The Effects of Chaos is Michael Crichton's *Jurassic Park*

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Abstract

In the Web Application Development lab, at the Center for Advanced Research and Technology (CART), teams were tasked with creating an essay to explain the chaos theory of *Jurassic Park,* where dinosaurs come back to life . To prepare for the project, in their English class, students read Michael Crichton's 1990 novel, *Jurassic Park* and focused on the character, Ian Malcolm, who argues that science shows Jurassic Park as a business will fail due to the playout of chaos theory. Furthermore, learning life lessons through the chaos in *Jurassic Park* are explored as well as a discussion of how these lessons can be applied to one's everyday life. These lessons include how small changes in initial conditions can lead to unpredictable and large-scale outcomes in complex systems, the limits of our knowledge and prediction, and nature is full of surprises and mysteries.

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Introduction

In Michael Crichton's *Jurassic Park* (1990), the entrepreneur, John Hammond, has a passion to bring dinosaurs back to real life. For this purpose, he created a zoo park using the genetics of some animals that were similar to dinosaurs. This allowed them to recreate dinosaurs and create them into different species. Mathematician, Lan Malcolm, warns John Hammond about the failure of park by chaos theory that people cannot control and predict nature. After reading this book, the reader will have some valuable lessons from the failure of John Hammond about how small actions can lead to unpredictable consequences. Understanding the chaos theory will help the readers realize they have to be aware of their operations.

Scientific and Literary Origins of Chaos Theory/Butterfly Effect

In theory, the meaning of chaos is that a small life event can dramatically affect the results of seemingly unrelated events and unpredictable consequences like deterministic laws. The butterfly effect is an underlying principle of chaos, which describes how a small change in one state of a deterministic nonlinear system can result in large differences in a later state (Bradbury R, (1952). It argues that life is uncertain and that people should be aware of what they do currently. It also encourages us to adapt and grow. It helps people to realize life changes everyday and they gradually grow up. They cannot predict what the future will be like, and we cannot change the situation as we wish. People can only adapt to the environment to make it better.

Edward Lorenz, a meteorology professor at the Massachusetts Institute of Technology, who was studying weather patterns. Lorenz discovered that even tiny changes in initial conditions, such as a butterfly flapping its wings in China, could have a significant impact on the

weather in the United States several days later. This is because weather is a complex system that is highly sensitive to initial conditions.

Another mathematician named Mitchell Feigenbaum who made pioneering contributions to the field of chaos theory. During his career, he used a computer to model a simple equation, called the logistic map, that describes how a population changes over time depending on its growth rate. The results were not what he predicted. After that experiment, he realized that this was a universal phenomenon, not dependent on a specific equation or system.

In addition, many works of literature show Chaos Theory or the Butterfly Effect. In "A Sound of Thunder" by Ray Bradbury (year published), the character, Mr. Eckels, joins a safari company that offers to the past. He pays ten thousand dollars and signs a contract to follow the instructions. The safari travels back to when the dinosaurs were alive. However, Mr. Eckels accidentally stepped on a butterfly. The groups travel back to the present where Eckel notices that his act of crushing the butterfly has altered the future in a drastic way. According to the story, "It fell to the floor, an exquisite thing, a small thing that could upset balances and knock down a line of small dominoes and then big dominoes and then gigantic dominoes, all down the years across Time. Eckels' mind whirled. It couldn't change things. Killing one butterfly couldn't be that important! Could it? (Bradbury R., 1952.). This story warns readers about how the present can affect the future.

Another story that included the theme of chaos theory is "The Pedestrian" by Ray Bradbury (1990) is a short story that depicts a dystopian future where people are isolated, addicted to television, and walking outside is considered a crime. Leonard Mead is a nonconformist who enjoys walking the city streets at night, while everyone else stays indoors watching television. He didn't expect the police to show up there because it had been a long time

since anyone had gone out and the police were gradually stopping working. According to the story, “Ever since a year ago, 2052, the election year, the force had been cut down from three cars to one” (Bradbury R., 1952). These experiences have clearly described the keyword of chaos theory.

Chaos Theory at Play in *Jurassic Park*

In addition to the Bradbury stories, Chaos Theory is a major theme in Critchton’s *Jurassic Park* (1990). According to the book, Malcolm shares chaos theory to other characters mainly through his explanations and predictions about the park’s failure. He describes how chaos theory is concerned with finding underlying patterns in complex events that appear random. He argues that the park is a complex system that is sensitive to initial conditions and unpredictable in its outcomes. He uses examples of mathematics, biology, and history to support his views. Malcolm explains chaos theory to Dr. Alan Grant and Dr. Ellie Sattler during his first meeting at the park. He also explained how chaos theory can be applied to the behavior of living systems.They are intrigued by his ideas and try to understand them better. Dr. Ellie Sattler listens attentively to his explanations and agrees with him that life finds a way. Ellie is more curious and open minded about his ideas, while Grant is more skeptical because he is so surprised by the dinosaurs.

Malcolm also criticizes Hammond and the other scientists for their hubris and ignorance of the natural orderHammond is annoyed by his pessimism and arrogance. He dismissed his theory as irrelevant or inaccurate. They also cling to their belief that the park can be controlled and managed by protective fences. Hammond ignores the ethical and moral implications of his actions. The author’s purpose for sharing both sides of different points of views is to explore the theme of chaos, changes of nature, and human control over nature. The author wants to inspire

the readers to think critically about the implications of scientific and technological innovation, especially when it involves manipulating life forms. He also describes the difference of opinion when the characters are in their positions. Malcolm can get an overview of the park's problems because he is not the one who created the park. It's different for Hammond; he is a businessman and the creator of the park. He does not want to hear that the park will fail. Hammond loses his reason because of his ambition, so he looks at it in a subjective way. The author describes the perspectives of each character to explore the meaning of chaos theory.

Consequences of Chaos Theory

Not only does Hammond disregard Malcolm's warnings about Chaos Theory, but also Dr. Wu does the same. Dr. Wu uses genetic engineering to revive extinct species, but he does not fully understand the consequences of his actions. Dr. Wu is very confident about his talent, and it is subjective to say that dinosaurs wouldn't breed because he only creates female dinosaurs. In fact, Dr. Alan Grant and Hammond's grandchild saw the velociraptor's eggs. He ignored what Malcolm predicted about *Jurassic Park*, and he thinks what Malcolm says is absurd. Also, Lex is a person who can't control her feelings and yells when she gets in danger. She attracts the dinosaur's attention and affects the safety of others. Even though, without her, I doubted Jurassic wouldn't end nicely, her computer skills helped save them safely in a moment.

Moreover, dinosaurs are animals that work instinctively and cannot be controlled by humans. Velociraptor demonstrates intelligence and problem solving abilities that exceed expectations. Their ability to open doors and coordinate attacks as a pack were behaviors not predicted by the park's creator. This unpredictability contributes to the chaos within the park, as the raptor's actions lead to a loss of control over the environment, and endanger the lives of the

humans on the island. The Tyrannosaurus rex is another one that can't be predicted. The T-rex's behavior defies the park's safety measures. Its ability to sense movement and escape from its enclosure was not anticipated, leading to further chaos and danger of the park's visitors. Both dinosaurs' actions highlight that humans can't handle natural things, even though they create them.

Lessons Learned from Chaos

Overall, *Jurassic Park* teaches the readers to respect nature and to be aware of the action's before they have unexpected consequences. One of the central themes of Jurassic Park is the respect for the power and unpredictability of nature. The readers realized after reading this book that humans shouldn't try to handle nature. Nature is a cycle of life that works to respond to your actions on the ecosystem of Earth . Human interference with nature will affect the environment where we live. According to the book, Hammond opens the dinosaur park for ambitious purposes and he thought the enclosure can protect them from dinosaurs, but the waves of oceans broke the enclosure , then the dinosaurs escaped from the enclosure and killed many people (Crichton, 1990, p.54). The readers also apply to their lives to be aware of the action's they did. People should be aware of their actions because they have a significant impact on themselves and others. Being aware of one's actions can lead to better decision making and can prevent negative consequences. For example, Dr. Wu re-created the dinosaurs back in the park but he was killed by a pack of Velociraptor that he created (Crichton, 1990, 352). These lessons emphasize the significance of thoughtful interaction with our surroundings and the impact of our choices, inspiring us to live with greater intention and responsibility.

Conclusion

According to *Jurassic Park* (1990), John Hammond, who is the owner of *Jurassic Park,* was disappointed that the result was not what he expected. In the end, many people have been killed by the greed of their actions. These things make us realize that chaos theory is a system of actions of a movement to unpredictable consequence. Lan Malcolm mentions the chaos theory will happen anytime and anywhere. Overall, chaos theory does not alway to produce negative consequences, how its reaction depends on your action. Understanding the chaos theory by the actions of characters will teach the readers to be aware of their actions.

References

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