

**THE EFFECT OF EDUCATIONAL QUARTET CARD GAME ON  
STUDENTS' CONCEPTUAL UNDERSTANDING AND STUDENTS'  
MOTIVATION IN LEARNING FOOD ADDITIVE SUBSTANCES**

RESEARCH PAPER

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



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**INTERNATIONAL PROGRAM ON SCIENCE EDUCATION  
FACULTY OF MATEMATICS AND SCIENCE EDUCATION  
UNIVERSITAS PENDIDIKAN INDONESIA**

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**SHEET OF LEGITIMATION**

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## DECLARATION SHEET

Hereby, I declare that every respect which is written in the research paper entitled “THE EFFECT OF EDUCATIONAL CARD GAME ON STUDENTS’ CONCEPTUAL UNDERSTANDING AND STUDENTS’ MOTIVATION IN LEARNING FOOD ADDITIVE SUBSTANCES” is genuinely pure result of my own original ideas, efforts, research, work and not a copy or plagiarized from other papers. The opinions or findings of others which is contained in this research paper have been quoted or referenced based on scientific code of conduct and accordance with an ethical science that is applied in scholarly society. This declaration is created truthfully and consciously, when subsequently it is violation towards scientific ethics, or if there is a claim of any others towards the authenticity of this research paper, hence I am willing to responsible and accept academics sanctions correspond to applicable rules.

Bandung, August 2019  
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## **THE EFFECT OF EDUCATIONAL QUARTET CARD GAME ON STUDENTS' CONCEPTUAL UNDERSTANDING AND STUDENTS' MOTIVATION IN LEARNING FOOD ADDITIVE SUBSTANCES**

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### **ABSTRACT**

This study aims to investigate The Effect of Educational Quartet Card Game on Students' Conceptual Understanding and Students' Motivation in Learning Food Additives Substances. To realize the learning, the development of learning media need games such as quartet card game that able to increase students' conceptual understanding and motivation. This research method used in this study was Experimental Method or weak experimental. The convenience sampling technique used in this study and 34 samples were taken from 7<sup>th</sup> grade on Private International School in Bogor. The experiment class was implemented the educational quartet card game in the learning food additive substances. The Quartet Card Games is a game used played cards as the primary device with which the game is played. The Students' Conceptual Understanding was obtained used objectives test at pretest and posttest while Students' Motivation was obtained used Likert Scale according to the ARCS Model motivational questionnaire. The result data shows that the normalized gain in this study in experimental class was 0.62 (categorized as medium level). The statistical test shows it is significant and to obtained qualitative data used Likert Scale shows that students' has a high motivation in Learning Food Additives Substance after used Educational Quartet Card Game. Therefore, it is concluded that the Educational Quartet Card Game helped enhance of Students' Conceptual Understanding and Students' Motivation.

**Keywords:** Educational Card Game, Game-Based Learning, Students' Conceptual Understanding, Students' Motivation, Food Additive Substances.

**PENGARUH PEMBELAJARAN MENGGUNAKAN PERMAINAN  
EDUKASI KARTU KUARTET TERHADAP PEMAHAMAN  
KONSEPTUAL DAN MOTIVASI SISWA DALAM MEMPELAJARI ZAT  
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**ABSTRAK**

Penelitian ini bertujuan untuk mengetahui Pengaruh Pembelajaran Menggunakan Permainan Edukasi Kartu Kuartet terhadap Pemahaman Konseptual dan Motivasi Siswa dalam Mempelajari Zat Aditif Makanan. Untuk mewujudkan pembelajaran, pengembangan media pembelajaran dibutuhkan seperti permainan edukasi kartu kuartet yang mampu meningkatkan pemahaman konsep dan motivasi siswa. Metode penelitian yang digunakan dalam penelitian ini adalah Metode Eksperimental atau *weak experimental*. Teknik *convenience sampling* adalah teknik yang digunakan dan 34 sampel diambil dari kelas 7 SMP di Bogor dalam penelitian ini. Kelas eksperimen diimplementasikan permainan kartu kuartet dalam pembelajaran zat aditif pada makanan. Permainan edukasi kartu kuartet adalah permainan yang menggunakan kartu yang dimainkan sebagai perangkat utama yang digunakan untuk bermain. Pemahaman Konseptual Siswa diukur menggunakan tes objektif pada *pretest* dan *posttest* sedangkan Motivasi Siswa diperoleh menggunakan *Likert Scale* berdasarkan kuesioner motivasi Model ARCS. Hasil data kuantitatif menunjukkan, *n-gain* di kelas eksperimen adalah 0.62 (dikategorikan sebagai tingkat Medium). Uji statistik menunjukkan hasil yang signifikan dan untuk memperoleh data kualitatif dalam penelitian ini, menggunakan *Likert Scale* menunjukkan bahwa siswa memiliki motivasi yang tinggi dalam pembelajaran Zat Aditif Makanan setelah menggunakan permainan kartu kuartet berbasis edukasi dapat membantu meningkatkan Pemahaman Konseptual dan Motivasi.

**Kata Kunci:** Permainan Kartu Edukasi, Penguasaan Pemahaman Konsep Siswa, Motivasi Siswa, Zat Aditif Makanan.

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## **A.INSTRUCTIONAL TOOLS**

Appendix A.1 Lesson Plan

Appendix A.2 Power Point Slide

Appendix A.3 Design Quartet Card Game

