Cognitive Styles of High School Teachers

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Abstract: The main objective of the present study is to find out the cognitive styles that exist among high school teachers in Chickballapur district, Karnataka State. Sample for this study include 430 high school teachers drawn from 70 high schools located in Chickballapur district by means of simple random sampling technique. Praveen Kumar Jha’s Cognitive Style Inventory (CSI) has been used for gathering data relating to the cognitive styles of high school teachers. Findings indicate that the high school teacher possess different types of cognitive styles, namely, integrated style, split style, undifferentiated style, systematic style and intuitive cognitive style. It has been found that majority of the said teachers possess integrated and split cognitive styles. The results also reveal that there is no significant difference between cognitive styles of high school teachers due to the variation in their gender, location of school, and educational qualification.

Key words: Systematic Cognitive Style, Intuitive Cognitive Style, Integrated Cognitive Style, Split Cognitive Style, Undifferentiated Cognitive Style, Gender, Locality, Educational Qualification, High School Teacher

1. Introduction

The term ‘cognitive style’ indicates a person's typical mode of perceiving, thinking, memorizing and problem-solving. The concept cognitive style is referred to personality dimension which impact attitudes, values, and social interaction. Jung (1923) referred to cognitive styles as the ways people search for acquiring, interpret categorize, remember and retrieve information in making decisions and solving problems. The significance of understanding how information is processed and evaluated is perhaps best captured by this theory of psychological types. He suggests that such people are either sensing or intuitive.

Cognitive styles refer to an individual's habitual or typical way of perceiving, remembering, thinking and problem-solving (Allport, 1937). Cognitive styles refer to information processing habits which represent a person’s typical modes of perceiving, thinking, remembering and problem solving and are relatively stable enduring consistencies in the manner or form of cognition (Messick, 1963). McKenny and Keen (1974) mentioned cognitive style as an individual’s propensity and preference for the coming to terms with the data-stimuli of the environment through particular modes of thinking that are partly conscious strategies and part unconscious habits. Ausburn and Ausburn (1978) stated that cognitive styles are the psychological dimensions that represent the consistencies in an individual’s manner of acquiring and processing information. Goldstein and Blackman (1978) define cognitive style as a hypothetical construct that has been developed to explain the process of mediation between stimuli and responses; cognitive style refers to characteristic approaches wherein individuals conceptually prepare the surroundings. Further, it has been indicated that cognitive style is a data transformation process whereby goal stimuli is interpreted into the significant schema. Cognitive style is an expression of psychological differentiation within characteristic modes of information processing (Witkin & Goodenough, 1981). Srinivas Kumar (2011) referred to cognitive style as a wholistic process of cognition that begins with the perception, and mediated by information processing, and the resultant retrieval; it varies from person to person; various personality factors like heredity and environment, interest, thinking, attitude, value system, intelligence, creativity, social and economic status affects the cognitive style of an individual.

The study of cognitive styles of high school teachers is very much important. It is essential that the teachers become knowledgeable about their cognitive styles so that they can consciously change their attitude towards the teaching of different concepts in different contexts. Teachers can intentionally adjust, adapt and modify their attitude in order to increase learning. If the students have similar cognitive style to that of their teacher then there is a probability that the students will have positive learning experience. Also, group members with similar
cognitive styles feel comfortable and they are more positive about their involvement in the work environment. Therefore, the investigator made an attempt in the present study to find out pattern of cognitive styles of high school teachers to facilitating suitable teaching-learning situation in classroom. In the view of the above aspects the following objectives are stated. In the present study, patterns of cognitive styles indicate types of cognitive styles.

II. Objectives
1. To find out the cognitive styles that exists among high school teachers.
2. To find out the difference in the cognitive styles of high schools teachers based on their Gender.
3. To find out the difference in the cognitive styles of high schools teachers due to variation in the location of their school.
4. To find out the difference in the cognitive styles of high schools teachers due to variation in their educational qualifications.

III. Hypotheses
1. There may not be any significant difference in the cognitive styles of high school teachers based on their gender.
2. There may not be any significant difference in the cognitive styles of high school Teachers due to variation in the location of their school.
3. There may not be any significant difference in the cognitive styles of high school teachers due to variation in their educational qualification.

IV. Methodology
Survey method has been used to find out the cognitive styles of the high school teachers. Simple random sampling technique has been employed to select 430 high school teachers working in high schools located in six talukas of Chickballapur district in Karnataka state. The cognitive style inventory (CSI) of Praveen Kumar Jha (2001) has been used to collect data from the high school teachers.

V. Results and Discussion
The results reveal that a variety of cognitive styles exist among high school teachers. It has been found that the integrated cognitive style (265 out of 430 (51.62%)) and split cognitive style (132 out of 430 (30.69%)) exist in a major way among high school teachers. Undifferentiated cognitive style (25 out of 430 (5.81%)), systematic cognitive style (5 out of 430(1.16%)), and intuitive cognitive style (3 out of 430 (0.69%)) are the other styles that exist among high school teachers.

Further, results indicate that the cognitive styles, such as, systematic style, intuitive style, integrated style, undifferentiated style and split style exist among the said teachers due to variation in their gender, location of the school and educational qualifications. Chi-square test has been used to test the hypothesis. It may be mentioned in this context that the chi-square test cannot be calculated if the cell frequency is less than 5. Therefore, when cell frequencies are less than 5, the ‘Fisher's Exact Test’ is calculated.

Hypothesis 1 - There may not be any significant difference in the cognitive styles of high schools teachers based on their gender. To test this hypothesis, Chi-square test has been used and the following table shows the calculated value.

Table 1: Showing the $\chi^2$ test value based on gender and cognitive style of high schools teachers.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Systematic Style</th>
<th>Intuitive Style</th>
<th>Integrated Style</th>
<th>Split Style</th>
<th>Undifferentiated Style</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Observed Count</td>
<td>4</td>
<td>1</td>
<td>138</td>
<td>70</td>
<td>277</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>2.6</td>
<td>1.6</td>
<td>139.9</td>
<td>69.7</td>
<td>277.0</td>
</tr>
<tr>
<td>Female</td>
<td>Observed Count</td>
<td>1</td>
<td>2</td>
<td>127</td>
<td>62</td>
<td>203</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>2.4</td>
<td>1.4</td>
<td>125.1</td>
<td>62.3</td>
<td>203.0</td>
</tr>
<tr>
<td>Total</td>
<td>Observed Count</td>
<td>5</td>
<td>3</td>
<td>265</td>
<td>132</td>
<td>430</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td>5.0</td>
<td>3.0</td>
<td>265.0</td>
<td>132.0</td>
<td>430.0</td>
</tr>
</tbody>
</table>

Chi-Square test

<table>
<thead>
<tr>
<th>Value</th>
<th>Df</th>
<th>Asymptotic Significance (2-sided)</th>
<th>Exact significance (2-sided)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>2.102*</td>
<td>4</td>
<td>0.717</td>
<td>0.735</td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td>2.046</td>
<td>0.756</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$\chi^2$ table value is 9.49 for df=4 at 0.05 level; $\chi^2$ table value is 13.28 for df=4 at 0.01 level
The above table shows the $\chi^2$-test value of cognitive styles among high school teachers with reference gender. The calculated $\chi^2$-test value is 2.102 and it is lesser than the table value at 0.05 level. It indicates that the null hypothesis is accepted. Hence it is inferred that there is no significant difference between cognitive styles of high school teachers due to variation in their gender.

**Hypothesis 2** - There may not be any significant difference in the cognitive styles of high school teachers due to variation in the location of their school.

Table 2: Showing the $\chi^2$ test value based on location of the school and cognitive style of high schools teachers

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Systematic Style</th>
<th>Intuitive Style</th>
<th>Integrated Style</th>
<th>Split Style</th>
<th>Undifferentiated Style</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Locality</strong></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Urban</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed Count</td>
<td>3</td>
<td>3</td>
<td>116</td>
<td>45</td>
<td>10</td>
<td>177</td>
</tr>
<tr>
<td>Expected Count</td>
<td>2.1</td>
<td>1.2</td>
<td>109.1</td>
<td>54.3</td>
<td>10.3</td>
<td>177.0</td>
</tr>
<tr>
<td>Rural</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed Count</td>
<td>2</td>
<td>0</td>
<td>149</td>
<td>87</td>
<td>15</td>
<td>253</td>
</tr>
<tr>
<td>Expected Count</td>
<td>2.9</td>
<td>1.8</td>
<td>155.9</td>
<td>77.7</td>
<td>14.7</td>
<td>253.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
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<tr>
<td>Observed Count</td>
<td>5</td>
<td>3</td>
<td>265</td>
<td>132</td>
<td>25</td>
<td>430</td>
</tr>
<tr>
<td>Expected Count</td>
<td>5.0</td>
<td>3.0</td>
<td>265.0</td>
<td>132.0</td>
<td>25.0</td>
<td>430.0</td>
</tr>
</tbody>
</table>

**Chi-Square test**

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Df</th>
<th>Asymptotic Significance (2-sided)</th>
<th>Exact significance (2-sided)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>10.506$^a$</td>
<td>4</td>
<td>.0415</td>
<td>.044</td>
<td>0.05</td>
</tr>
<tr>
<td>Fisher’s Exact Test</td>
<td>10.118</td>
<td></td>
<td></td>
<td></td>
<td>.047</td>
</tr>
</tbody>
</table>

$\chi^2$ table value is 9.49 for df=4 at 0.05 level; $\chi^2$ table value is 13.28 for df=4 at 0.01 level

The above table shows the $\chi^2$-test value of cognitive styles among high school teachers with reference locality. The calculated $\chi^2$-test value is 10.506 and it is greater than 0.05 level. It indicates that the null hypothesis is rejected and alternate hypothesis is accepted. Hence it’s inferred that there is significant difference between cognitive styles of high school teachers due to variation in their locality.

**Hypothesis 3** - There may not be any significant difference in the cognitive styles of high school teachers due to variation in their educational qualifications.

Table 3: Showing the $\chi^2$ test value based on educational qualification and cognitive style of high schools teachers

<table>
<thead>
<tr>
<th>Cognitive Style</th>
<th>Systematic Style</th>
<th>Intuitive Style</th>
<th>Integrated Style</th>
<th>Split Style</th>
<th>Undifferentiated Style</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Educational qualification</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>UG</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed Count</td>
<td>0</td>
<td>0</td>
<td>78</td>
<td>39</td>
<td>8</td>
<td>125</td>
</tr>
<tr>
<td>Expected Count</td>
<td>1.5</td>
<td>.9</td>
<td>77.0</td>
<td>38.4</td>
<td>7.3</td>
<td>125.0</td>
</tr>
<tr>
<td>PG</td>
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</tr>
<tr>
<td>Observed Count</td>
<td>5</td>
<td>3</td>
<td>187</td>
<td>93</td>
<td>17</td>
<td>305</td>
</tr>
<tr>
<td>Expected Count</td>
<td>3.5</td>
<td>2.1</td>
<td>188.0</td>
<td>93.6</td>
<td>17.7</td>
<td>305.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<tr>
<td>Observed Count</td>
<td>5</td>
<td>3</td>
<td>265</td>
<td>132</td>
<td>25</td>
<td>430</td>
</tr>
<tr>
<td>Expected Count</td>
<td>5.0</td>
<td>3.0</td>
<td>265.0</td>
<td>132.0</td>
<td>25.0</td>
<td>430.0</td>
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hen solving a problem and rely on experience. The teachers in
zation. They use only one style at a time depending upon
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