

**THE EFFECT OF GENDER GROUPING COMPOSITION ON
COLLABORATION AND COMMUNICATION SKILL AND PRESSURE
CONCEPT MASTERY IN STEM LEARNING FOR JUNIOR HIGH
SCHOOL STUDENTS**

THESIS

**Submitted as Requirement to Obtain Degree of Magister Pendidikan in
Science Education**



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CONCEPT MASTERY IN STEM LEARNING FOR JUNIOR HIGH
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STATEMENT

I hereby declare that thesis entitled “THE EFFECT OF GENDER GROUPING COMPOSITION ON COLLABORATION AND COMMUNICATION SKILL AND PRESSURE CONCEPT MASTERY IN STEM LEARNING FOR JUNIOR HIGH SCHOOL STUDENTS” and all the content is really the result of my own independent work. I really did not do plagiarism and citation which is not appropriate to the ethics of academic writing. Toward this statement, I do not mind to accept any consequences/sanctions if any ethics violation is found someday or there is claim from others toward the originality of this thesis.

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ABSTRACT

The purpose of this research is to explore the effect of gender grouping composition on students' collaboration and communication skill as well as concept mastery of junior high school students in STEM Learning on pressure concept. This research using mix method to interpret how STEM Learning is conducted in single and mixed gender group. There are 52 samples in total which is distributed to two classes both experiment and control class. The data in this research is gained quantitatively through an objective test and peer assessment questionnaire, and qualitatively through video recording analysis. According to result of this research, gender composition in grouping actually gives the difference on students collaboration, communication, and concept mastery when it is implemented in STEM Learning for the topic of pressure. The students in single gender group get better result than students in mixed gender group. It is caused by some factors such as the characteristic between boy and girl students, like the level of confidence, the perspective toward science and mathematics, boys domination, the leadership skill of students, and even the environmental factors that affect the brain development of theirs.

Keywords: *gender grouping composition, collaboration, communication, concept mastery, STEM Learning.*

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ABSTRAK

Tujuan dari penelitian ini yaitu untuk mengeksplorasi efek dari komposisi kelompok berdasarkan gender terhadap keterampilan kolaborasi dan komunikasi serta penguasaan konsep siswa SMP pada pembelajaran STEM topik tekanan. Penelitian ini menggunakan metode campuran (kuantitatif dan kualitatif) untuk menginterpretasi bagaimana pembelajaran STEM dilaksanakan pada kelompok dengan gender yang sama dan gender yang berbeda. Data kuantitatif pada penelitian ini diambil melalui tes objektif penguasaan konsep dan kuisioner penilaian teman, sedangkan data kualitatif didapat dari analisis rekaman video. Berdasarkan hasil penelitian, komposisi kelompok berdasarkan gender memberikan efek yang berbeda pada keterampilan kolaborasi, komunikasi, dan penguasaan konsep siswa. Siswa yang tergabung dalam kelompok dengan gender yang sama mendapatkan nilai yang lebih baik daripada siswa yang tergabung dalam kelompok dengan gender berbeda. Hal ini dipengaruhi oleh beberapa faktor seperti karakteristik laki-laki dan perempuan secara umum, seperti level kepercayaan diri, perspektif terhadap sains dan matematika, dominasi laki-laki, kepemimpinan, dan bahkan faktor lingkungan yang memengaruhi perkembangan otak.

Kata kunci: *Komposisi kelompok berdasarkan gender, kolaborasi, komunikasi, penguasaan konsep, pembelajaran STEM.*

PREFACE

Bismillahirrahmanirrahiim,

All praises and gratefulness are always devoted to the Almighty God, Allah SWT for His blesses, mercy and guidance so that I could accomplish well this thesis entitled “The Effect of Gender Grouping Composition on Collaboration and Communication Skill and Pressure Concept Mastery in STEM Learning for Junior High School Students”. *Shalawat* and *salam* are also dedicated to our beloved Prophet; Rasulullah SAW, to all his families, relatives and also to all Muslims in the entire world.

This thesis is submitted to fulfill the last requirement finishing two year-study in the university and to obtain *Magister Pendidikan* in Postgraduate of Science Education study program. Moreover, this thesis is one of the way to implement all knowledge during the college life. This thesis contained five chapter starting from introduction, literature review, research methodology, results and discussion of the research as well as conclusion and recommendation of research as the report of whole research which has been conducted previously.

However, the perfection only belongs to the Almighty God, Allah SWT, as to realize that this thesis still need to be developed as well. Therefore, comments as well as suggestions are very appreciated and welcomed to improve either the similar focus-research or even the quality of learning method especially on developing the topic. Hopefully, the result presented in this thesis can be useful for other researchers, teachers, schools and all readers as a reading source and reference.

Bandung, August 2019

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