AKTIVASI KOGNITIF SISWA SMA KELAS XI MELALUI DESAIN PEMBELAJARAN *CONSTRUCTING SCIENTIFIC EXPLANATIONS* PADA MATERI SISTEM PERTAHANAN TUBUH

SKRIPSI

diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Sarjana Pendidikan Biologi

oleh

Nabilla Hadistia
NIM 1806489

PROGRAM STUDI PENDIDIKAN BIOLOGI
DEPARTEMEN PENDIDIKAN BIOLOGIFAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS PENDIDIKAN INDONESIA
BANDUNG
2022

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Skripsi ini diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Pendidikan pada program studi Pendidikan Biologi Departemen Pendidikan Biologi Fakultas Pendidikan Matematikan dan Ilmu Pengetahuan Alam

Universitas Pendidikan Indonesia

Agustus 2022

LEMBAR PENGESAHAN

NABILLA HADISTIA

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disetujui dan disahkan oleh pembimbing:

Pembimbing 1,

5/9 '22

Dr. Mimin Nurjhani K., M.Pd.

NIP. 196509291991012001

Pembimbing II,

29-2022

Dra. Soesy Asiah Soesilawaty, M.S.

NIP. 195904011983031001

Mengetahui,

Ketua Program Studi Pendidikan Biologi

Dr. Amprasto, M.Si.

NIP. 196607161991011001

ABSTRAK

Pembelajaran sains saat ini meminta siswa untuk dapat menggunakan pemahamannya dalam membangun penjelasan ilmiah dengan karakteristik penjelasan yang lebih sistematik, lebih dalam, dan lebih akurat. Selain itu, tuntutan kompetensi dasar pada materi sistem pertahanan tubuh memerlukan aktivasi kognitif siswa sehingga terjadi proses berpikir dalam mengonstruksi suatu materi ajar melalui penjelasan ilmiah. Penelitian ini bertujuan untuk menganalisis aktivasi kognitif siswa SMA kelas XI melalui desain pembelajaran *constructing scientific explanations* pada materi sistem pertahanan tubuh. Metode yang digunakan yaitu eksperimen dengan desain penelitian *one-shot case study*. Penilaian aktivasi kognitif didapatkan melalui LKPD kelompok dan individu, serta tes uraian dari 30 siswa SMA kelas XI di salah satu sekolah di kota Cimahi. Penilaian tersebut mengacu pada aktivitas pada saat pembelajaran dari mulai menyajikan aktivitas menyelidiki, merumuskan pertanyaan tipe bagaimana-mengapa, membangun cerita kausal awal, menggunakan data otentik/fakta imilah, dan prinsip untuk merevisi cerita kausal awal, mendiskusikan cerita kausal yang disempurnakan, dan menerapkan pengetahuan dalam konteks/skenario masalah baru. Selain itu, respons siswa selama proses pembelajaran pun diselidiki dalam penelitian ini. Hasil menunjukkan bahwa melalui desain pembelajaran tersebut terdapat capaian aktivasi kognitif siswa yang berbeda-beda. Dari total 73% siswa yang pada saat membangun cerita kausal awal berada pada level dasar berkurang menjadi 53% siswa. Total akhir yang berada pada level lanjutan berjumlah 27% siswa. Siswa lebih memilih untuk memusatkan perhatian pada serangkain penyebab yang terbatas atau hanya mengisi penjelasan dengan informasi bagian permukaan saja. Siswa cenderung lebih menyederhanakan cerita sebab-akibat tentang fenomena tersebut baik Covid-19 ataupun cacar air sehingga hanya melaporkan kejadian tunggal tanpa menjabarkan penyebabnya.

Kata kunci: aktivasi kognitif, membangun penjelasan ilmiah, sistem pertaanan tubuh

ABSTRACT

Science learning currently requires students to be able to use their understanding in building scientific explanations with the characteristics of a more systematic, deeper, and more accurate explanation. In addition, the demands of basic competence on the material of the body's defense system require cognitive activation of students so that a thought process occurs in constructing a teaching material through scientific explanations. This study aims to analyze the cognitive activation of high school students in class XI through the learning design of constructing scientific explanations on the material of the body's defense system. The method used is an experiment with a one-shot case study research design. Assessment of cognitive activation was obtained through group and individual worksheets, as well as description tests from 30 high school students in class XI in one school in the city of Cimahi. The assessment refers to activities during learning from starting to present investigating activities, formulating how-why type questions, building initial causal stories, using authentic data/similar facts, and principles for revising initial causal stories, discussing enhanced causal stories, and applying knowledge. in new problem contexts/scenarios. In addition, students' responses during the learning process were investigated in this study. The results show that through this learning design there are different achievements of students' cognitive activation. From a total of 73% of students who at the time of building the initial causal story were at the basic level, it was reduced to 53% of students. The final total who were at the advanced level amounted to 27% of students. Students prefer to focus on a limited set of causes or just fill in the explanation with surface information. Students tend to simplify the cause-and-effect story about the phenomenon, either Covid-19 or chickenpox, so that they only report a single incident without explaining the cause.

Keywords: cognitive activation, construction scientific explanations, immune system

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DAFTAR TABEL

DAFTAR GAMBAR

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