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SCIENTIFIC METHOD IN DETECTIVE SHERLOCK HOLMES *THE BOSCOMBE* VALLEY MYSTERY

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ABSTRACT

This research aims to analyze the study of scientific methods put forward by Gay & Diehl, through the detective Sherlock Holmes short story The Boscombe Valley Mystery by Arthur Conan Doyle. This research uses qualitative methods to explain the scientific methods contained in Arthur Conan Doyle's detective story. The study of scientific methods according to Gay & Diehl has five stages, namely Recognition and definition of the problem, Formulation of hypotheses, Collection of data, Analysis of data, and Statement of conclusions. The research results show that these stages are in accordance with the detective's investigative steps in the story. This is depicted in the narrative or characters in the story. The first stage is through the introduction of the detective character and the introduction of the case, the second stage is through presumptions against James McCarthy, the third stage is through collecting evidence, the fourth stage is through collecting evidence and the suspect's confession, the fifth stage is through the narrator's narrative which describes that the case has been completed with the discovery of the suspect.

Keywords: *scientific method, detective formula, short story*

INTRODUCTION

Sherlock Holmes The Boscombe Valley Mystery by Arthur Conan Doyle (Doyle & Macaluso, 2016) tells the story of Holmes and Dr. John Watson who was summoned to Heredordshire to investigate the murder of Charles McCarthy. McCarty was found dead around Boscombe pond. James McCarthy is the son of Charles McCarthy who is one of the main suspects. Because James McCarthy was seen arguing with his father before his tragic death. Through detailed examination and investigation of the scene and interviews with those involved in this murder, including the daughter of the land owner, Alice Turner. Sherlock Holmes reveals that it was not James McCarthy who actually killed Charles McCarthy, but an old man who had a grudge against Charles McCarthy, namely John Turner from Australia. After finding out the real suspect, Holmes attributed the

motive to the murder to be the result of an old, unresolved dispute. This proves Sherlock Holmes' ability to uncover hidden truths.

The scientific method is a systematic procedure used to obtain new knowledge or validate existing information. Many scientific fields rely on this process to test the truth of theories through objective experiments and observations. According to Richard Dawid in the book String Theory and the Scientific Method "Throughout the twentieth century, the scientific method has proven strong enough to keep scientific control mechanisms intact despite the presence of elements of groupthink" (Richter et al., 2013, p. 26). With this, the author believes that the scientific method is the right approach to analyze an incident, one of which is solving the problem of the murder case in the Sherlock Holmes short story The Boscombe Valley Mystery by Arthur Conan Doyle which was carried out by detectives Sherlock Holmes and Dr. John Watson. This is in line with the thoughts of Francis Bacon and René Descartes who considered *"The creation of the scientific method itself to be the main achievement on the way towards a correct understanding of the world."*

In this research, the scientific method is based on the detective formula contained in the Sherlock Holmes short story The Boscombe Valley Mystery by Arthur Conan Doyle. Gay & Diehl The scientific method is a method used to collect information needed to solve a problem. Gay and Diehl say that research is the formal and systematic application of scientific methods to study problems.

As a systematic and standardized procedure and uses objective evidence, according to Gay & Diehl in (Silalahi, 1999, p. 6) The scientific method is a very orderly process that follows a number of sequential stages which include: 1. Recognition and definition of the problem, 2. Formulation of hypotheses, 3. Collection of data, 4. Analysis of data, 5. Statement of conclusion regarding confirmation or disconfirmation of the hypothesis. According to Kerlinger in (Silalahi, 1999) The scientific method is one of the four methods used to obtain knowledge. Three other methods for gaining knowledge are: the method of tenacity which holds firmly to the truth because it always knows it to be true, for example, according to "belief"; method of authority (way of authority) which is adopted in terms of beliefs that have been established and if supported by tradition and societal sanctions, then that is indeed the right one, and a priori method (a priori method or also called intuition method) which is based on a hunch that something symptoms are true according to our

interpretation or in accordance with reason and no longer require any proof. Compared with the other three methods, the scientific method is the most reliable method used to obtain and develop knowledge and in solving empirical problems.

This method encourages objectivity and reduces errors or bias as much as possible, so that the results produced are accurate. This is compared with the action pattern in the detective formula which includes: (1) Detective introduction (2) crime and (3) investigation (4) announcement of solution (5) explanation of solution, and (6) resolution. Apart from that, this is also in line with John G. Cawelti's theory which states "The fundamental principle of the mystery story is the investigation and discovery of hidden secrets, the discovery usually leading to some benefit for the character(s} with whom the reader identifies. The discovery of secrets with bad consequences for the protagonist"(Cawelti, 1976).

This analysis aims to show the application of the scientific method contained in the detective formula of Sherlock Holmes. The Boscombe Valley Mystery by Arthur Conan Doyle. The scientific method not only strengthens the narrative basis in this detective literary formula, but also describes the investigative methods contained in the story. Sherlock Holmes underscored the importance of a systematic and organized approach in solving problems such as the formula for the scientific method. In addition, this analysis explores the ways Sherlock Holmes guessed hypotheses, made observations, tested his theories through experiments and finally reached logical conclusions. Thus, this analysis explores more deeply the contribution of detective literature through the formula of the scientific method, especially through the character of Sherlock Holmes, in the development of scientific investigative methods and its influence on investigative practices in searching for the suspect in the murder of Charles McCarty.

There are several previous studies that discuss similar objects and formulas, including: The first research was written by Yuli Aisha Putri and Jiphie Gilia Indriyani entitled *Formula Detektif Klasik pada Cerita Anak The Secret Seven-Sapta Siaga: Kajian Formula John G. Cawelti* The equation for this research is the formula used, namely the detective formula by John G. Cawelti. In the results of this research, the children's story The Secret Seven-Sapta Siaga has similarities and follows the detective formula pattern proposed by John G. Cawelti. The difference between this research

and the author's research lies in the object that will be analyzed by the author, namely Sherlock Holmes The Boscombe Valley Mystery.

The second relevant research was written by Yasmin and Amanda Putri entitled The Analysis of the Main Character in Doyle's "*The Adventures of Sherlock Holmes: The Boscombe Valley Mystery*." These studies have similarities and differences in this research. What this research has in common is that the object used is the Sherlock Holmes story The Boscombe Valley Mystery. Meanwhile, the difference in this research is the analysis discussed. Yasmin and Amanda Putri discuss the main characters in the story, while this research will discuss the scientific methods found in the detective formula in the story.

The third research was written by Natasha Ratu, Ceisy N. Wuntu and Merlin Maukar entitled *"Detective Formula In Agatha Christie's Death On The Nile."* This research discusses the application of the detective formula in problem solving, which is studied through the actions and strategies carried out by the main character in overcoming challenges and solving the cases in the novel. The similarity in this research is the use of the detective formula which is the main theme. Meanwhile, the difference in this research is the object of study and the results of the discussion. This research analyzes the application of the scientific method in the detective formula in the Sherlock Holmes story The Boscombe Valley Mystery.

Of the several studies found, there has been no research that specifically discusses the scientific methods contained in the detective formula in the Sherlock Holmes story The Boscombe Valley Mystery. According to (Gay & Diehl, 1992, p. 20) *"application of the scientific method is undoubtedly the most efficient and reliable."* Therefore, researchers chose to study scientific methods to uncover the case that occurred in Sherlock Holmes' short story The Boscombe Valley Mystery. So it is hoped that it can add to the richness of research in the field of literature, especially as an example of the study of scientific methods in detective formulas. Additionally, it can be useful to readers and offer a new perspective on the dynamics between fictional detective narratives and the application of scientific methods.

RESEARCH METHODS

The method used in this research is a qualitative descriptive method. According to Moleong in (Fiantika et al., 2022) defines qualitative research as research that is intended to understand phenomena about

what is experienced by research subjects, for example actors, perceptions, motivations, actions, etc. holistically and in a descriptive way in the form of words and language in a special natural context and with utilize various scientific methods. The data collection in this research uses library research, namely data collection activities originating from library materials related to research to support the data. By understanding and studying theories from various literature related to the research. According to Zed in (Adlini et al., 2022) The data collection uses the method of searching for sources and constructing them from various sources, for example books, journals and research that has already been carried out. Library materials obtained from various references are analyzed critically and must be in-depth in order to support the propositions and ideas.

RESULTS AND DISCUSSION

Recognition and definition

In the short story The Boscombe Valley Mystery, the introduction of characters and roles as well as the scientific methods used by Sherlock Holmes play an important role in developing the narrative and solving the case. In the process of recognition and definition in the scientific method, the first part of the detective formula proposed by Cawelti, namely the introduction of the detective, is found in the narrative:

> *Have you a couple of days to spare? Have just been wired for from the west of England in connection with the Boscombe Valley tragedy. (P. 1)*

In the narrative above, there is a conversation between Sherlock Holmes who asks Dr. Watson to help him with a case in the Boscombe Valley. This quote shows a recognition that refers to Watson's character in the investigation of a case. Apart from that, the definition in this context refers to explaining Watson's role in the story. Watson is a doctor and partner in solving this case.

> *It is really very good of you to come, Watson," said he. "It makes a considerable difference to me, having someone with me on whom I can thoroughly rely. Local aid is always either worthless or else biased. If you will keep the two corner seats I shall get the tickets." (P. 1)*

In the narrative excerpt above, Sherlock Holmes expresses his appreciation to Dr. Watson is willing to collaborate in handling the case that occurred in the Boscombe Valley. Holmes believes Dr. Watson in solving cases can achieve success, because of his ability and integrity.

> In this case, however, they have established a very serious case against the son of the murdered man." (P. 1)
>
> "It's a murder, then?" (P. 1)
>
> "Well, it is projected to be so. I shall take nothing for granted until I have the opportunity of looking personally into it. I will explain the state of things to you, as far as I have been able to understand it, in a very few words. (P. 2)

This quote is the beginning of an introduction to the problem that is occurring. Holmes stated that there was evidence of child involvement in the murder case. However, Holmes emphasized that even though there were indications of murder, he needed to investigate further. This shows that Sherlock Holmes was very careful and did not rely on assumptions in investigating the case. Sherlock Holmes as a detective has an accurate understanding of solving cases, through the methods he uses in taking steps in investigations.

> *"On June 3rd, that is, on Monday last, McCarthy left his house at Hatherley about three in the afternoon and walked down to the Boscombe Pool, which is a small lake formed by the spreading out of the stream which runs down the Boscombe Valley. He had been out with his serving-man in the morning at Ross, and he had told the man that he must hurry, as he had an appointment of importance to keep at three. From that appointment he never came back alive. (P. 2)*

In the quote above, Sherlock Holmes conveys information about the events that occurred. This information provides an overview of the chronology of events related to the McCarthy case

Formulation of hypothesis

In the short story The Boscombe Valley Mystery, Sherlock Holmes shows his ability to make hypotheses which is part of his scientific method. After previously introducing the case, Sherlock Holmes began to

hypothesize. By collecting hypotheses that Sherlock Holmes does, this helps Sherlock Holmes to make predictions that can be analyzed further.

The first hypothesis is based on two witnesses including an old woman and a forest guard, namely William Crowder, who saw Mr. McCarthy and Mr. James McCarthy. Based on the information that Sherlock Holmes got, this is reflected in the quote:

> *Both these witnesses depose that Mr. McCarthy was walking alone. The game-keeper adds that within a few minutes of his seeing Mr. McCarthy passed he had seen his son, Mr. James McCarthy, going the same way with a gun under his arm. (P. 2)*

After these two witnesses testified, Holmes explained his hypothesis that it was possible that James McCarthy was involved in the murder. However, Holmes needs to collect additional evidence to determine whether James was really the perpetrator or whether a third party did it.

The second hypothesis is based on the testimony of Patience Moran, a fourteen year old girl, providing important information that Sherlock Holmes uses to formulate the hypothesis. This is reflected in the quote:

> *A girl of fourteen, Patience Moran, who was the daughter of the lodge-keeper of the Boscombe Valley estate, was in one of the woods picking flowers. She states that while she was there she saw, at the border of the wood and close by the lake, Mr. McCarthy and language to his son, and he saw the latter raise up his hand as if to strike his father.his son and that they appear to be having a violent quarrell. She heard Mr. McCarthy the elder used very strong language to his son, and he saw the latter raise up his hand as if to strike his father. (P. 2)*

Patience Moran testified that while she was picking flowers in the forest, she saw Mr. McCarthy and Mr. James McCarthy at the edge of the woods near the lake. He saw them fighting, Mr. McCarthy spoke very harsh language towards his son, he also saw Mr. James McCarthy wanted to hit his father. Holmes' hypothesis that there was a possibility that James McCarthy was strongly involved in the murder was based on Patience Moran's testimony regarding the movement that James McCarthy was going to hit his father and that the quarrel was one of the motives for the murder.

Collecting of data

Data collection in the scientific method is an important process in the research process. The process of gathering empirical information or relevant facts to answer a research question or test a hypothesis. In the story The Boscombe Valley Mystery, Sherlock Holmes and Dr. Watson is a detective who collects evidence to find out who was the perpetrator of the Charles McCarty murder case.

The presumption at the beginning of the story that was raised against James McCarthy as the murderer of his own father, Dr Watson and Sherlock Holmes meant that James had to give testimony to the police to prove that this presumption was wrong. In addition to being free from prejudice, James was asked to give his testimony because he was at the scene of the crime. This is reflected in the quote:

> *However, when I heard a hidden outcry behind me, which caused me to run back again. I found my father expiring upon the ground, with his head badly injured. I dropped my gun and held it in my arms, but it almost instantly expired. I knelt beside him for a few minutes, and then made my way to Mr. Turner's lodgekeeper, his house being the nearest, to ask for assistance. I saw no one near my father when I returned, and I have no idea how he came by his injuries. He was not a popular man, being somewhat cold and forbidding in his manners, but he had, as far as I know, no active enemies. I know nothing further of the*

The presentation of James' testimony produced several clues for Holmes and Dr Watson, among others:

> *"Witness: He mumbled a few words, but I could only catch some allusion to a rat. (P. 5)*
>
> *It seemed to me to be something gray in color, a coat of some sort, or a plaid perhaps. When I rose from my father I looked round for it, but it was gone. (P. 6)*

According to Dr. Watson's gray coat was said by James McCarthy to be the killer's clothing. He had dropped part of his clothes, namely his coat while running away, and had trouble getting back and carrying it away while James was kneeling with his back facing not the same direction.

Evidence was also collected by conducting an autopsy on John McCarthy's body, which was carried out by Dr. Watson to see the location of the wounds on his body.

> *In the surgeon's deposition it was stated that the posterior third of the left parietal bone and the left half of the occipital bone had been shattered by a heavy blow from a blunt weapon. I marked the spot upon my own head. Clearly such a blow must have been struck from behind. (P. 8-9)*

After carrying out the examination, Dr. Watson concludes that James McCarthy is not the killer. Due to the blow wound on McCarty's body, it was very possible that it was done from behind, while James, at the time of the incident, was right opposite John McCarthy.

The next collection of evidence is regarding testimony from Lestrade who knows the conditions where the murder occurred.

> *Lestrade showed us the exact spot at which the body had been found, and, indeed, so moist was the ground, that I could plainly see the traces which had been left by the fall of the stricken man. (P. 11)*

With moist soil, it was actually beneficial for even Lestrade and Holmes. Because you can see the traces left at the scene.

> *"These are young McCarthy's feet. Twice he was walking, and once he ran swiftly, so that the soles were deeply marked and the heels were hardly visible. That bears out his story. He ran when he saw his father on the ground. Then here are the father's feet as he paces up and down. What is this, then? It is the butt-end of the gun as the son stands listening. And this? Ha ha! What have we here? Tiptoes! tiptoes! Square, too, quite unusual boots! They came, they went, they came again—of course that was for the cloak. (P. 12)*

Holmes and Lestrade examine the scene where the murder occurred. Lestrade explains to Holmes some of the footprints and their possible occurrences. Footprint evidence at the scene of the crime matched what James McCarthy said when giving his testimony. Not getting there, Holmes then followed the path through the forest until he arrived at the main road, where the killer's trail disappeared.

By investigating the crime scene, Lestrade deduces several characteristics of the killer. This can be seen in the narrative:

> *"Is a tall man, left-handed, limps with the right leg, wears thick-soled shooting boots and a gray cloak, smokes Indian cigars, uses a cigar-holder, and carries a blunt pen-knife in his pocket. There are several other indications, but these may be enough to help us in our search." (P. 12)*

However, Holmes asked about the word "Cooee!" which James heard at the time of the incident.

> *'Cooee' is a distinctly Australian cry, and one which is used among Australians. There is a strong presumption that the person whom McCarthy expected to meet him at Boscombe Pool was someone who had been in Australia." (P. 13)*

Lestrade's answer to Holmes' question, it is possible that John McCarthy's killer was someone who came from or had lived in Australia because he used a typical Australian call.

The next characteristic that Lestrade can conclude is that the killer has a lame leg. This is found in dialogue:

> *"The impression of his right foot was always less distinct than his left. He put less weight upon it. Why? Because he was limp—he was lame." (P. 14)*

Analysis of data

After collecting data, the next stage is analyzing the data to obtain meaningful information. Understand, interpret, and answer questions based on the data that has been collected. The following are several narratives that can be included in the data analysis proces:

> *The culprit is—" "Mr. John Turner," cried the hotel waiter, opening the door of our sitting-room, and ushering in a visitor. (P. 15)*

Lestrade and Holmes are discussing the clues they found at the crime scene. When discussing, welcome hotel visitors. This person has the characteristics as mentioned by the narrator in the story:

> *The man who entered was a strange and impressive figure. His slow, limping step and bowed shoulders gave the appearance of decrepitude, and yet his hard, deep-lined, craggy features, and his enormous limbs showed that he was possessed of unusual strength of body and of character. His tangled beard, grizzled hair, and outstanding, drooping eyebrows combined to give an air of dignity and power to his appearance, but his face was of an ashen white, while his lips and the corners of his nostrils were tinged with a shade of blue . It was clear to me at a glance that he was in the grip of some deadly and chronic disease. (P. 15)*

After looking at the characteristics of the person, and adjusting it to what they had investigated at the crime scene, it was the same. A significant characteristic or sign is that he is limping, according to what Lestrade assumed in collecting data. So through this narrative, Lestrade and Holmes have found the answer to what they were looking for, namely finding the suspect who killed Charles McCarty.

> *The old man sank his face in his hands. "God help me!" he cried. "But I wouldn't have let the young man come to harm. (P. 15)*

Holmes believes that the murderer is John Thurner. The actions and words spoken by John Turner and his attitude of feeling cornered by the situation strengthen that John Turner was involved in McCarty's murder.

> *"I am a dying man," said old Turner. "I have had diabetes for years. My doctor says it is a question whether I shall live a month. Yet I would rather die under my own roof than in a gallery." (P. 15)*

John Turner said he was in poor condition in critical condition. It states that Turner refused to be detained in prison citing his critical condition. He said with great emphasis that he would rather die at home than be in prison. He tried to maintain his dignity.

> *Holmes rose and sat down at the table with his pen in his hand and a bundle of papers before him. "Just tell us the truth," he said. "I shall jot down the facts. You will sign it, and Watson here can witness it. Then I could produce your confession at the last extremity to save young McCarthy. I promise you that I shall not use it unless it is absolutely needed." (P. 15)*

To prove the collecting data assumed by Lestrade at the beginning, Holmes tries to collect evidence and ask directly the real perpetrator, namely John Turner. Holmes uses strategic methods to reveal the truth of the case.

Statement of conclusion

> *James McCarthy was acquitted at the Assizes on the strength of a number of objections which had been drawn out by Holmes and submitted to the defending counsel. Old Turner lived for seven months after our interview, but he is now dead; and there is every prospect that the son and daughter may come to live happily together in the ignorance of the black cloud which rests upon their past. (P. 17)*

After the evidence was gathered and presented to the defense, James McCarthy was declared free. He was proven not guilty in the case that happened to Charles McCarthy.

CONCLUSION

Based on the analysis above, it can be concluded that the case investigation process in the short story The Boscombe Valley Mystery by Arthur Conan Doyle is in accordance with the scientific method. The scientific method is a very orderly process that follows a number of sequential stages, which include five stages: 1. Recognition and definition of the problem; 2. Formulation of hypotheses; 3. Collection of data; 4. Analysis of data; 5. Statement of conclusions regarding confirmation or disconfirmation of the hypothesis. These stages are depicted through the narrative or characters in the story. The first stage is recognition and definition through the introduction of detective characters, namely Sherlock Holmes and Dr. Watson. In addition, through the introduction of the case presented by Sherlock Holmes to Dr. Watson when asked to join the investigation into the Charles McCharty murder case in Boscombe Valley. The second stage of the formulation of hypotheses is illustrated by the presumption of a suspect in the murder of James McCharty, son of Charles McCharty. On the grounds that James McCharty was at the crime scene. The third stage is the collection of data, which is illustrated through investigations at the scene carried out by Sherlock Holmes, Dr. Watson, and Lestrade. This includes collecting existing evidence. The fourth stage of data analysis is depicted through the narrative between Lestrade and Sherlock Holmes when deducing suspected suspects from the evidence

they have found at the scene. At this stage, it was complemented by John Turner's confession as the murderer of Charles McCharty because of his past grudges, but he asked not to be reported due to health problems. The fifth stage, namely the Statement of Conclusions, is illustrated through the narrative of the narrator, namely Dr. It was Watson who concluded that James McCarthy had been acquitted and John Turner had not been reported for his wrongdoing.

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