Relationship of Self-regulated Learning Ability to Science Inquiry and Affective Domain

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Abstract

The purpose of this study is to investigate self-regulated learning ability and analyze relationship of self-regulated learning ability to science inquiry and affective domain of science of middle school students in Korea. For this study, the research questions are as follows: first, what level is self-regulated learning ability of middle school students? Second, how does the relationship between self-regulated learning ability and science inquiry look like? Third, how does the relationship between self-regulated learning ability and affective domain of science look like? This study explored the definition of self-regulated learning ability and discussion about it's elements, definition of science inquiry and discussion about it's elements, and discussion about the elements of affective domain of science. The self-regulated learning ability consists of four elements: cognitive strategies, meta-cognition, motivation, and environment (Pintrich & DeGroot, 1991). The affective domain of science is made up of self-efficacy, enjoyment, general value, and personal value (PISA, 2006).

The research methods employed in this study include: first, literature review was conducted focusing on self-regulated learning ability, science inquiry and affective domain of science. Second, three questionnaires were utilized: (1) Questionnaire of self-regulated learning ability (Jung et. al., 2004) (2) Questionnaire of science inquiry (scientific problem finding ability, and scientific experiment designing ability (Jung et. al., 2004), (3) Questionnaire of science affective domain (adopted from 2006 PISA Student questionnaire, 2006). The three questionnaires were responded by 300 semi-randomly selected students from ten middle schools in Busan, Ulsan, and Gyeongnam in Korea.

As a result, the level of cognitive strategies was significantly correlated with meta-cognition (r=.703, p=.000), motivation (r=.708, p=.000) and environment (r=.536, p=.002). Meta-cognition was significantly correlated with motivation (r=.591, p=.001) and environment (r=.564, p=.001). Corresponding to the affective domain of science, self-efficacy was significantly correlated with enjoyment (r=.870, p=.000), general value (r=683, p=.000) and personal values (r=.588, p=.001). The level of students' cognitive strategies of self-regulated learning ability has a significant relationship to the science affective domain: self-efficacy (F=7.042, p=.000), enjoyment (F=10.686, p=.000), general value (F=3.750, p=.001), and personal values (F=2.796, p=.003). The level of

students' motivation of self-regulated learning ability has a significant relationship to the science affective domain: self-efficacy (F=9.898, p=.000), enjoyment (F=9.434, p=.000), general value (F=5.458, p=.000), and personal values (F=2.761, p=.003).