

The acquisition of logical thinking abilities among rural secondary students of Sabah

Abstract

The science curriculum in Malaysia emphasizes the acquisition of scientific skills, thinking skills, and the inculcation of scientific attitudes and noble values. Besides that, the acquisition of scientific and technological knowledge and its application to the natural phenomena and students' daily experiences are also equally emphasized. The purpose of this study was to gauge the acquisition of logical thinking abilities, namely, conservational reasoning, proportional reasoning, controlling variables, combinatorial reasoning, probabilistic reasoning, and correlational reasoning among Form 4 students in the Interior Division of Sabah, Malaysia. This study was also aimed to ascertain if there is any significant difference in students' acquisition of logical thinking abilities based on students' gender and science achievement at lower secondary level. This was a non-experimental quantitative research and sample survey method was used to collect data. In this study, samples were selected by using a two-stage cluster random sampling technique. Independent sample t-test and one-way ANOVA were used to test the stated null hypotheses at a predetermined significance level, $\alpha = .05$. Research findings showed that rural secondary students' acquisition of logical thinking abilities was low. The average item mean for all the subscales, except conservational reasoning, were lower than the overall average item mean. This research also surprisingly revealed that up to 98 percent of the respondents were categorized at the concrete operational stage whereas only 2 percent were categorized at the transitional stage. This study also found no significant difference in the mean of logical thinking abilities, except conservational reasoning, based on students' gender, but a significant difference based on students' science achievement at lower secondary level was found. These research findings bring some meaningful implications to those who are involved directly or indirectly in the development and implementation of secondary science curriculum,

especially at the rural secondary schools of Sabah, Malaysia. © Universiti Putra Malaysia Press.