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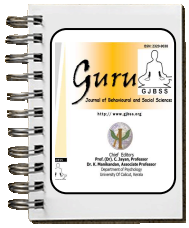

Three Fold Model of Intellectual Styles among Higher Secondary School Students

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Abstract

This study is to know the intellectual styles of higher secondary school students. It made use of proportionate stratified sampling in selecting 556 higher secondary school students. Data were collected from the sample using 'Scale on threefold model of intellectual styles'. The finding reveals that majority of the students are in type I and the least is in type III. There is no significant difference in the intellectual styles of higher secondary school students based on gender, locale and subject but there exists difference by the type of school.

A nice inspirational quote in the true meaning and as a reminder of the great responsibilities of teaching. How we teach must reflect how our students learn, it must also reflect the world they will emerge into. This is a world that is rapidly changing, connected, adapting and evolving. Our style and approach to teaching must emphasize the learning in the 21st century. As teachers we break out of our natural way of teaching and teach our students something novel and interesting. Don't stick to the lesson plans we have used day in and day out. Do something innovative and attractive, if we can engage our students today, tomorrow they will be able to conquer the world.

In educational discipline, the importance of variance of teaching styles, for providing the learning material in more sophisticated manner is duly recognised. The major point is that different methods of instruction work best for different style of thought. The teacher have to discard prior taught teaching strategies, which are not capable to meet the pupils' present need. If a teacher wants to reach and truly interact with a student, he or she needs the flexibility to teach to different style of thinking, which means varying teaching style to suit different styles of thought on the part of students. Students or others are thought to be incompetent not because they are lacking in abilities, but because their styles of thinking do not match those of the people doing the assessment. Therefore, a match between teachers teaching style and students learning style should be established for a better outcome, here the importance of style construct comes.

The different scholars tend to adopt their own favored style terms. Examples of these terms are "cognitive style," "learning style," "thinking style," "mind style," "mode of thinking," and "teaching style." Recently, a consensus seems to have been reached (Zhang, Sternberg, & Rayner, 2012) that all style labels can be best represented by what Zhang and Sternberg called "intellectual styles" in their "Threefold Model of Intellectual Styles". A style is a way of thinking, it is not ability, but rather, a preferred way of using the abilities one has. The distinction between style and ability is a crucial one. Ability refers to how well someone can do something; a style refers to how someone likes to do something. We all have a style profile, meaning we show varying amounts of each style, but we are not sheltered into any one profile. We can vary our styles to suit different tasks and situations, Styles further vary over the course of a life time, and change as a result of the role models we follow at different points in our lives.

We do a blend in our flexibility to shift styles, and in the strengths of our preferences, but while we have preferred styles, our styles are fluid, not fixed.

Students need to work with different intellectual styles, to make their learning outcome as a successful one. Each intellectual style can be utilized or preferred for achieving a particular goal. Style shown in one task may be quite different from another task. A style that may fit well in one context may fit poorly or not at all in another. Styles vary not only with task, but also with situations. Intellectual styles are more important than abilities, no matter how broadly abilities are defined. Thus constructs of social, practical, and multiple intelligences, expand our notions of what people can do but the construct of style expands our notion of what people prefer to do-how they capitalize on the abilities they have. When your profile of intellectual style is a good match to an environment, you thrive. When it is bad match, you suffer (Sternberg, 1997)

Mental self-government is a concept of intelligence that equals to combinations of individual preferences from five levels namely function, forms, levels, scopes and learning. Sternberg (1997) has articulated a model of mental self-government that reproduces the structure of concern under one of its facet. He sees thinking style not as something that defines a person; we all command a variety of styles. These nevertheless do leave us with a certain style profile. Based on empirical evidence and theoretical conceptualization, Zhang and Sternberg (2006) constructed the three fold model of intellectual styles, which consists of 13 styles of mental self-government are classified into three types; Type I, Type II and Type III.

Type I styles are more creativity generating and denote higher levels of cognitive complexity. They tend to carry more adaptive values because they are often strongly related to desirable human attributes. Type II styles suggests a norm favoring tendency and denote lower levels of cognitive complexity and they tend to carry less adaptive values because they are often strongly associated with undesirable attributes. Type III styles may manifest the characteristics of either Type I or Type II styles, depending on the stylistic demand of specific situations or task. They tend to be value differentiated as they may show more or less adaptive values contingent on stylistic requirements of the particular situation or task.

Most studies conducted in this area highlight the importance of the thinking styles. Park and Choe (2005) investigated the thinking styles of various Korean gifted students and examined whether thinking style based on the theory of mental self-government could be predict scientific giftedness. The results indicated that the gifted students preferred the legislative, judicial ,anarchic, global ,external and liberal styles where as non gifted students preferred the executive, oligarchic and conservative styles . Fan (2010) conducted an experimental study to examine the incremental validity of thinking styles in predicting academic achievement after controlling for personality and achievement motivation in the hyper media based learning environment and the results supported the relationships between Type I, Type II and Type III thinking styles with their academic achievement.

The study conducted by Sumangala and Rinsa (2012) for examining the interaction effect of thinking styles and deductive reasoning on problem solving ability in mathematics of secondary school students and found that deduction, reasoning and executive thinking style are crucial for a good problem solver. Xie (2013) investigated whether individual difference in thinking styles influence explicit and implicit learning and the results indicated that performance in the explicit learning conditions were positively associate with Type I thinking style and implicit style were negatively associated with Type II thinking style. Yang (2012) established a study that comparing the thinking styles of students in a science school and a mainstream school and results showed that there were significant differences in thinking styles between high achievers and normal achievers. Zhu & Zhang (2011) examined styles and conception of creativity among university students. This study aimed to understand university

students thinking styles and the relationships with their views of creativity and significant relationship were identified between thinking styles and conception of creativity.

Recent research conceptualize that intellectual style is an overreaching concept encompassing the meanings of all style constructs and distinguish three types of styles. The three fold model of intellectual styles has an immediate application in educational outcome. Knowing the intellectual styles of student should enhance the teaching-learning process at a great extent. Both students and teachers bring their own individual characteristics and styles to the learning environment. Among the personal characteristics, intellectual styles are relevant to the ways teachers teach and students' preferences for learning. At the same time, a learning environment can shape students specific styles in learning and teachers teaching style. Teaching and learning is a reciprocal process. Students learning styles can be developed by teachers teaching style and teachers teaching styles may be influences by students learning preferences.

Although there has been a series of studies conducted to investigate either teachers or students intellectual styles little attempt had done for finding out students preferences of intellectual styles. Furthermore, higher secondary zone being considered, the period having rapid growth in cognitive and affective domains, so the investigators preferred the same population for research. The investigators also trying to know which type of intellectual style dominates among higher secondary school students. Especially in teaching, we need to take into account student's styles of thinking if we hope to reach them, which cultivate a much better learning environment in our day-to-day classrooms.

Objectives

1. To find out the levels of intellectual styles among higher secondary school students.
2. To find out whether there exist any significant difference in the mean scores of TYPE-I intellectual styles of higher secondary school students with respect to subsamples based on Gender, Locale, Subject and Type of management of school.
3. To find out whether there exist any significant differences in the mean scores of TYPE-II intellectual styles of higher secondary school students with respect to subsamples based on Gender ,Locale, Subject and Type of management of school.
4. To find out whether there exist any significant differences in the mean scores of TYPE-III intellectual styles of higher secondary school students with respect to subsamples based on Gender, Locale , Subject and Type of management of school.

Hypothesis

1. There exist significant difference in the mean scores of intellectual styles (TYPE-I, TYPE-II and TYPE-III) of higher secondary school students based on the sub samples Gender, Locale, Subject and Type of management of schools.

Method

Participants

The population under study is higher secondary school students. The participants selected for the study consists of 556 higher secondary school students of Kerala (Kozhikode, Malappuram, Palakkad, and Thrissur districts). The samples were selected under stratified random sampling techniques by giving representation to the factors like gender, subject, locale and type of management.

Instrument

1. Scale on three fold model of intellectual style prepared by Bindhu and Jahfar (2013) was used for identifying the intellectual styles of higher secondary school students. It consists of 50 items. The scale consists of three dimensions of intellectual style viz, Type I, Type II and Type III developed by Zhang and Sternberg (2006). The test-retest reliability co-efficient was obtained as 0.76 and face validity was established.

Procedure

Statistical techniques like percentage analysis, 't' test and one way ANOVA were used according to the objectives of the study and the hypothesis to be tested.

Results and Discussion

The different level of intellectual styles of higher secondary school students in total sample was established by using Percentage Analysis. The results are presented in table1

Table 1

Different Levels of Intellectual Styles of higher secondary school students

Intellectual style	Number of students Preferred	Percentage
TYPE-I	305	54.85
TYPE-II	150	26.98
TYPE-III	101	18.16

The above table indicates that 54.85% shows TYPE-I intellectual style of preference, where as 26.98% shows TYPE-II intellectual style and for TYPE-III it was 18.16% and it is also shown in a pi diagram-figure 1

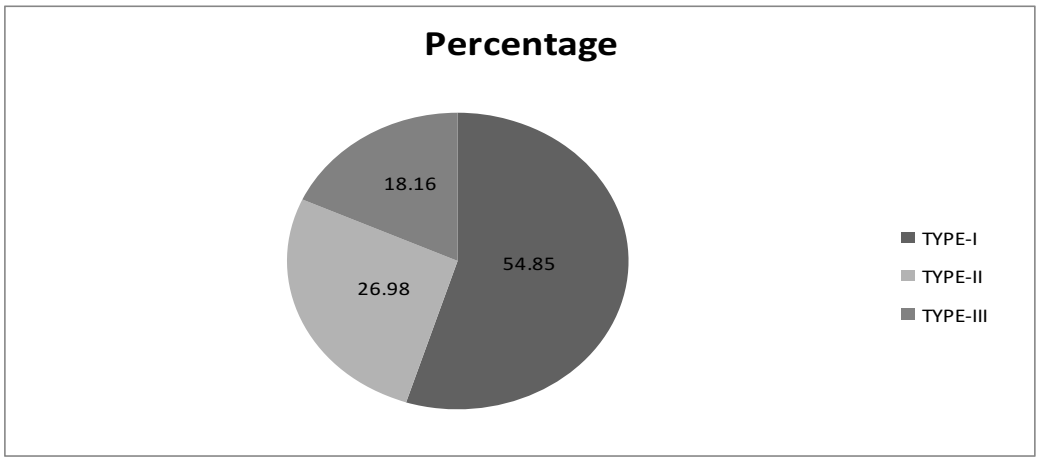

Figure 1: Different levels of Intellectual style

To know whether there exist any significant difference in the intellectual styles of higher secondary school students with respect to their Gender and Locale. Critical ratio was computed for each case and result is presented in table 2 and 3.

Table 2

Mean, SD, N and t value of intellectual styles of higher secondary School students by Gender

Variable	Gender	N	Mean	S.D	't' Value
TYPE -I	Boy	279	37.48	3.95	0.64
	Girl	277	37.68	3.43	
TYPE - II	Boy	279	35.46	3.22	2.74
	Girl	277	36.19	2.99	
TYPE -III	Boy	279	35.19	3.18	1.84
	Girl	277	35.67	2.92	

Table 2 indicates the mean scores of intellectual styles obtained for boy and girl students under TYPE-I are 37.48 and 37.68 respectively. The standard deviation obtained for boy and girl students are 3.95 and 3.43 respectively. The table value of 't' at 0.05 significant level is 1.96. Since the obtained 't' value is (0.64) less than the tabled value at 0.05 level and hence TYPE-I intellectual styles among gender are found statistically not significant.

The mean scores of TYPE-II intellectual styles for boys and girls are 35.46 and 36.19 respectively. The standard deviation obtained for boy and girl students are 2.94 and 3.22 respectively. The table value of 't' at 0.05 level is 1.96.since the obtained 't' value is 2.74 which is greater than the table value, and hence in TYPE-II intellectual styles among gender found to be statistically significant.

The mean scores of TYPE-III intellectual styles of boys and girls are obtained 35.19 and 35.67 respectively, were as for standard deviation it was 3.18 and 2.92. The table value of 't' at 0.05 level is 1.96. Since the obtained't' value 1.84 is less than the tabled value. The mean difference in TYPE-III intellectual style between boy and girl students is found to be statistically not significant.

Table 3

Mean , SD,N and 't' value of intellectual styles of higher secondary school students by Locale

Variable	Locale	N	Mean	S.D	't' Value
TYPE-I	Rural	424	37.70	3.69	
	Urban	132	37.21	3.70	1.31
TYPE-II	Rural	424	35.85	3.04	
	Urban	132	35.75	3.39	0.32
TYPE-III	Rural	424	35.93	3.06	
	Urban	132	35.10	3.05	1.41

Table indicates the mean scores of intellectual styles obtained for rural and urban students under TYPE-I are 37.70 and 37.21 respectively. The standard deviation obtained for boy and girl students are 3.69 & 3.70 respectively. The table value of't' at 0.05 significant level is 1.96. Since the obtained't' value is 1.31, less than the tabled value at 0.05 level and hence TYPE-I intellectual styles among locale are found statistically not significant.

The mean scores of TYPE-II intellectual styles for rural and urban students are 35.85 and 35.75 respectively. The standard deviation obtained for rural and urban students are 3.04 and 3.39respectively. The table value of 't' at 0.05 level is 1.96.Since the obtained 't' value is 0.32 which is less than the table value, and hence TYPE-II intellectual style is found to be statistically not significant.

The mean scores of TYPE-III intellectual styles of rural and urban students are obtained 35.93 and 35.10 respectively, were as for standard deviation it was 3.06&3.05. The table value of 't' at 0.05 level is 1.96. Since the obtained't' value 1.41 is less than the tabled value. The mean difference in TYPE-III intellectual style between locales is found to be statistically not significant.

To know whether there is any significant difference exists in the intellectual styles of higher secondary school students with respect to subject and type of management of schools, one way ANOVA was used. Arts, Science and Commerce are in the sub samples of subject and three categories like government, aided and unaided schools are came under the sub sample of type of school. 'F' ratio was computed for each case and result is presented in table 4 and 5.

Table 4
Summary of ANOVA of intellectual styles of higher secondary school students by Subject

Variable	Source of variance	Sum of squares	df	Mean square	F
TYPE-I	Between group	448	2	2.24	0.16
	Within group	7604.19	553	1.37	
	Total	7608.68	555		
TYPE-II	Between group	21.01	2	10.5	1.07
	Within group	5430.41	553	9.8	
	Total	5441.42	555		
TYPE-III	Between group	6.29	2	3.14	0.33
	Within group	5214.37	553	9.42	
	Total	5220.26	555		

From the table, it can be found that the F value obtained for TYPE-I, TYPE-II and TYPE-III intellectual styles are 0.16, 1.07 and 0.33 respectively. The tabled value, and hence the three groups are not differ significantly in their intellectual style

Table 5
Summary of ANOVA of intellectual styles of higher secondary school students by type of management of the school

Variable	Source of variance	Sum of squares	df	Mean square	F
TYPE-I	Between group	39.29	2	19.64	1.43
	Within group	7569.39	553	13.68	
	Total	7608.68	555		
TYPE-II	Between group	51.45	2	25.72	2.64
	Within group	5389.97	553	9.74	
	Total	5441.42	555		
TYPE-III	Between group	88.26	2	44.13	*4.76
	Within group	5132.40	553	9.28	
	Total	5220.26	555		

*p< .05

From the table it can be found that the 'F' value obtained is 1.43, 2.64 and 4.76 for TYPE I, TYPE II and TYPE III respectively. Since the 'F' value of TYPE- III is 4.76 which is greater than the tabled value 3.01 for d.f (2,553) at 0.05 levels. It means that there is significant difference in TYPE -III intellectual style, with respect to type of management.

To identify the groups which differ significantly, Scheffe's post hoc test was used. The results of Scheffe's test are given in the table 6

Table 6
Result of Post hoc comparison

Variable	Group	Mean difference
TYPE-III	Aided –Government	0.48
	Un aided –Aided	0.50
	Un aided – Government	*0.99

*p< .05

The mean difference is significant at the 0.05 level from the Scheffe's post hoc analysis, revealed that Un aided and Government school students are significantly differed in their TYPE- III intellectual styles at 0.05 level. It also revealed that Aided-Government, Un aided – Aided school students have almost equal intellectual styles.

Conclusion

Type-I intellectual style dominates among higher secondary students for the total sample, TYPE-II and TYPE-III comes second and third respectively. Hence the teaching and learning process should be arranged to meet the requirements. There exists significance difference in gender base so while implementing any educational reforms; it should cater both male and female students. The analysis also found that there exists significant difference of intellectual style, among Unaided and Government school students. So any differences in the opportunities provided for the students under these institutions should be avoided or it should be arranged for all institutions. To enhance differentiated learning which means getting the best out of every student, so they are able to show what they know, understand and what they can do.

Reference

Fan, W. (2010). Incremental validity of thinking styles in predicting academic achievements: an experimental study in hypermedia learning environments. *Journal of Educational Psychology*,30(5).605-623. ERIC Journal Reproduction Servicw No. EJ783189.

Park, S. K. & Cheo. (2005). The relationship between thinking styles and scientific giftedness in Korea. *Journal of secondary gifted education*, 16(3), 87-97.

Sternberg, R. J. (1997). *Thinking Styles* .United Kingdom: Cambridge University Press.

Sternberg, R. J., & Zhang, L.F. (2006). *The nature of intellectual styles.* Roulted publishing Company, LL

Sumangala, V., & Rinsa, P. V. (2012). Interaction effect of thinking styles and deductive reasoning on problem solving ability in mathematics of secondary school students. Endeavors in education. 3(1), 44-48.

Xie, Q. (2013). Thinking styles in implicit and explicit learning. *Journal of learning and individual differences*, 23, 267-271.ERIC Journal Reproducation Serviec No.EJ1007787.

Yong, B. C. (2012).Comparisopn between the thinking styles of students in a science school and a mainstream school. *Journal of scince and mathematics education in Southeast Asia*, 35(1),60-83. ERIC Journal Reproduction Service No.EJ983805.

Zhang, L. F., Sternberg, R. J., & Rayner. (2012*). Hand book of Intellectual Styles*. New York: Springer.

Hang, L. F., & Higgins, P. (2008). The predictive power of socialization variables for thinking styles among adults in the workplace. *Learning and individual differences*, 18 (1), 11-18.

Zhang, L. F. (2010). Do thinking styles contribute to metacognition beyond self-rated abilities. *Educational Psychology*, 30(4), 481-494. ERIC Journal Reproduction Service No. EJ905771.

Zhang, L. F. (2012). *The Malleability of Intellectual Styles*. Cambridge University Press.

Zhu, C., & Zhang, L. F. (2011). Thinking styles and conceptions of creativity among university students. *Educational Psychology*, 31(3).