EFFECTS OF REMOTE SENSING IMAGERY AS A LEARNING MEDIA IN PROBLEMS BASED LEARNING TO DEVELOP SPATIAL THINKING ABILITY OF GEOGRAPHY STUDENTS, FACULTY OF SOCIAL SCIENCES, YOGYAKARTA STATE UNIVERSITY

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ABSTRACT

Spatial thinking ability (STA) is needeed as a guide in determining spatial behavior. Therefore STA needs to be mainstreamed in achieving geography learning goals. Remote sensing has great potential to be used as a learning media to develop STA. This study aims to (1) measure the effectiveness of multiresolution spatial images as learning media to improve STA; (2) comparing the effect of using spatial multiresolution images on STA between male and female students, and (3) assessing students' ability to solve spatial problems assisted by remote sensing images, especially on hazard mitigation. This study uses a quasi-experimental design. The study population was students of geography education, faculty of social sciences majoring in remote sensing. Subjects were treated in the form of STA learning using multiresolution spatial image as learning media. Data collection is done by test method, using an instrument set of multiple choice STA questions arranged by image. Data analysis techniques using paired t-tests and gainscore. The results showed that (1) the use of multiresolution remote sensing images as learning media turned out to be effective for improving spatial thinking abilitys through problem-based learning. This is evidenced by the results of the t-test analysis which shows the coefficient t = 9,069 with sig = 0,000. (2) The use of spatial multiresolution images has a significant difference in effect on STA male and female students, this is indicated by t = 4,307 with sig= 0,015. Men and women in the experimental group had different STA scores at 95% confidence intervals. Men have a STA score = 70,547 and women have 67,838. Men and women in the control group had no different STA scores at 95% confidence intervals. (3) The ability to solve the spatial problem for hazard mitigation of geography education students after learning using image media has increased significantly. The score on the pretest and posttest shows a value of 20 points. the value of t = 7,561 with a significance of 0,000, or the gain score in the problem solving ability between the experimental group and the control is significantly different.

Kata Kunci: image, media, spatial thinking ability, spatial problems