CHAPTER 2

LITERATURE REVIEW

A. Theoritical Review

1. Scientific Approach

Longman (2014) defined the scientific approach as the process of discovering information in science that involves testing ideas through experiments and making decisions based on the results of analysis (Zaim, 2017). It signifies that the scientific method is a collection of procedures for studying phenomena, collecting new information, and correcting and integrating past knowledge (Zaim, 2017). The scientific approach is one that employs the procedures used by scientists in the creation of new understanding through using scientific methods (Shofwan, 2017). It is defined as the process of finding out information in science, which involves testing the ideas by performing experiments and making decisions based on the result of analysis (Longman, 2014 cited in Zaim, 2017). Therefore, the learning paradigm required is one that allows students to think scientifically and artistically while also developing a sense of curiosity. In other words, students are urged to have environmental responsibility, interpersonal skills, and the capacity to think critically when using this technique.

Moreover, the Scientific Approach emphasizes not just learning outcomes as the end result, but also the learning process as a critical aspect (Ratnaningsih, 2017). Therefore, this approach emphasizes the quest for knowledge rather than the knowledge itself. Hence, to increase the quality of teaching and learning, a scientific approach is essential (Ratnaningsih, 2017). Suharyadi claimed in 2013 that the scientific approach encourages students to grow and combine their attitudes, skills, and knowledge (Ratnaningsih, 2017). Accordingly, the teacher's

role is critical in implementing this technique for good end outcomes so that students can get ideal results.

According to Briggs (2014), the teacher's role in language education is to act as a facilitator by giving students the skills they need to communicate (Shofwan, 2017). Meanwhile, students perform their roles by interacting with others in the target language utilizing the input provided to them (Shofwan, 2017). This implies that a teacher is no longer a single handler, but rather a facilitator of the learning process. Furthermore, students must be actively involved in the learning process in order to communicate knowledge obtained not only from teachers but also from other sources. As a result, despite the fact that the scientific method is not teacher-centered, instructors play a significant part in all of these processes. Teachers direct all of these processes to ensure that students are not distracted by irrelevant issues throughout the teaching-learning process.

According to Ministry of National Education Regulation No. 65, the Scientific Approach curriculum in 2013 prepares students to: (1) be the central of learning, (2) entail cognitive processes that have the capacity to stimulate intellectual development, particularly at the high level of student thinking ability, (3) provide chances for students to integrate and adapt concepts, rules, and principles; (4) discover information through scientific processes and apply it to the learning process; and (5) learn from a variety of sources. (6) encourage acculturation and empowerment of students as lifelong learners, (7) implement values by giving exemplary things, develop willingness, and develop creativity of students in the learning process, and (8) integrate the principles that everyone is a teacher, everyone is a student, and everywhere is a classroom (Ratnaningsih, 2017).

The stages of learning in the scientific method in the framework of the 2013 Curriculum are commonly grouped into five major stages. They are observing, questioning, experimenting, associating, and

communicating (Burhanuddin et al., 2018; Kemendikbud, 2013; Ratnaningsih, 2017); Zaim, 2017).

a. Observing

Students receive knowledge from a variety of sources while observing. Students can observe a thing through reading, listening to it, or seeing it. Furthermore, the teacher assists students by providing an object related to the learning topic at the beginning of a course in order to stimulate students' thinking and intellect. In addition, observation may stimulate students' critical thinking, establish a meaningful learning experience, and assist students in acquiring knowledge. The observing process includes the following steps: (1) selecting the object to be observed, (2) deciding the method of observation, (3) identifying the necessary data of the object, (4) restricting the object, and (5) understanding findings.

b. Questioning

Students are expected to construct questions obtained from the results of the observation after receiving information from the observing process if they find some information that they are unable to fully understand. This technique teaches students how to develop questions logically and stimulates their curiosity. The "questioning" stage might occur during a presentation or a group discussion. By asking questions, the teacher directs students' attention to begin learning and encourages them to seek information on their own. This phase aims to improve students' ability to respond to their surroundings by inquiring and addressing any problems they may encounter.

c. Experimenting

The steps in experimenting include preparation, work, and follow up. In this level, students attempt to convey their newfound information and use their English skills in the actual world through activities such as simulation, role play, presentation, or discussion. Students read or listen to extra content relating to the topic in this phase. Experimenting would

provide students with actual knowledge as well as crucial experiences to aid in their grasp of their studies.

d. Associating

After acquiring new information, students are directed to undertake experiments related to their school's learning theme. This strategy shows that students and teachers are actively involved in the learning process. This is the stage at which students will work on developing the ability to classify and compare thoughts and phenomena in order for them to become a part of their memory. Students are directed through the process of classifying and comparing literature based on social function, text structure, and language features. The capacity to classify distinct thoughts and associate those ideas into knowledge is referred to as associating itself in the learning process.

e. Communicating

Communicating is the capacity to draw conclusions from the information that has been observed and tested. Representing or concluding findings obtained through experimentation. Teachers play an important role in this final phase, as the students explain the result, they can comprehend whether or not their work gets done correctly. But first, students present and share their research findings with one another, either individually or collectively. There are four actions that may be carried out in the communication phases, First, asking the students to read their tasks to the class; then, asking every group to listen carefully and provide additional input regarding the work of each group; next, giving explanation after the group discussion has concluded; and finally, structuring tasks and provide opportunities for students to develop attitude, skills, and comprehension of the material of learning granted.

Teachers must adjust to the learning revolution, which emphasizes the use of scientific methodologies and a modern pedagogical dimension in the learning process. Teachers are encouraged to be creative in how they provide lesson materials to students while using multimedia to

enhance their teaching. To use this strategy, teachers have to develop educational materials. Learning resources are crucial since they aid in directing instruction. As a result, in order to raise the caliber of teaching and learning, teachers must be adept facilitators.

2. Online Learning

Online learning is a type of learning that occurs indirectly by using technology and numerous platforms to access learning activities. Rossi (2009) believes that the idea of online learning includes a wide range of applications, learning methods, and procedures (Pustika, 2020). Technology and information assist some of us in making it easier for teachers and students to carry out our everyday activities, from messages, assignments, and online communication to better numerous things online. Online learning, commonly known as e-learning, is a type of remote learning that takes place through the internet. Furthermore, Sadeghi (2019) describes online learning or distance education as a style of education in which students do not always attend school in person. In other words, students can continue to study without having to attend a class or visit their school. However, Rahayu and Wirza (2020) claimed that the concept of online learning during the pandemic is that teachers and students do not attend to school and instead teach and study from home using technology.

The use of apps, new multimedia technologies, and the internet in online learning is crucial since it facilitates the implementation of online learning by allowing students to readily access the content supplied or attend the virtual meeting. Interaction between the teacher and the students is an issue that all online teachers must address while implementing online learning. One of the most crucial effects in implementing online learning is technology. The technology that may be employed in devices such as smartphones, laptop computers, and others. There are several platforms for online learning that can be

combined with technology, such as WhatsApp, Google Classroom, Zoom meeting, Google meet, Canvas, and so on.

Sadeghi (2019) presents several benefits of using online learning. Students may study from anywhere, at any time, due to online learning. The timetable is flexible in the application of online learning. Students can create their own schedules based on their availability. Furthermore, students can access the materials from home without having to come to the classroom. Aside from that, there are certain drawbacks to using online learning. Students who want to participate in an online learning program must get a number of materials, including a device and a consistent internet connection. Learners will frequently study alone, which may lead them to feel lonely and deprive them of the social and physical interaction that comes with attending a traditional classroom. Hermanto & Srimulyani (2021) notes some of the disadvantages of online learning in Indonesia today include a lack of student discipline, a lack of motivation, a lack of student discipline, weariness, and boredom because most were solely in the form of online assignments, internet limits, and technical equipment. In addition, when students are enrolled in distance learning, they will have a more difficult time communicating with their teacher. In 2020, Riwayatiningsih & Sulistyani claimed that the online learning environment is supported by synchronous and asynchronous technological platforms. Synchronous learning is a learning process that occurs in real time. It implies that the teacher has a virtual meeting with the students at a specified class time. Video conferencing, teleconferencing, live chatting, and live streaming lectures are all examples of synchronous online learning methods. Whereas asynchronous learning refers to modes of education, instruction, and learning that do not take place in the same place or at the same time. Students can access materials and do assignments online whenever they choose, as long as the deadlines are satisfied.

To summarize, online learning provides teachers with a distinctive, engaging, and dynamic experience that improves both their teaching learning and performance. Teachers must be proficient in the use of technology and understand a variety of platforms in order to make student learning activities more interesting. Students have to enjoy online learning and have a pleasant learning experience.

3. Teachers' Experiences

Teachers' experiences refer to the direct engagement, adaptation, and reflection of teachers in carrying out teaching practices. These experiences encompass how teachers respond to curriculum demands, interact with students, apply instructional strategies, and address contextual challenges within their teaching environments. As stated by Farrell (2015), teacher experience is not limited to years of teaching but includes reflective engagement with daily classroom realities. This includes how they interpret pedagogical frameworks and make real-time decisions based on their students' needs and external constraints. In line with this, Richards and Lockhart (2007) emphasize that a teacher's experience includes what they do in the classroom, how they interpret student behavior, and how they adjust their strategies over time.

In the context of online learning, teachers' experiences take on additional complexity due to the integration of technology, student access disparities, and shifts in communication modes. Hodges et al. (2020) refer to this shift as "emergency remote teaching," which pushed teachers to adapt rapidly and creatively to continue instructional delivery. Teachers' experiences during this period involved learning new tools, managing emotional labor, and maintaining student engagement through digital platforms. Moreover, teachers' experiences are highly individualized. Two teachers with the same training may interpret and implement the same instructional model such as the Scientific Approach very differently based on their personal beliefs, technological competence, and classroom context. Braun and Clarke

(2021) highlight that these experiential narratives are key to understanding how teaching models function in real-world application.

Siddiquei, et al. (2021) show that teachers often encounter difficulties in executing certain stages of the Scientific Approach during online teaching, particularly the experimenting and communicating stages. Despite these obstacles, many teachers creatively redesigned their lesson plans using multimedia tools, asynchronous discussions, and simplified assignments. These personal accounts are important for understanding not only how policies like the Scientific Approach are interpreted in practice, but also how they evolve in the hands of teachers who are adapting to both digital constraints and student needs. Therefore, teachers' experiences provide rich, grounded insights into pedagogical innovation and the practical realities of online instruction.

In this study, teachers' experiences are explored through their narrative reflections on implementing the Scientific Approach in online English teaching. Their stories illustrate how they navigated digital platforms, overcame connectivity and motivation challenges, and adapted the five stages of the approach. These experiences reveal the intricate relationship between policy, practice, and personal interpretation in times of educational disruption.

B. Study of Relevant Research

Several studies conducted the use of scientific approach in teaching English. First, the study conducted by Ratnaningsih (2017) "Scientific Approach of 2013 Curriculum: Teachers' Implementation in English Language Teaching. The research aimed to investigate the teachers' implementation of scientific approach in English Language Teaching in one state junior high school in Bandung Regency. Furthermore, this study examines the application of the Scientific Approach and lesson plans based on the 2013 curriculum. The data revealed that the scientific phases in

English Language Teaching were applied by the teachers. They engaged in the sequence of activities of observing, questioning, experimenting, associating, and communicating. Moreover, teachers may demonstrate student-centered learning that is supported by collaborative, cooperative, active, and valuable learning. However, when it focuses on the implementation of lesson plans based on indicators, learning objectives, learning materials, learning media, scientific stages, and the Scientific Approach design, teachers must still emphasize and mention the Scientific Approach model as well as state learning objectives. In addition, the other components have been adequately presented in both teaching and lesson plans.

In addition, a study conducted by Shofwan (2017) entitled "The Use of Scientific Approach in Teaching English as a Foreign Language in SMPN I Jakarta". The aims of this research are to describe: (1) How is application of scientific approach in language teaching, (2) The teachers' and students' role in the classroom, and (3) Students' English language improvement in their classroom. The findings indicate that (1) the scientific approach is used through observing, questioning, experimenting, associating, and networking. (2) The teacher serves as a facilitator while the students become the center of learning (student center). (3) English students enhance their communicative and expressive abilities.

Moreover, in 2018, Burhanuddin et al., conducted a study about "The Implementation of Scientific Approach in Teaching English Based on 2013 Curriculum". This research focuses on the implementation of scientific approach in the English classroom. It resulted that the scientific approach to learning implementation still needs to be improved. This was due to students being given inadequate opportunities to directly engage in all stages of the scientific approach. Obviously, using a scientific approach is beneficial and should be used during the teaching and learning process in school to encourage students' active participation.