

Chaos Theory and Problems in 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 a *Jurassic Park* theme website with a partner. 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 ignorance contributing to the butterfly effect, how chaos theory can not make decisions for people, and how chaos theory can be applied to people's daily lives.

Introduction

In *Jurassic Park* by Michael Crichton (1990), Ian Malcom, a mathematician in *Jurassic Park* warns of problems in the park and his reasoning was chaos theory. Chaos theory is the idea that not every simple thing is as simple as it seems. This is important to understanding the plot because it plays a big part throughout the story. It can also be used to explain how the ecosystem works and used to make decisions. Learning about chaos theory could show potential usage in one's daily life.

Scientific and Literary Origins of Chaos Theory/Butterfly Effect

Chaos theory deals with the unpredictable nature of things. The basic idea of chaos theory is that one change will cause a chain reaction of changes. Some examples of stuff that it could be applied to are the ecosystem, social system and the economy. The phenomenon was first observed by Edward Lorenz. According to the *National Center of Biotechnology of Information*, “When Lorenz was trying to make calculations to predict the weather, he noticed that everytime he tried to calculate the weather from a certain time period it would come out with a different result” (Oestreicher, year published). This then led him to dive deeper into what was causing this deviation in the result, which led him to discover how a small number difference could lead to a totally different outcome. Another person that worked on chaos theory was James A. Yorke. He applied chaos theory to mathematics, physics and computer science.

In the short story *A Sound of Thunder* by Ray Bradbury (1952), the author says, “Say that I kill this mouse. That means all descendants of this mouse will be destroyed. This action annihilated a thousand, a million, a billion possible mice”. This shows how one change could spiral out of control and affect the entire future timeline.

Another book that is an example of chaos theory is *The Martian* by Andy Weir. In the book, it said, “I’m stranded on Mars” (Weir, 2011). This is a second example of chaos theory because this is the start of the protagonist's series of misfortune.

Chaos Theory at Play in *Jurassic Park*

In *Jurassic Park*, Malcolm said, “The island will quickly proceed to behave in unpredictable fashion” (Crichton, 1999, p. 76). Malcolm was explaining to Gennaro about how Jurassic Park is going to have to shut down because of chaos theory. Gennaro was doubtful of Malcolm's statement, because it is a theory and not solid evidence to support his statement. The author’s purpose of sharing the point of view of both characters is to show how people react to chaos theory being used as an explanation. In another part of the book, Arnold said, “Malcolm’s theory is wrong because we are dealing with living systems” (Crichton, 1999, p. 246). Arnold was explaining to Gennaro what chaos theory is and why it does not apply to Jurassic Park. His reasoning for why chaos theory does not be applied to Jurassic Park is because chaos theory uses computer models to try to predict the future, but Jurassic Park is an ecosystem and not a computer model.

A character that understands chaos theory in *Jurassic Park* was Ian Malcolm because he is a chaos mathematician. In the book, he talks about why Jurassic Park is going to end in disaster and uses chaos theory as the reason.

Another character that understands chaos theory is Arnold because he was able to explain what chaos theory is to Gennaro. He is also able to rebut why chaos theory is inaccurate, since chaos theory relies on computer models and Jurassic Park is a living system. One more character that has grasped the idea of chaos theory is Gennaro. He understands that chaos theory is

unpredictable, hence why he finds it unreliable to use chaos theory as a reason for why Jurassic Park is dangerous.

On the other hand, Hammond has a lack of knowledge in chaos theory because he ignores everything Malcolm says. In *Jurassic Park*, Hammond said, “He’s got his theory that complex systems can’t be controlled and nature can’t be imitated. Hell, we’re just making a zoo here” (Crichton, 1999, p. 150). He does not understand the severity of the situation. He is comparing a normal zoo to a zoo that is inhabited by extinct animals from millions of years ago. Jurassic Park is in a unique position because they have revived dinosaurs. Malcolm is saying that there is not enough research on dinosaurs, so Jurassic Park has a complicated ecosystem. Due to the complexity of the dinosaurs’ environment, Malcolm believes that something is going to get out of control.

Consequences of Chaos Theory

One character that contributed the most to the chaos at Jurassic Park is Dennis Nedry. He accepted a request to smuggle dinosaur embryos for money. There was a problem with smuggling the embryos which was the security. In the story, “Nedry created a backdoor in the security program and used it to turn off the security system” (Crichton, 1999, p. 231). Due to his greed and negligence, he involuntarily created a disaster in Jurassic Park by turning off the security system. An additional character that contributed to the chaos in the park is Henry Wu, because he is overestimating his ability and too overconfident to think that he has made a mistake. In the book, when they found out that dinosaurs were breeding, Henry Wu said, “But they’re all female. It’s impossible. There must be a mistake” (Crichton, 1999, p. 166). This shows how Henry Wu is deflecting his mistake and blaming the system for making a mistake. Overall these two characters played a big part in creating chaos in Jurassic Park.

Two dinosaurs that had unexpected behavior were the velociraptors and the tyrannosaur. The velociraptors have the ability to learn how to open doors and climb trees to get to unreachable places. These behaviors allow them to create chaos in the park because they escaped their enclosure and ran around preying on people. The tyrannosaur with its unexpected behavior of touching the fence. In the book, “The tyrannosaur was holding on to the fence” (Crichton, 1999, p. 185). This was unanticipated because the fence has been electrocuted for a long time and it’s weird that the tyrannosaur is still touching the fence. Ultimately, these unordinary dinosaur behavior intensified the chaos in Jurassic Park.

Lessons Learned from Chaos

There are two positive lessons that can be learned from chaos theory in *Jurassic Park*. The first lesson that can be learned is that the ecosystem is unpredictable. In *Jurassic Park*, Arnold said, “Living systems are never in equilibrium. Everything is moving and changing. In a sense, everything is on the edge of collapse” (Crichton, 1990, p. 247). In reality, the ecosystem changes and adapts everyday. This makes it possible to make predictions for the ecosystem's future but they may not always be accurate due to small changes. Although most of the changes are small, they might come together to create a disaster. The second positive lesson that can be taken from *Jurassic Park* is that chaos theory can not make decisions for people. In the story, Malcolm said, “Largely through science, billions of us live in one small world, densely packed and intercommunicating. But science cannot help us decide what to do with that world, or how to live” (Crichton, 1990, p. 312). This is saying that science can not control how living organisms live. It also supports how science does not determine decisions one makes.

Conclusion

To conclude, In *Jurassic Park* by Micheal Crichton, Ian Malcom, a mathematician in *Jurassic Park* warned of problems in the park and backed it up with chaos theory. Knowing what and how chaos theory works can enhance one's understanding of *Jurassic Park*. As mentioned previously, having an understanding of chaos theory allows one to learn life lessons. Altogether, comprehending what chaos theory is could prove to be helpful in making better decisions.

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