

**KEMAMPUAN PENALARAN STATISTIS DAN  
KEMANDIRIAN BELAJAR MAHASISWA DALAM  
PEMBELAJARAN STATISTIKA MELALUI MODEL  
*PROJECTS-ACTIVITIES-COOPERATIVE-EXERCISES (PACE)***

**DISERTASI**

**Diajukan untuk Memenuhi sebagian Persyaratan Guna Memperoleh Gelar  
Doktor Kependidikan dalam Bidang Pendidikan Matematika**



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2019**

**Kemampuan Penalaran Statistis dan Kemandirian Belajar  
Mahasiswa dalam Pembelajaran Statistika melalui  
Model *Projects-Activities-Cooperative-Exercises* (PACE)**

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MELALUI MODEL *PROJECTS-ACTIVITIES-COOPERATIVE-  
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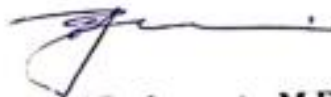
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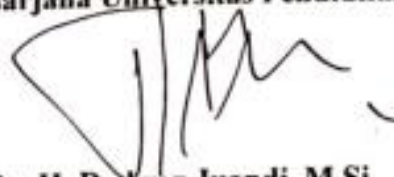
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## HALAMAN PERNYATAAN DISERTASI

*Dengan ini saya menyatakan bahwa disertasi dengan judul **Kemampuan Penalaran Statistis dan Kemandirian Belajar Mahasiswa dalam Pembelajaran Statistika Melalui Model Projects-Activities-Cooperative--Exercises (PACE)** ini beserta seluruh isinya adalah benar-benar karya saya sendiri, dan saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika keilmuan yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung resiko/sanksi yang dijatuhkan kepada saya apabila kemudian ditemukan adanya pelanggaran terhadap etika keilmuan dalam karya saya ini, atau ada klaim dari pihak lain terhadap keaslian karya saya ini.*

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Yang membuat pernyataan



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## ABSTRAK

**Dian Cahyawati S. (2019). Kemampuan Penalaran Statistis dan Kemandirian Belajar Mahasiswa dalam Pembelajaran Statistika melalui Model Projects-Activities-Cooperative-Exercises (PACE)**

Tujuan penelitian ini adalah memperoleh gambaran secara komprehensif dan temuan tentang signifikansi perbedaan kemampuan penalaran statistis (KPS) dan kemandirian belajar statistika (KBS) sebagai dampak dari faktor model pembelajaran dan kemampuan awal statistis (KAS), serta interaksinya. Selain itu, penelitian ini bertujuan untuk mengeksplorasi proses bernalar statistis mahasiswa saat menghadapi informasi dan permasalahan statistik. Metode penelitian yang digunakan adalah metode kombinasi, yaitu desain kuasi-eksperimen faktorial dua kelompok *pretest-posttest* dan *grounded theory*. Sampel penelitian adalah calon guru matematika di salah satu perguruan tinggi swasta di Kota Bandung. Hasil penelitian menunjukkan bahwa pencapaian dan peningkatan KPS mahasiswa pada kedua kelompok pembelajaran tidak berbeda hanya karena intervensi model pembelajaran tetapi signifikan menunjukkan ada perbedaan dengan melibatkan faktor lain yaitu KBS atau KAS. Hasil lain penelitian mengungkapkan ada lima tahap proses bernalar statistis mahasiswa yaitu (1) mengidentifikasi dan memanfaatkan informasi masalah, (2) menentukan dan menerapkan konsep statistik, (3) mengajukan argumen, (4) memahami dan menerapkan aturan/proses inferensi, serta (5) membuat interpretasi yang relevan. Mahasiswa yang memiliki level KPS-tinggi cenderung menerapkan proses itu secara teratur dan benar sehingga menghasilkan solusi, interpretasi, dan kesimpulan logis dengan konsep statistik yang relevan dan cara pandang yang luas terhadap masalah. Mahasiswa dengan level KPS-rendah cenderung berisiko untuk melakukan kekeliruan, mereka belum cukup memahami konsep statistik terkait masalah sehingga solusi dan interpretasi yang diberikan masih terbatas dan kurang jelas.

Kata Kunci: *grounded theory*, kemampuan awal statistis, kemandirian belajar, kuasi-eksperimen, *mixed-method*, penalaran statistis

## ABSTRACT

**Dian Cahyawati S. (2019). Statistical Reasoning Abilities and Self-Regulated Learning in Statistics Learning through Projects-Activities-Cooperative-Exercises (PACE) Model**

*The purpose of this study was to obtain a comprehensive description of the significant differences in statistical reasoning ability (SRA) and self-regulated learning (SRL) as an impact of learning model and the statistical prior knowledge (SPK) factors, as well as its interactions. Also, this study aimed to explore the students' statistical reasoning process when dealing with information and problems related to statistics. The research method used was a mixed-method, which was a quasi-experimental factorial design of two groups pretest-posttest and grounded theory. The research samples were pre-service mathematics teachers in one of the private universities in Bandung. The results showed that the achievement and improvement of students' SRA in the two learning groups did not show differences only due to the intervention of the learning model but showed significant differences by involving other factors namely SRL or SPK. The result of the study revealed that there were five stages of students' statistical reasoning process, namely (1) identifying and utilizing problem information, (2) determining and applying statistical concepts, (3) submitting arguments, (4) understanding and applying inference rules/process, and (5) make relevant interpretations. Students who have a high level of SRA tended to use the process regularly and correctly to produce solutions, arguments, and logical conclusions with related statistical concepts and a broad perspective on the problem. Students who have a low level of SRA tended to be at risk of making mistakes, and they do not yet comprehend the statistical concepts related to the problem, so the solutions and interpretations provided were limited and unclear.*

**Key words:** *grounded theory, mixed-method, statistical prior knowledge, quasi-experiment, self-regulated learning, statistical reasoning*

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