Comparative study on the science learning motivation system between gifted students and nongifted students in elementary school of Korea

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Abstract. This study investigated and compared gifted and nongifted students’ science learning motivation system in Korea. In accordance with this purpose, this research was based upon one hundred seventeen gifted students and one hundred seventy four nongifted students. They were in fifth and sixth grades of primary schools and selected by a random sampling. As a result, gifted students are less sensitive to science learning behavioral inhibition system than nongifted students and more sensitive to science learning behavioral activation system. This indicates a strong tendency for gifted students to approach science learning, not avoid.

Key Words: motivation system, gifted student, nongifted student, science learning, SL-BIS/BAS

1 Introduction

Motivation concerns energy, direction, persistence and equifinality – all aspects of activation and intention[6]. Motivation in learning makes student have the desire to elicit learning behavior. Students’ affective attitude not only influences their achievement in a meaningful way but is also an important educational goal in its own right[3]. In this light, it is very important to comprehend the motivation system which control the motivation in science learning.

On the one hand, gifted students generally show a high level of task commitment[5], they are eager to learn the content of the science course and prefer competitive learning style[2]. Accordingly, this study will inquiry about the tendency of gifted students to approach and avoid science learning, find which motivation system causes motivation for science learning, and compare the results with nongifted students.
2 Methods

This research was based upon one hundred seventeen gifted students who have been affiliated with the University of Education and gifted education center attached education office located in the central districts in Korea, and one hundred seventy four nongifted students who have been educated in regular primary schools. They were in fifth and sixth grades of primary schools and selected by a random sampling.

Students’ motivation system was measured by SL-BIS/BAS scale test paper created by Lim[4]. Data were analyzed by performing t-tests using SPSS 12.0 to understand the statistical meaning.

3 Results and Discussion

Test results from behavioral inhibition system about science learning of 117 gifted students and 174 nongifted students showed that the results about BIS of gifted students are found to be lower than nongifted students, and there is a significant differentiation between gifted and nongifted students(p<.001, p<.01). This means that gifted students are less sensitive to SL-BIS than nongifted students, and they have a low evasion propensity to science learning. Especially, learning anxiety, the sub category of SL-BIS, is lower than relationship anxiety. In the relationship anxiety element, gifted students are also found to be lower than nongifted students, and the value is significant. Gifted students work more actively in a group activity during class than nongifted students.

Table 1. Gifted and nongifted students’ SL-BIS/BAS test results.

<table>
<thead>
<tr>
<th>sub factor</th>
<th>student</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>learning anxiety</td>
<td>gifted</td>
<td>1.6166</td>
<td>.43777</td>
<td>-4.893</td>
<td>.000*</td>
</tr>
<tr>
<td></td>
<td>nongifted</td>
<td>1.9269</td>
<td>.58444</td>
<td></td>
<td></td>
</tr>
<tr>
<td>total</td>
<td></td>
<td>1.8022</td>
<td>.55105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>relationship anxiety</td>
<td>gifted</td>
<td>1.7756</td>
<td>.54376</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>nongifted</td>
<td>1.9698</td>
<td>.59212</td>
<td>-2.834</td>
<td>.005*</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td>1.8918</td>
<td>.58010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-BAS rewards</td>
<td>gifted</td>
<td>3.5940</td>
<td>.36039</td>
<td>8.158</td>
<td>.000*</td>
</tr>
<tr>
<td></td>
<td>nongifted</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>total</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Means and standard deviations of gifted and nongifted students’ behavioral activation system toward science learning showed that like SL-BIS, there is a statistically significant differentiation between gifted and nongifted students in SL-BAS part. The average of gifted students in all sub factors (rewards sensitiveness, challenge pursuance, interest pursuance) is higher than that of nongifted students.

This study is for investigating and comparing the motivation system toward science learning between gifted students and nongifted students. Consequently, gifted students are less sensitive to SL-BIS and more sensitive to SL-BAS than nongifted students. It is interpreted that gifted students have a greater tendency of approach than evasion propensity. Study of Jun[1] has shown the same results. It was about the relationships between a learning motivation and a effect between talented group and general group. There were significant differences between talented group and general group in terms of competence, task orientation, performance orientation, scientific attitudes, achievement needs, deep strategy and surface strategy.

These results verify that gifted students have a stronger tendency of approach toward science learning than nongifted students.

4 Conclusion

The result of comparing the motivation system about science learning of gifted students and nongifted students in Korea, show gifted students are less sensitive to SL-BIS, and more sensitive to SL-BAS than nongifted students. In other words, gifted students have a stronger approaching tendency and a
weaker evasion tendency to science learning than nongifted students. Motivation system about science learning, which consists of elements like learning anxiety, relationship anxiety, rewards sensitiveness, challenge pursuance, interest pursuance can be an important standard which tells us the starting point of learning and teaching. In this respect, it is thought that this study can help seek ways to activate the motivation understanding which is a weakness of nongifted students compared to gifted students.

References