

**PENGARUH INTEGRASI WRITING IS THINKING TERHADAP BEBAN
KOGNITIF SISWA DALAM PEMBELAJARAN CAHAYA DAN OPTIK
SERTA DAMPAKNYA TERHADAP LEVEL OF THINKING SISWA SMP**

TESIS

Diajukan untuk Memenuhi Sebagian dari Syarat untuk Memperoleh Gelar
Magister Pendidikan Program Studi Pendidikan IPA



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**PROGRAM STUDI PENDIDIKAN IPA
PROGRAM PASCASARJANA
UNIVERSITAS PENDIDIKAN INDONESIA
2021**

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oleh
Riana Nurismawati

Sebuah tesis yang diajukan untuk memenuhi salah satu syarat memperoleh gelar
Master Pendidikan pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan
Alam

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Dengan ini saya menyatakan bahwa tesis dengan judul “PENGARUH INTEGRASI WRITING IS THINKING TERHADAP BEBAN KOGNITIF SISWA DALAM PEMBELAJARAN CAHAYA DAN OPTIK SERTA DAMPAKNYA TERHADAP LEVEL OF THINKING SISWA SMP” ini beserta seluruh isinya adalah benar-benar karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung resiko/sanksi apabila di kemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

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KATA PENGANTAR

Bismillahirrahmanirrahim,

Alhamdulillah wa syukurillah, segala puji dan syukur penulis panjatkan kepada Allah swt karena atas karunia dan rahmat dari Allah akhirnya tesis dengan judul “PENGARUH INTEGRASI WRITING IS THINKING TERHADAP BEBAN KOGNITIF SISWA PADA PEMBELAJARAN CAHAYA DAN OPTIK SERTA DAMPAKNYA TERHADAP LEVEL OF THINKING SISWA SMP” ini dapat diselesaikan. Shalawat serta salam semoga tetap tercurah kepada Nabi Muhammad *Sallallahu ‘alaihi wasallam*, kepada keluarganya, para sahabatnya juga kita selaku umatnya hingga akhir zaman. *Aamiin*.

Penelitian dan penyusunan tesis ini dilakukan sebagai salah satu syarat untuk mendapat gelar master di jurusan Pendidikan Ilmu Pengetahuan Alam, Program Pascasarjana, Universitas Pendidikan Indonesia. Adapun didalamnya membahas penelitian kuasi-eksperimen yang dilaksanakan di suatu SMP. Tentu tesis ini memiliki banyak kekurangan, maka dari itu, penulis mengharapkan kritik dan saran yang membangun untuk penelitian di masa yang akan datang agar erus menjadi lebih baik lagi. Semoga tesis ini memberikan manfaat baik untuk diri saya sendiri maupun bagi pembaca.

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UCAPAN TERIMA KASIH

Selama proses pelaksanaan penelitian dan penulisan tesis ini, ada banyak pihak yang terlibat untuk membimbing, membantu, mendukung dan mendoakan agar tesis ini dapat diselesaikan dengan baik. Oleh karena itu, penulis bermaksud untuk menyampaikan terima kasih kepada:

1. Bapak Dr.rer.nat. Adi Rahmat, M.Si selaku dosen pembimbing I untuk selalu menyediakan waktu untuk membimbing penulis dengan sabar sehingga penulis dapat menyelesaikan tesis ini. Semoga Allah membalasnya dengan kebaikan dan pahala yang tiada henti dan Allah selalu mudahkan setiap urusan Bapak.
2. Bapak Dr. Parsaoran Siahaan, M.Pd selaku dosen pembimbing II dan juga selaku dosen pembimbing akademik untuk selalu menyediakan waktu untuk membimbing penulis dengan sabar dan mengingatkan penulis untuk menyelesaikan tesis ini. Semoga Tuhan membalasnya dengan kebaikan dan pahala yang tiada henti dan Tuhan selalu mudahkan setiap urusan Bapak.
3. Ibu Dr. Ida Kaniawati, M.Pd selaku ketua departemen pendidikan IPA, Pascasarjana UPI atas dukungan dan dorongan semangat agar tesis ini dapat selesai setepat mungkin. Semoga Allah membalasnya dengan kebaikan dan pahala yang tiada henti dan Allah selalu mudahkan setiap urusan Ibu
4. Ibu Irfah sebagai guru mata pelajaran IPA kelas VIII di salah satu SMP di kota Cimahi atas bantuan dan dukungan selama melaksanakan penelitian. Semoga Allah membalasnya dengan pahala yang tiada henti dan Allah mudahkan setiap urusan Ibu.
5. Ibu, Bapak, Kakak dan Adik yang penulis cintai, terima kasih untuk selalu mendukung, menemani dan mendo'akan yang terbaik bagi penulis. Semoga selalu dalam lindungan Allah.

6. Siswa dan siswi, khususnya kelas VIII F dan VIII G, di SMP kota Cimahi yang telah menjadi siswa-siswi terbaik. Semoga kelak kalian menjadi generasi bangsa yang sukses di dunia dan akhirat.
7. Seluruh staf pengajar dan staf administrasi yang telah memberikan ilmu terbaik yang bermanfaat bagi penulis serta telah memberi kemudahan dan bantuan penulis selama berkuliah di Pascasarjana Jurusan Pendidikan IPA UPI.
8. Tim payung penelitian yaitu Yunni, Anna, Wiwit, Silvia dan Meirin yang selalu menyempatkan waktunya untuk berdiskusi, mengingatkan dan memotivasi agar dapat menyelesaikan tesis ini.
9. Teman-teman seperjuangan di departemen pendidikan Pendidikan IPA, program Pascasarjana, UPI untuk setiap kebaikan baik berupa bantuan, dukungan dan doa kalian. Semoga selalu diberi kemudahan dalam setiap urusan dan dalam meraih impian kita masing-masing.
10. Pihak-pihak yang telah membantu baik secara langsung maupun tidak langsung, yang tidak dapat penulis sebutkan satu–persatu.

Jazakumullah khairan katsiran, semoga Allah membalas kebaikan kalian, meskipun penulis tidak tahu atau lupa tapi Allah Maha Tahu dan tidak pernah lupa.

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Penulis

ABSTRAK

Riana Nurismawati. (1906538). PENGARUH INTEGRASI WRITING IS THINKING TERHADAP BEBAN KOGNITIF SISWA DALAM PEMBELAJARAN CAHAYA DAN OPTIK SERTA DAMPAKNYA TERHADAP LEVEL OF THINKING SISWA SMP

Beban kognitif adalah beban yang muncul saat siswa memproses informasi dan mengkonstruksi skema kognitif. Penelitian ini bertujuan untuk menyelidiki pengaruh dari integrasi *writing is thinking* terhadap beban kognitif siswa dalam pembelajaran cahaya dan optik serta menganalisis dampak dari beban kognitif terhadap level berpikir siswa. Tambahan lain yaitu untuk menyelidiki hubungan diantara beban kognitif dan level berpikir siswa. Metode yang digunakan dalam penelitian ini adalah kuasi eksperimen dengan desain penelitiannya adalah *posttest-only control group*. Penelitian ini dilakukan terhadap dua kelas di salah satu SMP di kota Cimahi. Satu kelas sebagai kelas eksperimen mendapatkan pembelajaran dengan integrasi *writing is thinking* dan satu kelas sebagai kelas kontrol mendapatkan pembelajaran secara konvensional. Adapun data penelitian ini diperoleh melalui *subjective rating scale* mengenai beban kognitif siswa yang terdiri dari *Intrinsic Cognitive Load (ICL)*, *Extraneous Cognitive Load (ECL)* dan *Germane Cognitive Load (GCL)*. Serta tes *level of thinking* siswa dengan berdasarkan dari *New Taxonomy* Marzano. Data yang diperoleh selanjutnya dianalisis dengan menggunakan aplikasi Microsoft excel 2013 untuk skor rata-rata dan SPSS 23.00 untuk uji beda rata-rata dan korelasi. Hasil pada kelas eksperimen menunjukkan skor rata-rata beban kognitif lebih rendah dari kelas kontrol. Lebih detail lagi, skor rata-rata ICL dan ECL pada kelas eksperimen lebih rendah dari pada skor rata-rata di kelas kontrol sedangkan skor GCL lebih tinggi daripada kelas kontrol. Temuan lain adalah pencapaian skor *level of thinking* pada kelas eksperimen lebih tinggi dari pada kelas kontrol namun tidak terdapat perbedaan yang signifikan. Selain itu, beban kognitif yang rendah tidak berkorelasi signifikan dengan hasil *level of thinking* siswa.

Kata kunci : *writing is thinking*, beban kognitif, *level of thinking*

ABSTRACT

Riana Nurismawati. (1906538). THE EFFECT OF WRITING IS THINKING INTEGRATION ON STUDENTS' COGNITIVE LOAD IN LIGHT AND OPTICAL LEARNING AND ITS IMPACT ON THINKING LEVEL OF JUNIOR HIGH SCHOOL STUDENTS

Cognitive load arises when students process information and construct cognitive schema. This research is to investigate the effect of writing is thinking integration on students' cognitive load and to analyze the impact of cognitive load towards students' thinking levels in light and optics learning. In addition, the relationship between cognitive load and students' thinking level is examined as well. The method of this research was quasi-experimental with a posttest-only control group design. The research was conducted in one of junior high schools in Cimahi city with one class for the experimental and one other class for the control group. The data of this study were obtained from a subjective rating scale for Cognitive Load which consists of Intrinsic Cognitive Load (ICL), Extraneous Cognitive Load (ECL), and Germane Cognitive Load (GCL). As well as the results of students' level of thinking tests based on Marzano's New Taxonomy. The collected data were analyzed using Microsoft Excel 2013 to obtain the average score and SPSS 23.00 for significant difference test and correlation test. The findings exhibit the average score of cognitive loads in the experimental group is lower than the control group. For more details, the average score of ICL and ECL in the experimental group was lower than the control one meanwhile, the average score of GCL was higher than the control group. Another finding was the attainment of students' level of thinking in the experimental group was higher than the control group but not significantly different. In addition, low cognitive load result has no correlation with the attainment of students' thinking level.

Keywords : *writing is thinking, cognitive load, level of thinking*

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