, big shows, stars and unions. This period was

characterized by press-radio wars, radio-musician wars and the effects of the global recession. The society at the time was depressed since income and profits had fallen. Hence, the role of the radio was to uplift people's spirits by airing encouraging messages and programs such as the 'fireside chats' hosted by president Roosevelt (Adams, 2013).

The 1950s marked the beginning of the decline of radio popularity due to the invention of televisions. The society had grown tired of the monotony of audio radio programs and wanted something new. This monotony spurred the massive migration from radios to televisions, depicting a society that kept up with technological changes. Technologies such as integrated circuits made it possible to reduce the size of radios further, facilitating the use of earphones that appealed to the younger generation. The radio faced several challenges between 1950 and 1990. The challenges were due to the changes in societal structures such as the emergence of baby boomers that preferred the modern forms of music such as jazz, rock, pop and hippie music. Such music was sold on musical records rather than being aired on radio. These musical compositions and beats reflected a society that had moved away from old-fashioned values and culture to embrace a more open-minded, and curious nature. In the 1980s, chat shows evolved into talk shows featuring a single host who introduced a topic and took calls from listeners to hear their views and contributions to the topic. These shows attracted a wide pool of personalities with views ranging from acceptable to radical and even insulting. Consequently, the radio promoted self-confidence, identity development and freedom of speech.

The onset on the millennium saw the revival of the radio with the advent of

digital technology. The society at the time focused on efficiency and cost reductions and thus embraced computing technology to solve their information needs. The use of computers had spread since they offered several entertainment applications in both audio and video formats. Hence, radio technology companies placed radio receivers on the hard drives of personal computers in order to stay relevant in a changing environment. The radio still acted as a source of local entertainment and disseminating news concerning daily events.

Finally, the 21st century ushered in advanced radio technology such as satellite receivers, digital signal processing (used mostly in cell phones, CD players etc.) and PC controlled radio receivers. Satellite receivers permitted the receipt of signals. The modern society is techno-savvy and keeps up with changes in technology. In addition, modern society views technology as a symbol of status and wealth. Hence, radios integrated with electronic equipment such as cell phones are more popular than stand-alone radios. In addition, the modern society has a global orientation necessitating the need for satellite radio transmission. International airwaves such as BBC and Aljazeera provide real-time information on events occurring around the world. This era is also characterized by the rise of community radios that broadcast local news tailored to smaller populations such as neighborhoods and states. However, this era has seen the rise in attacks against journalists reporting in war prone countries. Governments go as far as blocking local radio signals and revoking broadcasting licenses of radios stations deemed to be disseminating information that threaten their position. In such instances, international airwaves, which use satellite technology, are able to

transmit information globally on what is happening in those countries. The role of radio was to promote personal freedom ideals in areas like dressing, choice of entertainment programs and opinions on controversial issues in the society.

Radio communication technology has evolved over the years to keep up with the pace of technological advancements in the modern society. Social structures change depending on the characteristics of the dominant generation. For instance, the current generation Y is literate, techno-savvy and impatient. Furthermore, this generation gets bored easily with routine tasks and constantly seek new ways of entertainment. In this respect, the modern technology is likely to continue evolving as need arises.

Conclusion

In conclusion, radio technology has revolutionized the way society operates. Its invention stemmed from the technology underlying the telegraph and telephone. Its use has also evolved from maritime navigation to varied entertainment applications. Initially, the radio technology only transmitted sounds in the form of Morse code but could later transmit audio. Different version of radio technology emerged over the years evolving from simple ones such as the coherer and magnetic detectors, to complex ones such as transistors and integrated circuits. The radio receives electromagnetic waves that it converts into signals and sound that humans can hear.

Radios are also used in electronic equipment such as cell phones, toys, radars, baby monitors and satellites. Various organizations such as the police, military, hospitals, scientific laboratories and fire departments use radios technology in their operations. Radio technology has caused both

positive and negative impacts in society. Positive impacts include entertainment, education and news updates that create an informed society. In addition, radios air some programs and shows that educate people on moral issues that affect their daily lives. However, negative impacts of radios stem from the airing of programs, music or shows that are obscene in nature. Such programs appeal to the younger generation and have contributed to the erosion of moral values in the society. Even though the benefits of radio technology far outweigh the negative impacts, caution people should exercise caution in selecting programs or music that they listen to.

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