

**DEVELOPMENT OF “CAPTAIN LUNGS 3D” AS A LEARNING MEDIA IN  
RESPIRATORY SYSTEM TOPIC TO ENHANCE STUDENTS  
CRITICAL THINKING SKILLS**

**RESEARCH PAPER**

Submitted as Requirement to Obtain Degree of *Sarjana Pendidikan* in International Program  
on Science Education (IPSE) Study Program



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2020**

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Sarjana Pendidikan pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan  
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**DEVELOPMENT OF “CAPTAIN LUNGS 3D” AS A LEARNING MEDIA**  
**IN RESPIRATORY SYSTEM TOPIC TO ENHANCE STUDENTS**  
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## DECLARATION

I do hereby declare that every aspect was written in this research paper entitled “Development of “Captain Lungs 3D” as a Learning Media in Respiratory System Topic To Enhance Students Critical Thinking Skills” genuinely result of my original idea, effort, and works. The theories, opinions, and other contained in this paper have been quoted or referenced based on scientific code from UPI and accordance with scientific ethics that applies in scholarly society. This declaration is created truthfully and consciously. When an infringement towards scientific ethics is subsequently found or if there is a claim of any other towards the authenticity of this research paper. Hence, I am willing to respond and accept academic sanctions that correspond to the rules.

Bandung, August 2020

Declarant,



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**ABSTRACT**

The Development Science and Technology in the 21st century requires four skills, one of them is the ability to think critically. Based on Facione, critical thinking skills are divided into six indicators, such as evaluation, interpretation, analysis, inference, explanation, and self-regulation. This research aims to develop and implement the “Captain Lungs 3D” application as a learning media on respiratory system topics to enhance students' critical thinking skills. This research used Research and Development method, and there is pre-test and post-test also. Sampling used in this research was convenience sampling, which participated in 60 students of 9<sup>th</sup>-grade students public school in Bandung. Game-based learning is also used in delivering material during teaching learning process. The objective test used as a research instrument for pre-test and post-test design. Test items that are used is based on the Facione indicator of Critical Thinking Skills. Based on the analysis result, the Normalized gain is 0.48. From the result that used the Wilcoxon Signed Rank Test, the hypothesis in this research is accepted. The value of Asymp (2-tailed) is 0.000, with the level of significant value is 0.05. At the end of class, students are asked to giving feedback based on the questionnaire that is already given about game-based learning implemented on “Captain Lungs 3D”. The research shows that there is a significant difference in “Development of “Captain Lungs 3D” as a Learning Media in Respiratory System Topic To Enhance Students Critical Thinking Skills.

**Keywords:** Students’ Critical Thinking Skills, Game Based Learning, Captain Lungs 3D, Respiratory System

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**PENGEMBANGAN “CAPTAIN LUNGS 3D” SEBAGAI MEDIA  
PEMBELAJARAN DALAM TOPIK SISTEM PERNAPASAN UNTUK  
MENINGKATKAN KEMAMPUAN BERPIKIR KRITIS SISWA**

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**ABSTRACT**

Perkembangan sains dan teknologi di abad ke 21 membutuhkan empat skill utama, salah satunya keterampilan berpikir kritis. Berdasarkan Facione, kemampuan berpikir kritis dibagi menjadi 6 aspek, yaitu evaluasi, interpretasi, analisis, inferensi, penjelasan, dan pengaturan diri. Penelitian ini bertujuan untuk mengembangkan dan mengimplementasikan aplikasi “Captain Lungs 3D” sebagai media pembelajaran pada topik sistem pernapasan untuk meningkatkan kemampuan berpikir kritis siswa, Penelitian ini menggunakan metode Research and Development, dengan post-test dan pre-test di dalamnya. Sample yang dipilih pada penelitian ini adalah convenience sampling, dengan mengambil 60 siswa kelas 9 smp. Pembelajaran berbasis permainan juga digunakan di dalam pembelajaran ini. Objektif test juga digunakan di dalam instrument untuk pretest dan post test. Soal yang digunakan di dalam test objektif ini berdasarkan indikator berpikir kritis dari Facione. Berdasarkan data, jumlah N gain adalah 0.48. Dari hasil menggunakan Wilcoxon, hipotesis bisa diterima. Nilai value dari Asymp (2-tailed) adalah 0.000, dengan nilai signifikansi 0.05. Di akhir penilaian, siswa akan diarahkan untuk menilai feedback mengenai kuisisioner yang terdapat pada permainan berbasis pembelajaran. Penelitian ini bertujuan bahwa terdapat feedback berdasarkan kuisisioner mengenai game based learning. Penelitian ini bertujuan bahwa terdapat perbedaan significant antara “Pengembangan “Captain Lungs 3D” sebagai media pembelajaran di dalam materi sistm pernapasan untuk meningkatkan keterampilan berpikir kritis siswa .

**Keywords:** *Kemampuan berpikir kritis siswa, permainan berbasis pembelajaran, Captain Lungs 3D, Sistem Pernapasan Manusia*

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## PREFACE

Praise be to Allah SWT because thanks to his grace, the author was able to complete the research entitled "Development of" Captain Lungs 3D "as a Learning Media in the Topic of the Respiratory System Topic to Improve Students' Critical Thinking Skills." Shalawat and salaam do not forget the author said to the prophet Muhammad SAW. This research was conducted to analyze students' critical thinking skills in the human respiratory system material. The purpose of the research paper is to obtain a bachelor degree in International Program on Science Education Study Program.

The author realizes that perfection belongs only to Allah SWT. The author realizes that there are many weaknesses or limitations that need to be fixed. Therefore, we really hope for suggestions and recommendations for better critical thinking of students in the game "Captain Lungs 3D". Hopefully, this research can be useful for education, enhancing students' critical thinking through games.

Bandung, August 2020.



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