PENGUASAAN KONSEP, MOTIVASI, DAN BEBAN KOGNITIF SISWA PADA PEMBELAJARAN SISTEM EKSKRESI BERBANTUAN *AUGMENTED REALITY* DIKOMBINASIKAN DENGAN *GOOGLE SEARCH* DAN *CHATGPT*

TESIS

Diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar
Magister Pendidikan Biologi

oleh:

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PROGRAM STUDI MAGISTER PENDIDIKAN BIOLOGI

FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM

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S.Pd Universitas Pendidikan Indonesia, 2021

Sebuah Tesis yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Magister Pendidikan pada Program Studi Magister Pendidikan Biologi Fakultas Pendidikan dan Ilmu Pengetahuan Alam

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ABSTRAK

Revolusi Industri 4.0 dan *Society 5.0* sedang marak dilaksanakan di berbagai negara. Penggabungan kedua hal ini diharapkan untuk menciptakan masyarakat yang inklusif, dimana setiap orang dapat menikmati manfaat dari perkembangan teknologi. Untuk mengikuti perkembangan dalam dunia pendidikan dan meningkatkan daya tarik juga efektifitas pembelajaran, teknologi *Augmented Reality* (*AR*) perlu dimanfaatkan. Begitu juga dengan penggunaan teknologi *Google Search* yang dapat memfasilitasi pengumpulan berbagai informasi. Adanya *Artificial Intelligence*, seperti *ChatGPT*, tidak kalah bermanfaat sebagai pelengkap dalam proses pembelajaran yang dapat memperluas dan mempermudah pencarian literatur. Penelitian ini bertujuan untuk menganalisis perbandingan peningkatan penguasan konsep, motivasi, dan beban kognitif siswa pada penggunaan *AR* yang dikombinasikam dengan *Google Search* dan *ChatGPT* dalam pembelajaran sistem ekskresi manusia. Metode penelitian menggunakan penelitian kuantitatif dengan desain penelitian *quasi experimental design*. Instrumen penelitian yang digunakan adalah tes pilihan ganda untuk mengukur penguasaan konsep siswa dan kuesioner untuk mengukur motivasi serta beban kognitif. Hasil penelitian adalah: (1) penguasaan konsep siswa pada kelas *Augmented Reality* dan *Google Search* menunjukkan peningkatan kategori sedang dengan N-gain 0,61, sedangkan pada kelas *Augmented Reality* dan *ChatGPT* menunjukkan peningkatan kategori sedang dengan N-gain 0,66, tidak terdapat perbedaan signifikan antar dua kelompok; (2) motivasi belajar pada kelas *Augmented Reality* dan Google *Search* menunjukkan peningkatan kategori sedang dengan N-gain 0,38, begitu juga pada kelas *Augmented Reality* dan *ChatGPT* menunjukkan peningkatan kategori sedang dengan N-gain 0,46, terdapat perbedaan yang signifikan antar dua kelompok; (3) beban kognitif kedua kelas pada pertemuan terakhir terdapat perbedaan yang signifikan; dan (4) terdapat korelasi antara penguasaan konsep dengan beban kognitif, penguasaan konsep dengan motivasi belajar, dan beban kognitif dengan motivasi belajar, hasil tersebut sama pada kedua kelas.

Kata Kunci: *Augmented Reality*, *Google Search*, *ChatGPT*, Penguasaan Konsep, Motivasi Belajar, Beban Kognitif.

ABSTRACT

The Industrial Revolution 4.0 and Society 5.0 are being widely implemented in various countries. Combining these two things is expected to create an inclusive society where everyone can enjoy the benefits of technological developments. To keep up with developments in the world of education and improve the appeal and effectiveness of learning, Augmented Reality (AR) technology needs to be utilized. Likewise, Google Search technology facilitates the collection of information. The existence of Artificial Intelligence, such as ChatGPT, is no less useful as a complement to the learning process that can expand and facilitate literature searches. This study aims to compare the increase in students' mastery of concepts, motivation, and cognitive load in using AR combined with Google Search and ChatGPT in learning the human excretory system. The research method uses quantitative research with a quasi-experimental design research design. The research instruments used are multiple-choice tests to measure students' mastery of concepts and questionnaires to measure motivation and cognitive load. The results of the study were: (1) students' concept mastery in the Augmented Reality and Google Search classes showed a moderate increase in the category with an N-gain of 0.61, while in the Augmented Reality and ChatGPT classes showed a moderate increase in the category with an N-gain of 0.66, there was no significant difference between the two groups; (2) learning motivation in the Augmented Reality and Google Search classes showed a moderate increase in the category with an N-gain of 0.38, as well as in the Augmented Reality and ChatGPT classes showed a moderate increase in the category with an N-gain of 0.46, there was a significant difference between the two groups; (3) the cognitive load of the two classes at the last meeting showed a significant difference; and (4) there was a correlation between concept mastery and cognitive load, concept mastery with learning motivation, and cognitive load with learning motivation, the results were the same in both classes.

Kata Kunci: Augmented Reality, Google Search, ChatGPT, Concept Mastery, Learning Motivation, Cognitive Load.

DAFTAR ISI

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