# CHAPTER I

# INTRODUCTION

## A.1 Background of the Research

Julius Robert Oppenheimer was one of the foremost American theorists in the field of physics and a monumental scientist and recipient in the universe of science and technology. He is most remembered as the scientific director of the Los Alamos Laboratory, where he supervised a team of scientists during the making of the atomic bomb in the establishment of the Manhattan Project during World War II. His managerial skills and scientific prowess helped the project to completion. Besides his work in nuclear physics, Oppenheimer was director of the Institute of Advanced Study in Princeton, New Jersey, one of the most celebrated institutions in the world, in which theoretical research is conducted. The Manhattan Project was one of the most significant research and development programs of World War II, leading to the creation of the world's first nuclear weapons. The concept for the project began to take shape in 1939, amid growing concerns that nuclear fission could be used for military purposes. In 1942, it was officially established and given the code name "Manhattan."

The Manhattan Project represents a monumental achievement in modern science, involving over 125,000 individuals and costing approximately $2 billion (Barlow, 2019). This undertaking not only revolutionized nuclear physics but also had an enduring impact on the broader historical narrative of modernity,

particularly in the context of warfare and technological advancement. Enrico Fermi and J. Robert Oppenheimer emerged as pivotal figures in this enterprise; Fermi constructed the first nuclear reactor in Chicago in 1942, known as Chicago Pile-1, while Oppenheimer served as the scientific director at the Los Alamos Laboratory, established in 1943 for the explicit purpose of developing atomic bombs (Barlow, 2019). The culmination of these efforts led to the successful detonation of an atomic bomb in 1945, known as the Trinity Test, which marked a significant turning point in military history and global power dynamics (Herken et al., 2024).

An atomic bomb is a highly destructive weapon capable of producing immense explosive force. This tremendous power is generated through a rapid and uncontrolled release of energy, which occurs when the nucleus of a heavy element—typically uranium or plutonium—undergoes a process known as nuclear fission. During this process, the nucleus of the atom splits into smaller parts, releasing a vast amount of energy in the form of heat, light, and blast pressure. The chain reaction triggered by this fission not only magnifies the explosion but also makes the atomic bomb one of the most powerful and devastating weapons ever developed by humankind (The Editors of *Encyclopedia Britannica*, 2025). The Manhattan Project successfully developed two atomic bombs known as *Little Boy* and *Fat Man*. *Little Boy*, which utilized uranium as its core material, was dropped on the city of Hiroshima on August 6, 1945, by a B-29 bomber named *Enola Gay*. Just three days later, on August 9, 1945, the second bomb, *Fat Man*, which was

powered by plutonium, was released over Nagasaki by another B-29 aircraft called *Bockscar*. These bombings marked the first and only use of nuclear weapons in warfare and played a pivotal role in bringing World War II to an end.

Christopher Nolan's *Oppenheimer* (2023) offers a layered portrayal of J. Robert Oppenheimer, tracing his journey from a young quantum physics scholar to the director of the Manhattan Project. Told through a non-linear narrative, the film weaves together his academic beginnings, his pivotal role in developing the atomic bomb, and the moral and political consequences of his work. As the leader of a team of eminent scientists in Los Alamos, Oppenheimer navigates intense pressure, moral dilemmas, and the constraints of a military-led operation. Beyond recounting a critical historical episode, the film captures the profound tension between the autonomy of scientific inquiry and the authority of military control (Gordon, 2023). This dynamic lies at the heart of both Oppenheimer's real-life experience and the film's thematic focus. This research applies Derrida's deconstruction theory to examine how these opposing forces are represented and how their relationship shifts throughout the narrative.

Christopher Nolan's Oppenheimer 2023 has been regarded as a cinematic masterpiece, combining intellectual sophistication with magnificent graphics. Critics commend Cillian Murphy's depiction of J. Robert Oppenheimer as a subtle and fascinating performance that captures the scientist's intellect as well as his psychological problems. Critics have raved over the aesthetics and themes of

Oppenheimer. According to the AP News published by Jake Coyle, the aesthetic qualities of the film are designated as dark and imposing beauty (Coyle, 2023).

Analyzing the movie, Joshua Rothkopf of Entertainment Weekly emphasized the role of Cillian Murphy: He played it in the most enthralling and fascinating way possible, but there are also the rest of the actors in this massive cast that gave the movie even more depth and seriousness to the story (Rothkopf, 2023). The Telegraph Robbie Collin described the film as a monumental work, due to its existential features and how scientific progress has some moral penalties (Collin, 2023). According to Manohla Dargis of The New York Times, Oppenheimer manages to accomplish epic intimacy, making sure to balance the historical importance of the protagonist and his own conflicts (Dargis, 2023).

The film received significant attention because it was in connection with the modern life problems of the world, which Richard Roeper of the Chicago Sun-Times described it as one of the most important films of our time (Roeper, 2023). Peter Travers, the ABC News reporter, also underscored the eerie investigation of guilt and responsibility, whereas the Los Angeles Times journalist Justin Chang praises the ability of the film to make people think on the theme of scientific responsibility and ethics (Travers, 2023). In general, critics are convinced Oppenheimer is one of the cinematographic masterpieces that harmoniously combines history, emotion, and technical creativity.

The first research is *"Oppenheimer's Dilemma: A Marxian Examination of Power Dynamics and Ethical Justifications in Nolan's Oppenheimer"* by Dr. S.Z.

Abbas (2023) examines sociopolitical power structures and ethical dilemmas in the film Oppenheimer directed by Christopher Nolan. The research uses a Marxian framework to examine how the film illustrates the larger conflicts between technological advancement and its moral consequences in a military and capitalist society. The Manhattan Project is a prime example of the complex relationship between state power and scientific authority since Oppenheimer's contributions were appropriated by militaristic political forces, who prioritized gaining geopolitical control over humanitarian concerns. The movie examines the ethical dilemmas that scientists like Oppenheimer had to deal with, emphasizing how their inventions were both signs of advancement and tools of mass devastation (Abbas, 2023).

This story highlights the ethical alternatives that come with innovations in technology driven by imperialist goals. Abbas criticizes the commercialization of scientific work and the distance felt by scientists whose findings are used for harmful ends from a Marxian standpoint. The Marxian standpoint emphasizes the perspective of the oppressed—particularly the working class—as a critical lens to understand and challenge the structures of power and inequality in society. Rooted in historical materialism, this approach views the economic base (means and relations of production) as the foundation that shapes the political, social, and ideological superstructure. From this position, the working class develops a form of consciousness that enables them to see through dominant ideologies and recognize exploitation under capitalism.

This standpoint is considered to offer an “epistemic privilege,” as those marginalized by the system are believed to have a clearer view of its injustices. Unlike neutral or detached approaches, the Marxian standpoint seeks not only to interpret the world but to transform it, aligning with Marx’s assertion that “the point is to change it.” The study also demonstrates how capitalism puts power and profit ahead of morality (Chambre, 2025). This research highlights Nolan's Oppenheimer's current relevance and encourages contemplation on the moral application of technology and scientists' obligations in a world dominated by power.

The second research, the film Oppenheimer, is examined using Roland Barthes' semiotic framework, *"A Semiotic Analysis of Oppenheimer Movie Using Barthes’s Theory"* by Vera Yulianti (2024). Finding and analyzing the film's denotative, connotative, and legendary meanings is the main goal of the research. To analyze the two levels of meaning within the film, the research utilizes the concepts of Barthes. Whereas connotation studies the ideological, emotional and cultural implications that are connected with visual and plot, denotation draws an implication of what is actually intended. Vera claims that alongside cultural myth and ideological critiques, Oppenheimer incorporates all-important myths and ideals, particularly when we refer to the themes of scientific development, ethical-moral dilemmas, and societal impacts of technological advancement. Especially, given the process of constructing and consequences of the atomic bomb, the levels of meaning associated with Barthes are indicative of the extent to which the

film echoes the wider social ideologies such as power, guilt, and the responsibility. This interpretation works deeper to understand the movie as a statement on the broader cultural and moral issues as well as a history retelling (Vera, 2024).

Based on previous studies that have analyzed the film using Marxian and semiotic approaches, there has been no research applying Derrida's deconstruction theory to *Oppenheimer*. This study seeks to address that gap by examining the character conflicts involving Oppenheimer through a deconstructive lens. As a scientist, he is portrayed in such a manner that emphasis is made on the conflict of moral issues, his bilateral nature, and his bad and bald nature. He is revealed not only as a scientist but as a person who has to deal with the outcomes of his deeds.

The description has shown that there was a clash between what he had accomplished in the field of science and the devastation that ensued. You find the disparity between having been a hero through his work and having been viewed as the person behind the invention of a mighty weapon are demonstrated in his character. This contradiction plays a significant part of the interpretation of his profession as a scientist, particularly war-related and responsibility. The study of the film by means of textual analysis is the greatest method of the language, meaning and the visual shapes, which opens to the vision of the film the further and more in-depth indications, unrolling the character of the character.

## A.2 Problems of the Research

This research is a novel chance to discuss how the works of film directors can influence the general attitude towards historical personalities, especially scientists, by using the example of Christopher Nolan and his role of J. Robert Oppenheimer in the 2023 film, Oppenheimer. The movie narrates in detail with inner depths the character of Oppenheimer covering his discord and complexities as a man with two composite identities of a scientist and a morally upright person. This study aims the study of how this subtle deconstruction of the personality of Oppenheimer is used to present an alternative to age-old media depictions of scientists. With the above purpose, the research will attempt to answer two key questions of key importance:

1. How does the movie portray the binary opposition between Oppenheimer as the scientist and the U.S. forces?
2. How does deconstruction reveal the instability of the binary opposition represented in the movie?

## A.3 Objective of the Research

This study aims to examine how the movie Oppenheimer breaks down the very concept of J. Robert Oppenheimer as a scientist in the framework of the binary opposition between the individual and the government in the time of war. The initial one is to scrutinize the narrative and cinematographic elements that are used in the movie and accentuate the binary opposites of Oppenheimer as the

scientist and the U.S. forces. This study will discuss the nature of the character of Oppenheimer as revealed in the film and how it shatters customary binary oppositions that are typical of the notion of scientific heroism, such as good versus bad or moral versus immoral, though acknowledging the ambiguity of the role of such a figure as Oppenheimer in the development of the atomic bomb.

The second goal is to explore the fact that these deconstructive elements disclose the binary opposition between Oppenheimer and U.S. forces, creating an image of the scientist in the conflict of war. In reference to the deconstructive theory by Derrida, the study will analyze how the depiction of Oppenheimer as a morally ambivalent man makes the perception of scientists as moral beings questionable in the minds of the population. In this analysis, the way in which the movie portrays the character of Oppenheimer will be looked into as part of the redefining process of the place of the scientist in the society in relation to the state, courtesy of its exploration of the inner soul of Oppenheimer and the tragic role that he played. Finally, the paper will prove that Oppenheimer helps to understand the place of a scientist in the system of power in war in more shades than through archetypical images hitherto and develop a more realistic and dualist representation of this character by means of this work.

## A.4 Significance of the Research

This study is theoretically expected to improve the knowledge that has been in the media with regard to the manner in which scientists have been portrayed using the deconstructive theory as a means by which the dualistic nature of the portrayal of the scientist and the state is examined. It adds to the larger form of the examination of media studies together with the analysis of characters especially the formation and destruction of binaries like good and evil within the context of a movie story. Mythologizing of historical figures in media takes place, as the present case study explores dissecting the complicated depiction of J. Robert Oppenheimer in the film Oppenheimer. In addition, the study also fills the gap between media studies and ethics and character as far as character representation is concerned, which can be used in future analysis of controversial characters in biographical films.

In practice, critical approaches to the representation of scientists in popular culture promoted by the research provide the audience with a better insight behind the moral and ethical intricacies that underlie the work of scientists. It lays stress on the two-pronged disabilities of scientists of responsibilities to the society by underlining the wide implications of the technological innovation. Besides complementing the discourse in the realm of the public on the question of the ethicality of scientific progress, this understanding of the framework also prompts the teaching force, students, and moviemakers to actively question and take issue with the portrayals and stories in biographical and historical movies. To

the audience, the study is media literacy as it enables them to question the ideologies as well as myths perpetuated by such a portrayal and analyze it. It can also be used by educators and researchers who will be interested in using it to teach or do research on the issues of ethics, science, and the media representation, and these people can use the information in it to teach and have an understanding of the social implications of scientific advancement.

### A.5 Limitations of the Research

This study is specifically focused on the definition of the complicated and controversial image of J. Robert Oppenheimer in the 2023 film Oppenheimer directed by Christopher Nolan. It only applies to the story and film aspects in the movie and cannot be applied to biographical writings or historical interpretations of any other kind other than that portrayed in the movie. The main attention is paid to the binary opposition as the aspect defining Oppenheimer both as a heroic and a visionary scientist and as the more morally ambiguous figure creating mass destruction. By presenting both of these images, the study focuses on identifying the ways in which the film creates and destroys these dichotomous characters, pointing to other relationships of moral uncertainty, individual responsibility, and the weight of knowledge. This discussion remains within the frame of the narrative of the film, development of the characters, and visual images, prioritising the role of the opposition between the good and the evil, creation, and destruction, in the formation of the identity of Oppenheimer.

## A.6 Definition of Key Terms

### Deconstruction

Deconstruction is a theory developed by Jacques Derrida that challenges the idea of fixed or stable meaning in a text. It seeks to uncover hidden contradictions and tensions by dismantling binary oppositions and exposing how meaning is never complete or absolute.

### Binary Opposition

Binary opposition refers to pairs of contrasting ideas, such as "scientist vs. military" or "ethics vs. power." In deconstruction, these oppositions are not treated as equal or separate, but rather as hierarchically structured and interdependent, with one side often privileged over the other.

### Différance

Différance is a term coined by Derrida that combines the ideas of “difference” and “deferral.” It refers to the way meaning is constantly postponed because it depends on the relationship between signs. Meaning is never fully present but always shifting, deferred in a chain of interpretations.

### Trace

Trace refers to the lingering presence of other meanings within a sign or word, even if they are not explicitly stated. In deconstruction, a trace reveals how every meaning contains the shadow or imprint of its opposite or what has been excluded, thus destabilizing the idea of pure meaning.

## A.7 Organization of the Research Report

For convenience, this research is organized into five chapters: an Introduction, Theoretical Framework, Research Methodology, Research Discussion, and Research Conclusion. Chapter one introduction, provides the background of the research, explaining the rationale for the study and its relevance. It contextualizes the topic within its academic, social, and practical frameworks, detailing the importance of analyzing the contradictory portrayal of scientists in media, with a specific focus on Oppenheimer. This section highlights the significance of this duality, particularly in relation to historical narratives, ethics, and the societal impact of technological advancements. It draws connections to existing literature, identifying gaps that this research aims to address.

The problem of the research is articulated through two central questions: How does the movie portray the binary opposition between Oppenheimer as the scientist and the U.S. forces? Additionally, how does deconstruction reveal the instability of this binary opposition in the movie? The objectives of the research are explained based on these questions, while the significance of the study discusses its theoretical and practical importance. The limitations of the research acknowledge the scope and boundaries of the study, and the organization of the research report is outlined.

Chapter two, review of literature explores the theoretical and contextual foundations for analyzing the portrayal of J. Robert Oppenheimer in the film

*Oppenheimer*. It provides a detailed explanation of Jacques Derrida's deconstructive theory, binary oppositions, an overview of the movie, an exploration of Oppenheimer's characteristics, the evolving image of scientists throughout history, and a review of related research. Chapter three, research methodology outlines the type of research conducted, the data and sources utilized, the data collection techniques, and the data analysis methods.

This research focuses on deconstructive analysis, explaining why qualitative methods are appropriate for interpreting texts, symbols, and narratives. It details the types of data used, including primary data from the movie itself—such as scenes, dialogues, and visuals—and secondary data from academic papers, reviews, critiques, and theoretical texts that support the analysis. The chapter also explains how data is gathered and how it is interpreted using the chosen theoretical framework. Chapter four, result and discussion presents the core findings of the research and interprets them through the lens of the chosen theoretical framework. This chapter is divided into two main parts: the results and the discussion. The results section systematically presents the data gathered during the research, while the discussion interprets these results, connecting them with the theoretical framework and research objectives. It analyzes how the data supports, challenges, or expands upon existing studies.

Chapter five, conclusion summarizes the key findings of the research and their implications. It is organized in two big parts; the conclusion and suggestions. The conclusion part offers a short description of the research findings in answer

to the objectives and research questions mentioned in previous chapters. It also summarises the principal findings and how they respond to the theoretical framework presenting an idea about the importance of the research. The recommendations section contains the advises to conduct further research/applications or implication of the study, in order to provide a direction of further studying the topic, or provide an insight that a teacher, researcher, or other stakeholders can use.