Oppenheimer was marked by many of his friends as having a self-destructive tendency, and during numerous periods of his life worried his colleagues and associates with his melancholy and insecurity. Oppenheimer developed numerous affectations, seemingly in an attempt to convince those around him—or possibly himself—of his self-worth.

He was said to be mesmerizing, hypnotic in private interaction but often frigid in more public settings. Some of his associates saw him as an aloof and impressive genius and an aesthete; and others saw him as a pretentious and insecure poseur. His students almost always fell into the former category, adopting "Oppie's" affectations, from his way of walking to talking. Abraham Pais says that Oppenheimer himself thought that one of his failures at the institute was a failure to bring together scholars from the natural sciences and the humanities.

Many people thought that Oppenheimer's discoveries and research were not commensurate with his inherent abilities and talents. Oppenheimer's critics have accused him of equivocating between 1949, when he opposed the development of the hydrogen bomb, and 1951, when he supported it. Some have made this a case for reinforcing their opinions about his moral inconsistency. In his role as a political advisor, Oppenheimer made numerous enemies.

He argued for the sharing of all nuclear technology between nations, and particularly between the United States and the Soviet Union. In 1953 he was suddenly accused of disloyalty by the American government of being a security risk and President Dwight D. Eisenhower asked him to resign, and forbidden to see secret documents, but he was later cleared.

After the 1954 security hearings, Oppenheimer started to retreat to a simpler life. In 1957, he purchased a piece of land on Gibney Beach in the island of St John in the Virgin Islands. He built a spartan vacation home on the beach, where he would spend holidays, usually months at a time, with his wife Kitty.

Oppenheimer never won a Nobel Prize. His scientific attentions often changed rapidly and he never worked long enough on any one topic to achieve enough headway to merit the Nobel Prize.

Robert Oppenheimer died of throat cancer at age 62 in Princeton, New Jersey, in 1967. His funeral was attended by many of his scientific, political, and military associates.