

Pengaruh *Scientific Creative Critical Worksheet* pada Topik Bunyi dalam Meningkatkan *Scientific Creative Skills*, *Critical Thinking Skills* dan *Scientific Reasoning Skills* Siswa MA

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Abstrak

Keterampilan berpikir kritis, kreatif ilmiah dan penalaran ilmiah penting dilatihkan kepada siswa mengingat tuntutan untuk dapat bersaing di abad 21 ini. Salah satu caranya yaitu melalui penggunaan *worksheet* yang memfasilitasi siswa untuk dapat berpikir kritis, kreatif serta bernalar secara ilmiah. Penelitian bertujuan untuk melihat pengaruh *scientific creative critical worksheet* (SCCW) dalam meningkatkan *scientific creative skills* (SCS), *critical thinking skills* (CTS) dan *scientific reasoning skills* (SRS) siswa pada pembelajaran fisika topik Bunyi. Metode yang digunakan adalah metode *quasi experiment* dengan desain *counterbalanced* yang melibatkan 60 siswa kelas XI MIA. Pemilihan sampel secara *purposive* pada dua Madrasah Aliyah Swasta di Kota Bandung. Sampel dibagi menjadi kelas eksperimen A yang menggunakan SCCW pada pertemuan I dan *ordinary worksheet* (OW) pada pertemuan II, sedangkan kelas eksperimen B menggunakan OW pada pertemuan I dan SCCW pada pertemuan II. Hal tersebut dimaksudkan untuk melihat konsistensi peningkatan SCS, CTS dan SRS akibat pengaruh kedua jenis *worksheet* tersebut. Instrumen yang digunakan terdiri dari 8 butir soal uraian yang mengukur 4 aspek SCS, 6 butir soal uraian yang mengukur 3 aspek CTS dan 17 butir soal pilihan ganda yang mengukur 11 aspek SRS. Hasil penelitian menunjukkan bahwa terdapat perbedaan yang signifikan terhadap peningkatan SCS, CTS dan SRS antara kelas yang menggunakan SCCW dengan kelas yang menggunakan OW. Peningkatan SCS tertinggi pada aspek *fluency* dan terendah pada aspek *originality*. Peningkatan CTS tertinggi pada aspek *mengintegrasikan pengetahuan yang saling bertentangan menjadi kesimpulan terpadu* dan terendah pada aspek *memperkirakan interpretasi lain dari pengetahuan tertentu*. Peningkatan SRS tertinggi pada aspek *mendeskripsikan hubungan* dan terendah pada aspek *menentukan ketepatan nilai besaran jawaban beserta satuannya*.

Kata kunci: *Scientific Creative Critical Worksheet*, *Ordinary Worksheet*, *Scientific Creative Skills*, *Critical Thinking Skills*, *Scientific Reasoning Skills*, Konsep Bunyi.

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Effect of Scientific Creative Critical Worksheet on Sound Concept in Enhancing Student Scientific Creative Skills, Critical Thinking Skills and Scientific Reasoning Skills on High School Students

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Abstract

Critical thinking, scientific creative and scientific reasoning skills are important to be trained to the students since in 21st century, it is demanded to be competitive among others. One of the ways is by implementing worksheets that equips students to be able to think critically, creatively and to reason scientifically. The study aims to find the effectiveness of scientific creative critical worksheet (SCCW) on improving students scientific creative skills (SCS), critical thinking skills (CTS) and scientific reasoning skills (SRS) on Physics learning about Sound. The method employed in this research was Quasi Experiment method with Counterbalanced Design involving 60 students of 11th grade science with the selection by purposive sampling on two private high school in Bandung. The sample was divided into experiment class A which used SCCW at 1st treatment and ordinary worksheet (OW) at the 2nd treatment while experiment class B utilized OW at 1st treatment and SCCW at the 2nd treatment. It was intended to see the consistency of both types of worksheets in increasing SCS, CTS and SRS. The instruments used in this research are 8 open ended questions that measured 4 SCS's aspects, 6 open ended questions that measured 3 CTS's aspects and 17 items of SRS's in multiple choice with 11 aspects. The results showed that consistently implementing SCCW is more effective and significant in improving SCS, CTS and SRS with moderate category compared to the OW. The highest achievement of SCS is in the aspect of *fluency* and the lowest is in the aspect of *originality*. The highest achievement of CTS is in the aspect of *integrating conflicting studies into a unified conclusion* and the lowest is in the aspect of *conjecturing other interpretation of particular studies*. The highest achievement of SRS is in the aspect of *describing relationship* and the lowest is in the aspect of *determining if an answer to a problem is reasonable including size/units*.

Keywords: Scientific Creative Critical Worksheet, Ordinary Worksheet, Scientific Creative Skills, Critical Thinking Skills, Scientific Reasoning Skills, Sound Concept

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