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Self Regulated Learning and Cognitive Styles of School Students - A Study

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Abstract: ***Self regulated learning is a constructive self directed style of learning in which self generated thoughts, feelings and actions are systematically oriented towards attainment of students own goals. Students use various cognitive and metacognitive strategies to control and regulate their own learning. Since learning is primarily a cognitive activity, cognitive learning style may influence the learning process of the learner. In this study an attempt has been made to know the relation between cognitive styles and self regulated learning of school students of higher secondary level. 200 Higher Secondary School students of Rural Kamrup had been selected and the data were collected through Self Regulated Learning Scale by Kadhiravan and Personal Style Inventory by Taggart and Taggart. Result of the study revealed significant relationship between Self regulated learning and cognitive styles of Higher secondary school Students.***

Keywords: Self Regulated Learning, Cognitive Styles

1. Introduction

In recent years, researchers are interested in studying empirically, the role of student's personal attributes and psychological processes underlying their learning and academic performance. One such aspect is Self regulated Learning (SRL). Student- centred educational paradigms place a high level of responsibility on learners to control and regulate their personal learning processes. In this new educational paradigm, it is essential to understand student's preferences and the self regulated learning strategies they use in order to enhance the learning process. Individual's preference for a specific thinking process have two dimensions- Cognitive and affective. The cognitive dimension is related to the use of strategies for reasoning and problem solving acquired by experience, whereas, the affective dimension has to do with how the person's interests and attitudes affect them (Zhang et al,2006). A learning style is the characteristic cognitive, affective and psychological behaviours that serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment (Keefe, 1988). Kolb and others (1981) defined learning styles as "beliefs, preferences and behaviours that people utilize in order to learn in certain conditions". A student's preferred learning style is one of the main individual differences that effects how the student approaches new knowledge that can be used to guide students to choose the best learning strategies, and allow teachers to modify their instructional strategies to provide the greatest opportunity for all students to learn.

Self-Regulated Learning- The origin of the concept of self regulation was established by the Soviet psychologists in early 1980's. Self regulation has the origin both from social and cultural issues. Self regulation is defined as the ability to behave according to one's intention in a flexible way (Kuhl 1992). Self regulation bridges the gap between academic performance and it's two determinants - cognitive abilities and achievement motivation. It is a deliberative, judgemental and adaptive process. It is mainly comprised of knowledge, beliefs and learned skills. It is also viewed as a process whereby students activate and sustain cognition, behaviour and affect which are systematically oriented towards the attainment of their goals. In terms of behaviour, self regulated learners select, structure and even create social and physical environment that optimize the acquision process. The effective learners become aware of functional relations, between their pattern of thoughts and action, social and environmental outcomes. Winn end Perry (2000) have used the phrase 'Self Regulated Learning' to describe independent, academically effective forms of learning that involve metacognition, intrinsic motivation, and strategic action. Zimmerman (2008) also viewed self regulated learning as a process that students used to acquire academic skills., such as setting goals, selecting and deploying strategies, and self monitoring one's effectiveness, rather than as a reactive event that happens to students due to impersonal forces. Zimmerman and Martinez- Pons(1986) have identified 14 strategies of self regulated learning, - self evaluation, organizing and transforming, goal setting and planning, seeking information, keeping records, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance from peers, adults and teachers and reviewing records as text, notes and test papers. The learner is considered to be an active participant in the learning process rather than a passive receiver of knowledge.

Cognitive learning style is one of the individual variables that influence learning performance. Cognitive styles consist of the individual's way of organizing and processing information as well as the experiences. Each individual has a way of gathering and processing information. The knowledge about cognitive style helps us to understand our own mode of information processing, analyzing and utilizing information which in turn improve one's learning. Besides, one's style of utilizing information may influence their motivation and emotions. Taggert and Robey (1981) report that the two halves of the brain differ in their function and these are popularly known as left/right hemisphere model of information processing in the human brain. Sperry (1964) found that the left brain is responsible for logical or rational functions that used reasoning and the right brain for intuitive or judgemental functions, which uses

intuition or insight in most situations. The existence of such mental processes has been proved by neurological research also. Taggert and Valenzi (1990) in their HIP metaphor summarized that the left mode functions involve planning, analysis and control and the right mode functions involve vision, insight and sharing. Hemispheric dominance is also referred to as cognitive style. Cognitive style is the underlying construct for information processing regardless of the situations in which it is applied, formal or informal in nature, whereas learning style is exclusively related to approaches in a learning situation (Furnham 1995). According to Hayes and Allinson (1996) left and right hemisphere cognitive styles are two ends of a uni-dimensional construct, analytic style and intuitive tend to be non-conformist, prefer an open-ended approach to problem solving, rely on random methods of exploration of the environment, remember spatial images well, and work best when the situation requires global or holistic assessment. The analysis tend to be complaint, favour a structured approach to problem solving, depend on systematic methods of exploration, and recall verbal and written material well and work best step when the situation requires step by step systematic assessments. Taggert and Taggert (1991) developed their human information processing survey (HIP) that measures six different modes. Freddy et al (2011) suggested that cognitive styles significantly affect students learning as it refer to how learners process and organize information. Kirton (2003) stated that the differences in cognitive styles influence perception, learning, problem solving, decision making, communication, interpersonal functions and creativity of the person in important ways. It influences on the way we look at the environment for information, think, imagine, analyze, understand, remember, retrieve, organize and interpret information for guiding our action. Miller viewed (1978) cognitive styles as broad descriptions and higher order meta-strategies that influence the individuals attempt to adjust to situational demands.

As self regulated learning involve cognition, it is felt relevant to study about self regulation and cognitive style.

2. Need and Significance of the Study

Zimmerman opined that research findings support that self regulatory skills can be taught which can be predictive of academic success. Emphasizing on the emerging autonomy and responsibility of students to take charge of their own learning, Paris and Winograd (2001) also suggest for promoting self regulatory learning strategies. Being aware of the students' thinking styles, teachers could help them to know their learning habits, and help them to apply better learning strategies. Moreover, teachers can create a better and more attractive learning environment by being familiar with the methods, resources, and conditions in which students learn better and using these efficiently and effectively. Besides, higher secondary stage of schooling is an important stage of career determination. Therefore, it is felt important to study the relationship between self regulatory learning and cognitive styles to promote self regulation higher secondary students.With this view, the problem of the study is stated as follows-

Statement of the Problem - "Self Regulated Learning and Cognitive Styles of School Students- A Study"

Objective of the Study

To know the relationship between self regulated learning strategies and cognitive styles of the higher secondary school students.

Hypothesis of the Study

There is no significant relationship between self regulated learning strategies and cognitive styles of the higher secondary school students.

3. Review of Related Literature

Zhang (2002) relied on Sternberg's theory of thinking styles and Perry's theory of cognitive development to investigate the relation between thinking style and cognitive development in Hong Kong University. Chandran S. R. P and Kadhiravan. S (2012) in a study among college students found significant relationship between self regulated learning and some of the cognitive style. However, though studies are conducted on self regulated learning, there is scope to study about self regulated learning and cognitive style of the higher secondary students.

4. Methods of Study

Descriptive survey method has been used in the study.

Sample - Sample of the study consisted of 200 students selected randomly from 10 higher secondary schools of Kamrup district.

Tool for collection of Data- The tools used for collecting data were-

1) Self Regulated Learning Scale by Kadhiravan (1999)The scale consists of 40 statements with 5 alternatives that measures 10 different self regulated learning strategies namely self evaluation, organizing and transforming, goal setting and planning, seeking information, keeping records, environmental structuring, self consequences, rehearsing and memorizing, seeking social assistance, and review of records.
2) Personal Styles Inventory by Taggart and Taggart (1991) – The inventory consists of 30 items with 6 response categories. It measures six components of cognitive styles such as planning, analysis, control, vision, insight and sharing. Planning, analysis and control are considered as logical mode where as vision, sharing and insight are considered as intuitive mode.

Statistical Analysis- Pearson's Product moment coefficient of correlation has been used for analysis of data.

5. Result and Discussion

After collection of data from the selected sample, Pearson's Product moment coefficient of correlation was used to know the relation between self regulated learning and cognitive style. The result is presented in the table below-

Table 1: Correlation between self regulated learning and cognitive style of the H. S students. N=200.

Cognitive Styles	SRI 1	SRL 2	SRL 3	SRL 4	SRL 5	SRL 6	SRL 7	SRL 8	SRL 9	SRL 10	SRL Total
Planning	0.27**	0.22**	0.20**	0.17*	0.18*	0.24**	0.16*	0.23**	0.26**	0.29**	.24
Analysis	0.14	0.12	0.21**	0.11	0.07	0.14	0.11	0.24**	0.02	0.22**	.15
Control	0.21**	0.23**	0.15*	0.05	0.22**	0.15*	0.14	0.21**	0.14	0.13	.21
Left Mode	0.25**	0.29**	0.19*	0.10	0.23**	0.24**	0.14	0.29**	0.18*	0.30**	.23
Vision	0.29**	0.22*	0.12	0.08	0.12	0.14	0.24**	0.18*	0.19*	0.28**	.19
Insight	0.18*	0.14	0.06	0.05	0.20*	0.19*	0.08	0.18*	0.12	0.21*	.14
Sharing	0.24**	0.21**	0.16*	0.08	0.25**	0.18*	0.13	0.14	0.12	0.26**	.18
Right Mode	0.28**	0.25**	0.14	0.09	0.24**	0.23**	0.22**	0.21**	0.16*	0.29**	.22

From the table 1 it is observed that –

- Planning of cognitive style has significant and positive relation with all the types of self regulated strategies.
- 'Analysis component of cognitive style is found to have positive and significant relation in Goal Setting (SRL3), Seeking Information (SRL8) and Review of Records (SRL10) of self regulated learning strategies.
- There exist no significant relationships in 'control' of cognitive style with seeking information (SRL 4), self consequence (SRL7), seeking assistance (SRL9) and review of records (SRL10) of self regulating strategies, but has significant relation in other self regulated learning strategies..
- There exist no significant relationship between 'left mode' of cognitive style and seeking information (SRL4) and self-consequence (SRL7) of self-regulated strategies. However significant and positive relationships have been observed in self evaluation (SRL 1), organizing and transforming (SRL2), goal setting (SRL3), keeping records (SRL5), environmental structuring (SRL 6), rehearsing and memorizing (SRL 8), seeking assistance and review of records.
- There exist no significant relation between vision of cognitive style and Goal Setting.
- There exist significant relationship between vision of cognitive style and self-evaluation, organizing and transforming, self-consequences, rehearsing and memorizing, seeking assistances and sharing of self-regulated strategies of learning.
- There exist significant relation between sharing of cognitive style and self –evaluation, organizing and transforming, Goal setting, keeping records of SRL.
- There exist significant relation between Right mode of cognitive style with self-evaluation, organizing and rehearsing keeping records, environmental structuring, self-consequences, rehearsing and memorizing, seeking assistance and review of records of self-regulated learning strategies.
- Vision of cognitive style is positively and significantly related with self evaluation, (SRL1), keeping records (SRL5), environmental structuring (SRL6), rehearsing and memorizing (SRL8), seeking assistance (SRL9), and review of records(SRL10).
- Sharing is significantly and positively related to self evaluation, (SRL1), organizing and transforming (SRL2), Goal Setting (SRL3), seeking information (SRL 4), keeping records (SRL5), environmental structuring (SRL6).
- Right mode of cognitive style is significantly and positively related to (SRL1), organizing and transforming (SRL2), keeping records (SRL5), environmental structuring (SRL6), self-consequence (SRL7) rehearsing and memorizing (SRL8), seeking assistance (SRL9), and review of records (SRL10).

6. Major Findings of the Study

1) There is significant positive relation between planning and total self-regulated learning strategies,
2) There is significant positive relation between analysis and self-regulated learning,
3) Control, Left mode of component of cognitive style is positively and significantly related to total self-regulated learning.
4) Vision, Insight, Sharing, Right mode of cognitive style is positively and significantly related to total self-regulated learning.

7. Implication and Suggestion

From the study, it is observed that cognitive styles have important relation with self-regulated learning strategies. As self-regulation is significantly related to achievement, self-regulated learners can enhance their performance by controlling own cognitive, motivation and behaviour. Both right and left mode of cognitive style have positive relation with SRL of students, indicating the role of whole brain in effective learning. Therefore, teachers, students, parents, administrators should give emphasis on developing self-regulated learning strategies among the students. Teachers should be provided training to promote SRL strategies among students and teach to focus on goal development and attainment. Similarly, curriculum should also be planned to incorporate contents that enhance the self-regulated competencies of students.

Self regulated process is not acquired over night but rather have become refined through repeated instruction and practice. The ultimate development of student's academic self-regulatory skill depends upon their use of self-regulated learning processes and derived forms of self-motivation such as self-efficacy. Students should develop self-regulation or processes that activate and sustain cognition, behaviours and affect that are oriented towards goal attainment.

8. Limitations

One limitation of the study is the likelihood that participants might have interpreted the questions at different levels of understanding, which is one of the inherent shortcomings of self report measures.

9. Future Scope

The study can be extended to know the impact of self regulated learning on other types of learning styles, impact on academic achievement, parental involvement in developing self regulated learning strategies among children etc.

10. Conclusion

Self-regulated learning strategies used by students provides evidence that students are not that much aware of the importance of self-regulated learning strategies. Educational interventions focusing on these strategies therefore will help in enhancing students performance.

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