

## ABSTRAK

Tika Nurjannah: **Pengaruh Model Pembelajaran Project Based Learning Terintegrasi STEM Terhadap Keterampilan 4C Pada Materi Suhu dan Kalor.** Tesis. Medan: Program Studi Pendidikan Fisika, Pascasarjana Universitas Negeri Medan, 2021.

Industri 4.0 merupakan tantangan terbuka untuk pengembangan keterampilan abad ke-21 yang harus dimiliki adalah keterampilan 4C (keterampilan berpikir kritis, kreatif, komunikasi dan kolaborasi). Keempat keterampilan ini bisa dilatih melalui pendidikan. Tujuan dari penelitian ini adalah bertujuan untuk menganalisis pengaruh model pembelajaran *Project Based Learning* terintegrasi STEM pada materi suhu dan kalor. Jenis penelitian ini adalah *quasi eksperimen* (eksperimen semu) sebab kelas yang dipakai untuk perlakuan (*treatment*) merupakan kelas yang sudah terbentuk sebelumnya. Dua kelompok belajar dijadikan sampel penelitian yang dibedakan atas kategori kelas eksperimen dengan model pembelajaran *Project Based Learning* terintegrasi STEM dan kelas kontrol dengan pembelajaran konvensional. Penelitian ini dilakukan di kelas XI semester genap di MAN 2 Labuhanbatu Utara. Hasil penelitian menunjukkan bahwa nilai kelas eksperimen  $>$  nilai kelas kontrol. Setelah dilakukan uji *t* berpasangan, diketahui signifikansi kurang dari 0,05 maka  $H_0$  ditolak dan  $H_a$  diterima. Sehingga dapat disimpulkan bahwa terdapat pengaruh yang signifikan model pembelajaran *Project Based Learning* terintegrasi STEM terhadap keterampilan 4C pada materi Suhu dan Kalor.

**Kata Kunci:** Project Based Learning, STEM, 4Cs



## ABSTRACT

**Tika Nurjannah:** *The Effect of STEM Integrated Project Based Learning Model on 4C Skills on Temperature and Heat Material.* Thesis. Medan: Physics Education Study Program, Medan State University Postgraduate 2021.

Industry 4.0 is an open challenge for the development of 21st century skills that must be possessed, namely 4C skills (critical thinking skills, creative, communication and collaboration). These four skills can be trained through education. This study aims to see the effect of the STEM integrated Project Based Learning model on temperature and heat material. This research is a quasi-experimental because the class used for treatment is a class that has been formed previously. Two study groups were used as research samples which were differentiated into the experimental class category with the STEM-integrated Project Based Learning model and the control class with conventional learning. This research was conducted in class XI final semester at MAN 2 Labuhanbatu Utara. The results showed that the value of the experimental class > the value of the control class. After the paired sample t test was conducted, it was found that the significance was less than 0.05, so  $H_0$  was rejected and  $H_a$  was accepted. So it can be concluded that there is a significant effect of the STEM integrated Project Based Learning model on 4C skills on the material of Temperature and Heat.

**Keywords:** Project Based Learning, STEM, 4Cs

