

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The Bebras Computational Thinking (CT) Challenge is an international initiative that provides students with short, non-programming problem-solving tasks to develop computational thinking skills such as logical reasoning and pattern recognition (Dagienė and Sentance, 2016). In English language learning, Bebras can be used as an activity in which students read instructions, analyze problems, discuss solutions, and explain their ideas in English. Therefore, Bebras supports not only students' thinking skills but also their engagement and use of English in the classroom.

Computational Thinking (CT) emerged as an essential 21st-century skill. Wing (2006) defined CT as a problem-solving process that involved formulating problems and their solutions in a way that a computer could effectively carry out. CT emphasized logical reasoning, pattern recognition, decomposition, abstraction, and algorithmic thinking skills that were highly relevant not only in computer science but also in language learning.

In recent years, several studies have shown that activities based on computational thinking can support English learning by making students more engaged and actively involved in the learning process. Dagienė and Sentance (2016) found that Bebras Computational Thinking tasks helped students analyze problems, recognize patterns, and use logical reasoning, even though the tasks did not involve programming. In English classrooms, Wu, Silitonga, and Murti (2024)

reported that the use of computational thinking activities helped students organize their ideas better and encouraged them to participate more actively during lessons. Peng et al. (2023) found that computational thinking activities increased students' motivation and reduced anxiety in English learning. These studies suggest that computational thinking based activities, including Bebras challenges, can create a more engaging and supportive learning environment for English classes. In addition, the implementation of the Bebras Computational Thinking Challenge in this study reflects the STEAM approach by integrating technology, mathematical reasoning, and visual elements, which support problem solving and logical thinking in English learning. However, research that specifically examines how the Bebras Computational Thinking Challenge is implemented in junior high school English classrooms, especially focusing on the difficulties faced by teachers, is still limited. Therefore, this study is conducted to address this gap.

Although various studies have discussed computational thinking and the use of Bebras, there are still few studies that directly examine the application of the Bebras Computational Thinking Challenge in English language learning. Furthermore, research on the integration of computational thinking in English language teaching in the context of developing countries, including Indonesia, is still limited. Therefore, research is needed to examine the implementation of Bebras in English language learning, taking into account the existing learning context and challenges.

In the 21st century, students are required to master not only language skills, but also higher-order thinking skills such as Computational Thinking (CT). CT can be integrated into English language learning to help students think logically and systematically. English learning in junior high schools still focuses heavily on vocabulary and grammar, so students often have difficulty understanding texts and solving problems that require reasoning. Therefore, learning activities that support students' language and thinking skills are needed. One such activity is the Bebras Computational Thinking Challenge, which presents logical problems without programming.

Based on an initial interview, it was found that the Bebras Computational Thinking Challenge had been introduced at the school. However, the English teacher mentioned that there were some challenges in applying Bebras activities during English lessons particularly related to students' English language skills, limited learning facilities, and difficulties in linking Bebras tasks to English learning objectives.

In the context of SMP Negeri 3 Percut Sei Tuan, eighth-grade students are expected to develop their English skills at the junior high school level. However, many students still experience low motivation and limited engagement during English lessons. To address this condition, the Bebras Computational Thinking Challenge was considered as an alternative learning activity in English teaching to encourage active participation, critical thinking, and meaningful language use.

This study explores how the Bebras Challenge is implemented in English teaching and the difficulties teachers face during the implementation process.

1.2 The Problems of the Study English

Based on the background above, the research problems are formulated as follows:

1. How is the Bebras Computational Thinking Challenges implemented in teaching English to eighth-grade students at SMP Negeri 3 Percut Sei Tuan?
2. What difficulties did the teacher face when implementing the Bebras Challenge in teaching English?

1.3 The Objectives of the Study

The objectives of this research are:

1. To describe how the Bebras Computational Thinking Challenges are implemented in teaching English to eighth-grade students.
2. To identify the difficulties faced by teachers during the implementation of Bebras Challenges in English teaching.

1.4 The Scope of the Study English

This study focused on the implementation of the Bebras Computational Thinking Challenges in teaching English to eighth-grade students at SMP Negeri 3 Percut Sei Tuan in the academic year 2025. The scope of the study was limited

to classroom implementation, teacher practices, and difficulties encountered during the implementation process.

This study also included elements of the STEAM (Science, Technology, Engineering, Art, and Mathematics) approach, with a particular focus on Technology, Mathematics, and Art. The Art element was reflected through the use of visual representations and creative problem formats found in Bebras tasks. The integration of these components aimed to support problem solving, logical thinking, and student engagement in English learning. Therefore, this study not only focused on language teaching but also on developing cross-disciplinary skills relevant to 21st-century education.

1.5 The Benefits of the Study

This study is expected to provide several benefits:

1. For teachers: to serve as an alternative method to make English learning more interactive and meaningful through CT-based activities.
2. For students: to enhance critical thinking, problem-solving, and language skills through engaging Bebras tasks.
3. For future researchers: to provide a reference for studies combining language teaching and computational thinking.