

CHAPTER I

INTRODUCTION

1.1 Background

Education is an effort designed to increase a person's potential in terms of spirituality, personality, morals, intelligence, self-control, skills, and general knowledge. Education is an effort that is carried out consciously and carefully designed to create a learning environment and carry out the learning process, so that students can actively develop their various potentials ranging from spiritual and religious, self-control, personality, intelligence, noble morals, to skills needed both for themselves and for society, nation, and state. The purpose of education shows what is to be achieved in the learning process, as well as the direction of guidance given. In general, these goals are abstract because they encapsulate idealistic and broad values describe expectations that are so ideal that they are difficult to implement practically. In fact, education must be realized through concrete actions directed at students in certain conditions, locations, times, and using certain facilities. In addition, the purpose of education also serves to trigger, awaken, and refresh the material that has been discussed, so that students mastery of the subject is more stable (Rahman et al., 2022)

Education, according to Law No. 20 of 2003 Article 1 paragraph (1), is a deliberate and carefully designed effort to create an atmosphere and learning process that allows students to actively develop their potential. Various abilities such as cognitive aspects, intuition, and other skills must be honed so that children have the provisions to compete in the future (Sangaa and Wangdrab, 2023)

Based on the reality in the field, it was found that the lack of understanding and interest of students in chemistry materials was due to the lack of use of interesting learning media in the teaching and learning process. In practice, teachers still tend to rely on conventional media such as package books and worksheets. As a result, students activeness in learning activities becomes low,

which ultimately negatively impacts learning outcomes in chemistry subjects (Kartini and Putra., 2022)

Chemistry as part of Natural Sciences (IPA), has an important role on par with other branches of science. However, chemistry material is often seen as difficult by students, many of whom have developed negative prejudices before actually learning, and find it complicated even though they have not mastered it. Many students consider chemistry to be a subject that is difficult to understand and understand, difficult and unpleasant, so many students are also not motivated in the process of learning chemistry and get poor grades. This view can affect students cognitive understanding, emotional reactions, practical skills, and scientific processes. As a result, the most affected aspect is the decline in their interest in learning (Taruklimbong and Sihotang, 2023)

Chemistry is a branch of natural science that encompasses concepts, facts, and theories obtained through scientific analysis, often abstract in nature. Therefore, teaching chemistry requires teachers to have a variety of skills, ranging from mastery of materials to the ability to convey abstract concepts effectively in the classroom (Nuranisa et al., 2020). Chemistry lessons are often less in demand by students because many materials, especially microscopic and abstract ones, are difficult to understand. Students generally view chemistry as a complex science, which is exacerbated by a weak understanding of concepts, especially in hydrocarbon materials (Kartini and Putra., 2022).

Based on the results of interviews with chemistry teachers at SMA Negeri 2 Percut Sei Tuan, there are obstacles experienced by students when learning hydrocarbons, namely difficulty understanding abstract hydrocarbon concepts and students having difficulty imagining the concept of hydrocarbons in daily life, especially in nomenclature sub-material, low understanding of students to learn hydrocarbon materials, as well as learning media that are less interactive and the need for learning media digital and using technology.

Technology plays a vital role in improving the quality of education, especially if it is optimally integrated into the learning process and aligned with the applicable curriculum. To face the challenges of 21st century technological developments, mastery of 21st century skills is crucial. In Permendikbud

Number 103 of 2014 concerning Learning in Primary and Secondary Education, it is emphasized that 21st century learning marks a shift in approach from teacher-centered to student-centered, where students play an active role in the entire learning process (Mardhiyah et al., 2025)

Learning media such as the Google Sites web is a learning media that has utilized science and technology. With this web-based learning media Google Sites, it can increase students interest and motivation to learn because it is a practical and interesting learning medium. Google Sites Web as a learning medium provides easy access and practical use. By integrating a combination of images, text, colors, and videos including animations in the learning materials, this application successfully attracts students interest to read and immerse themselves in the material. Various studies show that the development of this kind of learning media has a positive impact: improving learning outcomes and improving the overall quality of the learning process (Yudha et al., 2023). The use of interesting learning media can increase students learning outcomes (Sastramiharja et al., 2021)

Google Sites is a technology-based platform, namely in the form of a website that functions as a learning medium. Through Google Sites, teachers can present learning materials including text, images, audio, and video easily and quickly accessible to students. Google Sites is a very ideal platform as an interactive learning medium because of its accessible and user-friendly nature. This platform allows the incorporation of various learning support elements ranging from text, video, images, animations, evaluation forms, presentations, to various other multimedia components that create an attractive media appearance. With these diverse features, the learning process can take place more actively and meaningfully, while spurring students motivation to learn (Mardhiyah et al., 2025)

This media has proven to be simple to understand and manage by teachers and students, as well as increasing interest and comfort in learning due to the interactive and diverse display of material (Adzkiya and Suryaman., 2021). Based on research (Khasanah and Muflihah., 2021) the use of Google Sites in learning is able to increase students enthusiasm for learning. (Supriyanto et al.,

2021) also stated that this platform makes it easier for students to understand the subject matter. In addition, (Culajara, 2022) found that Google Sites media is effective in strengthening students knowledge and skills. In addition to google sites learning media, the use of learning models also has an effect on improving student learning outcomes, one of which is the Problem Based Learning (PBL) model which is able to help students solve a problem that is often found in daily life (Nasution and Hutabarat, 2024)

The use of learning models also has an effect on improving student learning outcomes, one of which is the Problem Based Learning (PBL) model which is able to help students solve a problem that is often found in daily life (Nasution & Hutabarat., 2024). The Problem Based Learning model that will be used in hydrocarbon materials to encourage students to solve problems in real, contextual hydrocarbon materials and the use of PBL learning media can increase students independence, because PBL optimizes students thinking skills (Kumalasari et al., 2024) PBL is a relevant learning model for several chemical materials, one of which is hydrocarbons. The PBL model has several advantages, namely (1) The material or questions are designed to trigger students critical thinking skills and provide satisfaction when they discover new knowledge (2) This can increase student involvement in the learning process, both actively and responsively (3) It is able to strengthen social interaction between students while improving students academic achievement.

Referring to the description above, it attracted the attention of the researcher to conduct a research entitled "Development of a Google Sites Web Learning Media Integrated with the Problem Based Learning (PBL) Model on Hydrocarbon Material".

1.2 Problem Identification

Based on the explanation of the problems that have been described above, the following problems can be identified:

1. Lack of understanding and interest of students in learning chemistry.
2. The learning media used is less varied, usually relying only on printed books, PPT, and molymod.

3. Hydrocarbon chemistry material, which is an abstract material, requires an interesting and easy to understand learning medium.
4. Lack of use of interesting learning media in the teaching and learning process.

1.3 Scope of Problem

The scope of the problems discussed in this study is:

1. The material discussed in this study is hydrocarbons.
2. The learning media developed is Google Sites.
3. The learning model used in this study is Problem Based Learning (PBL).
4. The type of research used is Research and Development (R&D) with a 4D (Define, Design and Develop, Disseminate) development model.

1.4 Problem Limitations

The problems that have been identified in this study are limited to the scope:

1. The research was conducted at SMA Negeri 2 Percut Sei Tuan.
2. The material discussed in this study is hydrocarbons, especially the sub-heading of characteristics of organic compounds, nomenclature, alkanes, alkenes, and alkynes.
3. The learning media developed is the Google Sites web with integrated Problem Based Learning (PBL) model.
4. This research was carried out with a limited trial of one class to analyze student responses and improve learning outcomes.

1.5 Problem Formulation

Based on the identification of the problem and the limitations of the problem above, the formulation of the problem in this study is:

1. How is the feasibility of Google Sites web learning media integrated with the Problem Based Learning (PBL) model on the hydrocarbon materials developed?

2. How the improvement learning outcomes of students who have been taught with Google Sites web learning media integrated with the Problem Based Learning (PBL) model on hydrocarbon materials?
3. How do teacher and students respond to the Google Sites web learning media integrated with the Problem Based Learning (PBL) model on the hydrocarbon material developed?

1.6 Research Objectives

Based on the formulation of the problem described above, the objectives of this research are as follows:

1. To find out the feasibility of Google Sites web learning media integrated with the Problem Based Learning (PBL) model on hydrocarbon material.
2. To find out the learning outcomes of students who are learned with Google Sites web learning media integrated with the Problem Based Learning (PBL) model on hydrocarbon materials.
3. To find out the responses given by teacher and students to the Google Sites web learning media integrated with Problem Based Learning (PBL) model on the hydrocarbon material developed.

1.7 Research Benefits

This research provides benefits both in terms of theory and practice. Theoretically, this research contributes to the world of education, especially in the use of technology to develop Google Sites web learning media integrated with the Problem Based Learning (PBL) model. In practical terms, this research provides several benefits:

1. For lecturers and researchers: this research is also a means of training in the development of science through the research process, as well as providing input and suggestions in the application of appropriate learning media in the future.
2. For teachers: the Google Sites web learning media used in this study can also be an input for teachers and schools as a learning media for chemistry material.

3. For students: Google Sites web learning media integrated with the Problem Based Learning (PBL) model can increase students interest in learning hydrocarbon materials, increase students enthusiasm for learning, and increase students independence in seeking information related to learning materials.



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