

**PEMBELAJARAN BIOLOGI BERORIENTASI PENDEKATAN
ERGONOMIK PARTISIPATORI MENURUNKAN KEBOSANAN DAN
KELUHAN MUSKULOSKELETAL SERTA KONTRIBUSINYA
TERHADAP HASIL BELAJAR SISWA DI SMA NEGERI 2 DENPASAR**

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui pembelajaran biologi berorientasi pendekatan ergonomik partisipatori menurunkan kebosanan dan keluhan muskuloskeletal serta kontribusinya terhadap hasil belajar siswa di SMA Negeri 2 Denpasar. Jenis penelitian ini adalah kuasi eksperimen dengan rancangan *randomized nonequivalent pre and post test control group design*. Variabel terikat penelitian ini, meliputi: (1) kebosanan didata menggunakan kuesioner kebosanan dalam pembelajaran; (2) keluhan muskuloskeletal didata menggunakan kuesioner *Nordic Body Map*, dan (3) hasil belajar didata menggunakan 30 soal pilihan ganda. Data dianalisis dengan uji *t independent sample* dengan taraf signifikansi 5%. Hasil penelitian ini menunjukkan bahwa: (1) Ada perbedaan penurunan kebosanan siswa sebesar 28,30% antara kelompok eksperimen yang dibelajarkan dengan pendekatan ergonomik partisipatori dengan kelompok kontrol yang dibelajarkan dengan pendekatan saintifik yang tidak maksimal pada pembelajaran daring; (2) Ada perbedaan penurunan keluhan muskuloskeletal siswa sebesar 14,33% antara kelompok eksperimen yang dibelajarkan dengan pendekatan ergonomik partisipatori dengan kelompok kontrol yang dibelajarkan dengan pendekatan saintifik yang tidak maksimal pada pembelajaran daring; (3) Kebosanan pada pembelajaran biologi berorientasi pendekatan ergonomik partisipatori berkontribusi terhadap hasil belajar siswa sebesar 51,2%; (4) Keluhan muskuloskeletal pada pembelajaran biologi berorientasi pendekatan ergonomik partisipatori tidak berkontribusi terhadap hasil belajar siswa, karena kontribusinya hanya sebesar 12,4%.

Kata kunci: pendekatan ergonomik partisipatori, kebosanan, keluhan muskuloskeletal, hasil belajar

**BIOLOGY LEARNING ORIENTED PARTICIPATORY ERGONOMIC
APPROACH TO REDUCE BIRTH AND MUSCULOSCELETAL
COMPLAINTS AND ITS CONTRIBUTION TO STUDENT LEARNING
OUTCOMES IN SMA NEGERI 2 DENPASAR**

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ABSTRACT

This research aims to determine the biology learning oriented participatory ergonomic approach to reduce boredom and musculoskeletal complaints and their contribution to student learning outcomes at SMA Negeri 2 Denpasar. The type of this research is quasi-experimental design with a randomized nonequivalent pre and post test control group design. Dependent variables of this research include: (1) boredom was recorded using a boredom questionnaire in learning; (2) musculoskeletal complaints were recorded using a Nordic Body Map questionnaire, and (3) learning outcomes were recorded using 30 multiple choice questions. Data were analyzed by independent sample t test with 5% of significance level. The results of this research indicate that: (1) There is a 28.30% difference in the decrease in students' boredom between the experimental group which was taught by a participatory ergonomic approach and the control group which was taught by a scientific approach which was not optimal in online learning; (2) There is a difference in the decrease in musculoskeletal complaints of students by 14.33% between the experimental group which was taught by a participatory ergonomic approach and the control group which was taught by the scientific approach which was not optimal in online learning; (3) Boredom in learning biology oriented to a participatory ergonomic approach contributes to student learning outcomes by 51.2%; (4) Musculoskeletal complaints in biology learning oriented to a participatory ergonomic approach do not contribute to student learning outcomes, because their contribution is only 12.4%.

Keywords: ergonomic participatory approach, boredom, musculoskeletal disorders, learning outcomes