How the Early Phases of the Internet Socially Shaped, and Influenced its Present Form

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Abstract
This paper is a theoretical review that tends to explore internet; the early phases of the internet, how it was socially shaped, and whether the social shaping influenced its present form. The history of how and where the internet began is very difficult to trace, as it differs from other forms of history. However, social shaping of internet, has to do with technological transformation or innovations where more general technical systems were transferred, reconfigured, translated and redesigned to meet the new requirements. The focal point of the social shaping influence bothered its' uses in researehing ways of defending the United Slates from the threat of the Soviet Union. Another influential factor was that of communication, which posits that the internet was designed with a view to improving communication and sensed as shared-resource system, because technology and organisation can't be considered as separate entities, as their social settings shape internet as a technology. Also, internet shapes the organisation and makes the relationship to he unique and apparent. The role of consumers in technological design has become an issue in the social shaping researeh worldwide. Another critical factor of social shaping of the internet identified is the sexual division of labour, otherwise known as gender and technology. Based on the above mentioned influential factors, the social shaping of the Internet has influenced its present form. Based on this therefore, it is recommended that researehers should strive hard to dig out the consequences of the social shaping of internet in the society.

Keywords: Internet, Social shaping, Technology, Computer

Introduction

Internet, a part of technology, can be described as a tool used in facilitating the social interaction of our values, beliefs and moralities (Whitworth, 2009).

The history of how and where the internet began is very difficult to trace, as it differs from other forms of history. Many historians attribute the starting point of internet to the creation of the two computers connected to each other. It might be the starting point but the point of contention is who will say exactly the date matters (Banks, 2008).

Historically, the first computer network done was that of the Advanced Researeh Project Agency Network- ARPANET. The project which was designed by the Pentagon with a view to servicing the nuclear strike, the project was later changed by the Department of Defence-DoD, from the ARPANET to DAPANET, to limit it only for defence and for researehers. Thus, after the general public demanded for the services, the government then shared it for public use. This history has to do with the period when the Soviet Union, launched its artificial satellite The US decided to establish the ARPANET by 1957.However, the intent of the project was to create a network that could function whenever the links were taken out by the nuclear strike (Barney 2008, Randall, 1997).

Basically, what is today called internet was established based on Kleinrock researeh in the year 1964 when he addressed the routing system, distribution and control of message; "packetization" and other elements of internet. The researeh which was a PhD work was later published as a book titled "communication Nets" (Randall, 1997:2). However, others are of the opinion that Larry Robert claimed to be the primary mover and shaker of the Net initiative which was built for the purpose of communication(Randall, 1997). To improve Kleinrock's initiative, a Psychologist Licklidcr J. introduced some concept then called "galactic network" to serve as worldwide network of computers that people can use to interact with and share information, using human-computer symbiosis to ease and facilitate social interaction among people.

The history of internet started developing as when Kleinrock later sold his idea of computer communication to Robert one of his office mates with a view to developing it for future users. Barney (2008:4) quoted Kleinrock the ARPANET founder as saying "on the 2nd September 1969, data bites started moving back and forth between the two machines... that was the first breath of life internet ever took".

This paper tends to explore internet; the early phases of the internet, how it is socially shaped, and whether the social shaping influenced its present form, using theoretical approach.

This paper is also based on the argument of the constructivist theory; which says that, the internet is potentially "plural and heterogeneous" in character, depending on the social relations and conditions that arise in the use of its technology, as it may be many things in many places or many things in one place" (Barney, 2004).

Social Shaping and its Influence

Social shaping refers to changes in the use of certain technology like the internet by society. It could be scientific advancement or social determinism, that is to say internet as a technology is neutral; all that matters is the way societies, organisations and individual

choose to use it, (Mackenzie & Wajcman 1999). This is a concept that there are choices inherent in both the design of individual artefact and system of internet as well as the direction of using the internet programmes. Social shaping is concerned with exploring the material consequences of different internet choices; such as educational or otherwise.

The social shaping of internet began with the earliest stages of its invention, how it was started as earlier mentioned in the introductory part of this paper, and in the process of how internet is socially shaped, some defence/ researeh, communication, technology, marketing and gender influences could be traced.

However, social shaping of internet, has to do with technological transformation or innovations as Williams& Edge (1996) stated in their researeh that " where more general technical systems were transferred, they need to be reconfigured, translated and redesigned to meet the new requirements". Of course internet is socially shaped through our creativity and initiatives of using it as individual citizens and members of organisations, such as educational institutions.

Social shaping of technology researeh according to Williams & Edge (1996) is that some of the ways in which social, institutional, economic and cultural factors have shaped internet include; (a) the direction as well as the rate of innovation, (b) the form of technology; the content of technical artefacts and practices and (c) the outcomes of technological changes for different groups in the society.

The social shaping of internet has extended its approach to the identification of examples on how such was designed in multiple way with different options such as social factor like networks and academic factors. (Williams & Edge, 1996, Randal, 1997). Sociology of industrial organisations has made it clear that the starting point of social shaping of technology including the internet, is not a particular technological field to be specific but a particular social context within which technical changes take place such as the shaping of internet into the social interactions like Face booking, or using it for academic purpose such as online courses and entire e-leaming. However, in the social shaping of the internet there is the need to consider the real limitation on the choice of its services in the wider context of the social system being used, and the way its technical part changes, for instance, the use of Module system in the universities and the changes of the module technology to the Blackboard learning technology. The following are some of the influential factors of social shaping of the Internet.

Defence/researeh

Historically, Internet was initiated based on defence or security researeh as indicated earlier. Therefore, the focal point of its social shaping influence should be its' uses in researehing ways of defending the United States from the threat of the Soviet Union (Hafner & Lyon 2003) as it was initiated partly to serve as means of saving money and partly to build a security system that will meet the demand of the US Department of Defence for secure communication system, and Information processing Techniques Office (Randall, 1997). Basically, we can say that the use of internet by government for security purpose has socially shaped it and influences its present form as nowadays military uses internet in the defence affairs of their countries. For instance the use of drone attack and other communications through internet, and that the relationship between the military and the internet established another computer industries of its own (Hafner, & Lyon, 2003).

Communication

The second influential factor was that of communication. Randall. (1997), Hafner & Lyon (2003), Barney (2008) posit that the internet was designed with a view to improving communication as well as serve as shared- resource system. In fact, from the starting point the Internet was designed for researeh providing communication network for the military. This, therefore, influenced the social shaping of the Internet up to the present form, as Internet is being used as the most powerful communication system, thereby socially makes it to be the New Media; where it collides with the old media (Media convergence). For instance, the Nigerian newspapers can be read online through mobile phones, and individuals can communicate with one another through some social networks such as Google-plus, WhatsApp etc (Jenkins, 2006).

Technology

Technology matters in the social shaping of internet, as it has a unique relationship with the organisations and communities that use it as a technological tool. In this context, the internet is technologically shaped through its relationship with organisations such as social organisations, and educational institutions or academic, organisations like researehers is going to be looked at. This is because technology and organisations can't be considered as separate entities (Williams & Edge, 1996).As their social settings shapes internet as a technology, so also does internet shapes the organisation and make the relationship to be unique and apparent.

Obviously, if we want to define internet as an educational institution, we must incorporate the social and organisational arrangement within which it emerges and embedded. Thus, according to (Williams & Edge, 1996; 876) the relationship between the internet's technical part and the organisation is a real social interaction in various social and technical parts. Therefore, the social shaping of internet technologically was motivated by particular ideas about the organisations and how it should develop. The issue of converting text books into a digital form or electronic copies as introduced by South Korea was an example of how technology helps in shaping the internet educationally. Also, the introduction of online course in addition to the distance learning was based on how the organisations want to develop its settings.

The social shaping of internet technologically has influenced its present form because in most of the organisations they adopts Tavistock institute system of using the internet; which is a combination of human and technological element instead of Fordism system; that is the entire working process should be one way, using only technology (Whitworth , 2009). Thus, this paper is of the opinion that the internet nowadays is a combination of human- the designers, the procedure of using it and the structure to be used, for example, News production in a media organisation.

In addition, the social shaping of internet through the socio-technical system can also be attributed to the activity theory (Whitworth, 2009) which is the thinking of how things are being done and looking at the process of doing such things. Therefore, if the relationship between the internet technology and the users can be considered in the process of transforming it, then, the activity theory has a role, as it is very much useful in finding out how non-technical and technical parts work together and became unidentifiable from one another (Whitworth, 2009) such as the designers of the Blackboard of the University of Manchester and the students/ teachers as users, or designers of Facebook and its" users.

Basically, it canbe argued that the technological shaping factor has influenced internet's present form using a statement by Castells (2005) cited in Barney,(2004) who posits that; the internet is a particularly malleable technology, susceptible of being deeply modified by its social practice and leading to a whole range of'potential social outcomes, to be discovered by experience not proclaimed beforehand.

Therefore, this experience was the reason behind shaping of the internet in a social context such as e-leaming and social networking.

Market/Consumer

The issue of market-driven factor is another way that we can study the social shaping of internet and how it influences its present form. The role of consumers in technological design has become an issue in the social shaping researeh worldwide, researehers of the Social Shaping of technology (SST), have been following the process from the design and production of certain technology through its consumption and usage as well as understanding how this technology and social implications are shaped(Williams & Edge, 1996).

Here, it can be understood that, the interaction between the designers and consumers of a product created an innovative tension towards the shaping of the product as it will affect its supply and consumption. For instance, what Apple did in the USA about 600 districts switching to digital textbooks for their schools consumption, gives the marketing personnel of the product manufacturers or designers a chance to occupy the interface (Williams & Edge. 1996:877).

Basically, If we look at the genesis of creating internet, it was defence/ political ;as the system of factories such as automobile, telephone, radio and television, space programme and that of nuclear power, all have been described as "democratising or liberating forces"(Winner, 1986). Therefore, if internet should be a democratising force, then the people or society within which the technology works will definitely shape it to match the situation or the generation in presence, as internet is now being democratised into different social contexts; the social networks, educational space, technological world as well as political games, such as the designing of the New York's long Island by Robert Moses with two political related factors; the consumer and the technical.(Winner, 1986:2).

These can be seen in the cases of using internet by its consumers politically to sell their candidates online, using different phases; such as Facebook pages, Tweeter accounts etc, and educational institutions to improve their services, such as introducing the online courses to transform distance learning, or the use of the internet to boost reading culture by introducing digital textbooks as the case in South Korea, India, USA andUruguay, also the Universities internet consumption to improve its teaching process by Blackboard, this is what make other people in the society to be digitally native orimmigrants, (Winner 1986: 2, www.bbc.co.uk/news/business-15175982, Prensky, 2001, Barney, 2004).

In Nigeria, most of the tertiary institutions use the Internet as a modem way of admission and registration processes, in fact, not only the universities even some private secondary schools do such. This, therefore, demonstrates the role of consumer/technological relations in shaping the internet and even some forms of technology.

Traditionally, we can say that the internet can be a neutral device that can be used by rich and the poor and for good or evil things, but we can't run awav from the notion that this tool was designed to produce certain consequences. For example; the internet has been used to globalise the world politically, socio-economically, including the learning process. Also, the internet transforms human organisations that links distant communities and expands the scope of power relations worldwide which results in growing convergence in culture and civilisations (Winner, 1986,David and McGrew, 2002).

Gender/Sexual Labour

Another critical and most crucial factor of social shaping of the internet is the sexual division of labour, otherwise known as gender and technology. Researeh indicates that most of the socio-economic researehers including the social shaping of technology in the UK are "gender-blind" (Liff, 1990, cited in Williams & Edge, 1996). It has been found that women have been excluded in the technological design and researeh where men took the advantage of shaping the technology in a modem way. This formed the basis of gender ffiarginalisation; that is to say that the world failed to see that women were not involved in the internet or technology production, and that resulted in the missing of some outcomes (Williams & Edge, 1996:879). For instance, observation has shown that most of the receptionists in either educational institutions or social gathering centres including the industries here in Nigeria most of those serving as there are women, and it is very rare to find them in the engineering leading teams such as programmers, designers and technicians.

To complement this view point, Williams & Edge (1996) states that, it was in the 1980's that the issue of women interest was extended from science to technology, such as looking at the gender nature of the technology, the women's role in the production and consumption of such technology including its design. Therefore, this has been the stage where mutual shaping of gender and technology started and also affect the internet, as one can sec that most frequent users of the social networks are women. Cockbum and Furst-Dilic, (1994), cited in (Williams & Edge, 1996:879) argue that " women and men have fundamental different relationships [...]with men more actively involved in design and construction and women primarily on the receiving end of its products; at work and home. Supporting this argument Webster (1993:879-880) states that there is mutual shaping process of internet between gender in the distribution of technological duty such as typing skills and office tasks.

Compared to the case of assembly line by the Henry Ford to replace work force - manpower with machines at his automobile company, was not the substitute as machines will be manned by humans, so also to the internet being used to replace the other networking devices like the post office, landline telephones and traditional library as well as face-to-face class, because all the replacement would be design and operated by human, which is known as computer-mediated-communication, CMC, and we can judge this according to the way that power and authority were embedded in the process (Whitworth , 2004, Winner, 1986).

The social shaping of internet through sexual division of labour, has influenced its present form which resulted in what Whitworth, (2004), described as "information Obesity" that is the failure to use the informational resources by either of the gender in a way they were built either for the individual, community, or organisations for their future activity for instance, the use of some social networks such as Facebook for dating or use of the internet space for criminal activity and some anti-social activities, Whitworth (2004:36)state that "...the

information is not becoming knowledge and is not ...becoming embedded by individuals and communities into their environment... because of a failure of filtering strategies".

Conclusion

Based on the above mentioned influential factors, it can be said that the social shaping of the Internet has influenced its present form. Therefore, researehers should strive hard to dig out the consequences of the social shaping of internet in the society.

References

Banks, A. M. (2008) *On the way to the Web: the secret history of the internet and its founders*, Apress.

Barney, D. (2004) *The Network Society*, Cambridge, Polity Press

BBC NEWS (2011) www.bbc.co.uk/ncws/business-15175962 access date 06/12/2011.

David, H. and McGrew, A. (2002) *Globalisation/Anti-Globalisation*, London, Polity press.

Hafner, K. and Lyon, M. (2003) *Where Wizards stay up late, the origins of the Internet,* London, Pocket Books press.

Jenkins, H. (2006) *Convergence culture; where old and New Media collide,* NYU press.

Mackenzie, D, and Wajcman, J, (1999) The social shaping of technology, 2nd ed, Buckingham, Open university press.

Prensky, M. (2001) 'Digital Natives, Digital Immigrants', *On the horizon,* 2001/9/5, NCB University press.

Randall, N. (1997). *The Soul of the Internet*; Net Gods, Netizens and The Wiring of the World, USA, Thomson Computer press.

Whitworth, D. (2009) Information Obesity, Chandos

Williams, R. and Edge, D. (1996) The social shaping of technology' Researeh policy 1996/25/865-899

Winner, L. (1986) 'Do Artefacts have politics?' *in the whole and the reactor; a seareh for limits in an age of high technology*, Chicago; University of Chicago Press , p 19-39