HS0.302 Research Methods in Human Sciences

Book Review

Analysis of 'Human-Built World: How To Think About Technology and Culture ' by Thomas P. Hughes using research methods studies in the course.

a. The requirement of analyzing a book using research methods:

The constant expansion of knowledge is a significant reason for humans' evolution. The more information humans acquire, the more they can adapt to their environment and survive. The more knowledge humans have, the more they can innovate and create new technologies that enhance living standards. Although various methods exist to gain knowledge, research can be attributed as the most eminent source for humans to expand their existing knowledge. In many ways, research leads to the expansion of knowledge. By definition, research is a systematic inquiry process that helps expand our understanding of the world around us. Through research, we develop new theories, test existing theories, and gather data that can be used to improve our understanding of the world.

Research not only helps develop new theories, discoveries, and inventions, but it is equally essential to better the pre-existing ideas and technology. Moreover, by conducting research and publishing their findings, scholars share their knowledge with the academic community and contribute to advancing their domain. And as the academic community works on the principle of disinterestedness, where every theory can be challenged, substantial research is a foundation of a strong argument.

After understanding the importance of research, we need to realize that solid sources give birth to concrete research. Academic research sources include books, journal articles, conference proceedings, dissertations, government reports, and data sets; these are the primary source of information for robust academic research. And apart from the textual sources, material sources and oral traditions are also important sources for academic research.

b. Introduction:

In his book Human-Built World, Thomas P. Hughes argues that technology is not an autonomous force but profoundly intertwined with society. He traces the history of technology from the early days of the Industrial Revolution to the present day, showing how each new invention has been shaped by the social, economic, and political context in which it was created. Hughes argues that technology does not develop in a vacuum but is the product of a complex web of interactions between people, institutions, and ideas. He shows how technological change is often driven by a small group of innovators who create new technologies adopted by the wider population. Moreover, Hughes highlighted that it is equally important to study the acts in the history of technology and the technological history's artefacts. Hughes begins with the widespread definition of technology in the Human-Built world, which is now restricted to domains around computers and automation after World War 2. However, Hughes focuses on understanding the chronological progression of artefacts and material sources to understand the technology deeply. Moreover, Hughes did not limit himself to studying artefacts to understand technology. He focussed on studying the acts of technology where various intellects and communities come together, intending to better their pre-existing environment through linear development.

c. Themes of the book:

The author divides the book into 6 six themes in 6 chapters named as:

1. Introduction: Complex technology
2. Technology and the Second Creation
3. Technology as Machine
4. Technology as Systems, Controls and Information
5. Technology and Culture
6. Creating an Ecotechnological Environment.

While introducing the readers to technology, he says that technology is 'messy and complex.' He cites his Mechanical and Electrical Engineering degree, which fueled his passion for studying society's technology. Initially, the author focuses on transforming the American landscape by technology into a "human-built world". Hughes begins with a discussion of the history of technology, tracing its origins back to the early days of human civilization. He then looks at how technology has shaped culture and society over the centuries, from the Industrial Revolution to today. Finally, Hughes offers a glimpse into the future of technology and its potential impact on the world.

The first central theme of the book is "Technology and the second creation", where Hughes studies the trajectory of the USA while developing a "Human-built world" in a predominantly Christian society where God holds a prominent place; therefore, technology was attributed as a God's gift to the society. While keeping the USA central in the picture, This process is also illustrated in Goethe's Faust, where Faust's greatest temptation was not sex, money, or political power but rather the satisfaction of a massive engineering endeavour. He argues that the human-built world is a product of our creativity and ingenuity and has had a profound impact on how we live. Hughes collects the works of a diverse spectrum of enthusiastic and critical writers, ranging from Thomas Jefferson and Ralph Waldo Emerson to historians Perry Miller and David Nye.

While focusing on the spread of technology as a machine throughout the world, he focuses on the trajectory of technology in two advanced technological nations of that time,i.e. Germany and the USA, and he traces the period from the industrial revolution to Hughges' contemporary times. The sheer development of technology in both countries charts the newly born attribute towards the technology because of the customer abundance. However, the role of Germany is not entirely explored to a great extent. In various instances, the author mentions America as a technological leader while comparing it with Germany, which showcases the Americo-centric biases of the author, which are evident by statements like 'the United States has established itself in the twenty-first century as the pre-eminent technological power' and 'living in a human-built urban world shaped American character'.

And to explore "Technology as Systems, Controls and Information", where he talks about controls and cybernetics with a realization that "had become the unchallenged world master of technological forces." One of the primary research methods in these chapters is the analysis of two different viewpoints of social scientists, such as Norbert Weiner and Geroge Glider, who support the act. However, the author also discusses the other side by citing Manuel Castells, who was strictly against the emerging global economic disequilibrium. Moreover, before discussing the cultural influence of technology, he discussed the impact of technology on society. He discusses how technology has shaped our world and how it has changed how we interact. He also discusses the negative aspects of industrialization, such as pollution and exploitation of workers.

In "Technology and Culture," Hughes examines how technology has shaped our culture and society. He examines how technology has changed our lives, work, and play. He also looks at how technology has changed how we think about and interact with the world around us. Hughes looks at how we have used tools to build our homes, farm our land, and travel our world. He also looks at how we have used

tools to create our art and communicate with each other. He also looks at how our homes have changed and how we have used technology to make them more comfortable and efficient. He also looks at how transportation has changed and how we have used technology to make it more efficient. Hughes concludes this section by discussing how technology changes how we think about and use knowledge. And while discussing the interaction of technology with cultural changes, he mentions that 'the tumultuous pace and the callous demands of a commercial culture overwhelmed some young men and women who drifted into the urban slums or prostitution and petty crime' in a predominantly Christian society.

In the last theme, Thomas P. Hughes discusses the ecology of human societies, the most important theme of how he wants the human-built world to shape. He discusses how human societies have impacted the environment positively and negatively. He then discusses how human societies can be more sustainable in their use of resources. One of the positive impacts that human societies have had on the environment is the development of agriculture. Agriculture has allowed human societies to domesticated plants and animals, which has led to a more stable food supply. Agriculture has also allowed human societies to expand their populations and settle in new areas. However, human societies have also had negative impacts on the environment. Human activities, such as deforestation, have led to many plant and animal species loss. He notes that human societies need to be more efficient in their use of resources. They also need to find ways to reduce their impact on the environment.

In this chapter, Hughes discusses the requirement of the ecological environment. He cites Jefferson and Mumford, where Thomas Jefferson imagined that technology might be blended with nature to create an Edenic environment. Later, Lewis Mumford warned the community about American society's rising industrialization. He offers a detailed case study of the development of the atomic bomb, showing how the technology was shaped by the political and military context in which it was created. He argues that the Industrial Revolution fundamentally changed how humans interact with their environment and has profoundly impacted how we live. He also argues that the Industrial Revolution has harmed the environment and that we must find a way to balance industry needs with the environment's needs.

d. <u>Research ethics and methods followed in the books:</u>

One of the significant parts of conducting extensive research is to follow research ethics thoroughly; while talking about someone else's idea, it is elementary to give them credit. The author relies on his experiences with different societies, individuals, and communities in his career as one of the greatest historians of technology. However, the book is not a mere report of his interaction with technology or a survey. However, in various instances, the author also cites various intellectuals, engineers, natural scientists, artists, architects and social scientists who have a deep relationship with the history of technology and influenced him in his career.

The books in such a domain often rely on excessive literature surveys or a mere recapitulation of authors' encounters with the field. But the author strikes a good balance in citing various sources and expressing his viewpoints. One of the primary sources of his information in the book is the textual sources written by various intellectuals, which can also be seen in the bibliographic essay, which is about 12.5% of the whole book, where the author explicitly mentions his sources mentioned earlier and written with a viewpoint for everyone to read and access the earlier works. And in various instances, Hughes himself is the primary source of information as he cited his encounters with the listed intellectuals.

And apart from relying on textual sources only, throughout the book, Hughes refers to several illustrations of his ideas. At times, these illustrations are pictures of significant technological acts or artefacts. Artefacts and a society's technology reflect scientific knowledge advancements, but studying

the technological designs also helps to understand the various pre-existing biases in society. They can provide information about a particular period, culture, or event. Artefacts can also study changes over time or compare and contrast different cultures, seen through the book's active usage of material sources.

References:

1. Human-Built World; Thomas P. Hughes; 200