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AN INVESTIGATION OF COGNITIVE STYLE TOWARDS DEGREE STUDENTS

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Abstract:

Cognitive styles are persistent patterns of behavior that determine how an individual acquires and processes information. In the classroom the cognitive styles of the teacher interact with those of the learner resulting in differential understanding. This study which is informed by cognitive styles towards degree students is a descriptive study. The study specifically explored the effect of cognitive styles of degree students in vellore district. The target population for study was UG and PG degree students of 300 samples were randomly selected. Data was collected using a Cognitive Styles Inventory. Data was analyzed using SPSS Version 20 to run correlation, t-tests and ANOVA tests. The results of the study indicated that degree students from all the samples such as Gender, locality of college, type of management, group studied, religion, parental occupation and degree obtained do not differ significantly towards cognitive style.

Introduction:

Cognitive style means the methods preferred in the process of getting information, organizing, processing and storing information in memory to use it as needed (Witkin et al., 1977). Moreover, it is also defined as the ways that individuals prefer while organizing new information with existing information, interpreting new information and adapting these interpretations to their lives (Hayes & Allinson, 1998). It refers to the ways taken while achieving a purpose rather than achieving a purpose. One of these styles is the field dependent-field independent cognitive style. As a result of studies, it has emerged that characteristic differences have existed among individuals having field dependent-field independent cognitive styles. Cognitive style is another variable that may hold potential in understanding how student's learn best. Cognitive style has been posited to be related to learning styles, specifically, the more adaptive students tend to be more reflective, while the more innovative prefer hands-on experiences (Kirton, 1994). Further, Lamm, Rhoads, et al. (2011) stated that cognitive style should always be considered as a variable of interest when the goal is to improve student achievement. Therefore, the principal question that arose from the review of the literature was: "what effect does the type of reflection and students' cognitive style have on their performance on a criterion-referenced exam?"

Learning is a shared social experience where the teacher provides an enabling environment for learners to acquire and use knowledge. Learning is also a personal and private affair, reflective of mental activity on the part of the learner; it is not something that others can undertake on behalf of learners (Pritchard, 2009). Further, learning is a metacognitive process requiring learners to reflect on their various experiences and how they reacted to the learning situations. Every learner has his/her own unique way in which they acquire and construct knowledge. These unique ways are termed as cognitive styles. Cognitive styles are a term used to describe the way individuals think, perceive and remember information. According to Sewall (1998) these characteristic behaviours serve as relatively stable indicators of how learners perceive, interact with and respond to the behaviours serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment. Riding and Rayner (1998) agree with Sewall (1998) adding that cognitive styles are an 'in-built and automatic way of responding to information…probably present at birth…deeply pervasive, affecting a wide range of individual functioning.' Describing cognitive styles of an individual thus requires an understanding of the thought processing of the person.

Statement of the Research Problem:

The problem taken up by the investigator is stated as An Investigation of Cognitive Style towards Degree Students.

Population and Sample Characteristics:

The participants of the study include 300 degree students from levels of UG and PG degree obtained. Out 300 participants 160 from under graduate students and 140 from post graduate students.

Methodology:

The descriptive survey method gathers data from large number of cases at a particular time. Differential Analysis involves the 't' test and F test to test the hypothesizes of the study.

Tool Used for Study:

Cognitive style inventory was constructed and validated by Martin (1983).

Description of the Tool:

Cognitive style inventory by Martin was adopted. The cognitive style inventory consists of 40 items. This test assesses one's cognitive style. The different cognitive styles are systematic, intuitive, integrated, undifferentiated and split style. The inventory is in 5 point scale. The score are assigned as totally disagree (1), disagree (2), undecided (3), agree (4) and totally agree (5). The score ranges from 40 to 200.

Objectives of the Study:

To find out if there exists any significant difference between sub samples of degree students with respect to their cognitive style

- ✓ Gender : Male / Female
- ✓ Locality of College : Rural / Urban
- ✓ Type of Management : Government / Private / Aided
- ✓ Group Studied : Arts / Science
- ✓ Religion : Hindu / Muslim / Christian
- ✓ Parental Occupation : Employed / Unemployed
- ✓ Degree obtained : UG / PG

Hypotheses of the Study:

There is no significant difference between sub samples of degree students with respect to their cognitive style

- ✓ Gender : Male / Female
- ✓ Locality of College : Rural / Urban
- ✓ Type of Management : Government / Private / Aided
- ✓ Group Studied : Arts / Science
- ✓ Religion : Hindu / Muslim / Christian
- ✓ Parental Occupation : Employed / Unemployed
- ✓ Degree obtained : UG / PG

Differential Analysis for Cognitive Style Scores of Degree Students:

Gender and Cognitive Style:

Null Hypothesis:

There is no significant difference between male and female degree students with respect to their cognitive style

Table 1: Significance Difference between Male and Female Degree Students in their Cognitive Style

Gender	N	Mean	SD	't' Value	Level of Significance
Male	172	122.23	44.78	1.231	NS
Female	128	128.58	43.33		

It is evident from Table 1, the calculated 't' value is 1.231, which is not significant at 0.05 level. Hence, the framed null hypothesis was accepted and research hypothesis is rejected. It is inferred that there is a no significant difference found between male and female degree students with respect to their cognitive style.

Locality of College and Cognitive Style:

Null Hypothesis:

There is no significant difference between rural and urban degree students with respect to their cognitive style

Table 2: Significance Difference between Rural and Urban Degree Students in their Cognitive Style

Locality of College	N	Mean	SD	't' Value	Level of Significance
Rural	134	126.58	43.02	0.575	NS
Urban	166	123.62	45.22		

It is evident from Table 2, the calculated 't' value is 0.575, which is not significant at 0.05 level. Hence, the framed null hypothesis was accepted and research hypothesis is rejected. It is inferred that there is a no significant difference found between rural and urban degree students with respect to their cognitive style.

Type of Management and Cognitive Style:

Null Hypothesis:

There is no significant difference between sub samples of type of management of degree students with respect to their cognitive style

Table 3: Significance Difference between Types of Management of Degree Students in their Cognitive Style

Type of Management	Sum of Squares	Mean Squares	df	'F' Value	Level of Significance
Between Groups	2488.523	1244.261	2	0.635	NS
Within Groups	581904.624	1959.275	297		
Total	584393.147		299		

It is evident from the Table 3, the calculated 'F' value is 0.635, which is not significant at 0.05 level. Hence, the framed null hypothesis is accepted and research hypothesis is rejected. It is inferred that there is no significant difference among sub samples of type of management with respect to their cognitive style.

Group Studied and Cognitive Style:

Null Hypothesis:

There is no significant difference between arts and science degree students with respect to their cognitive style

Table 4: Significance Difference between Arts and Science Degree Students in their Cognitive Style

Course Studied	N	Mean	SD	't' Value	Level of Significance
Arts	120	125.05	44.62	0.033	NS
Science	180	124.87	44.05		

It is evident from Table 4, the calculated 't' value 0.033, which is not significant at 0.05 level. Hence, the framed null hypothesis was accepted and research hypothesis is rejected. It is inferred that there is no significant difference found between arts and science degree students with respect to their cognitive style.

Religion and Cognitive Style:

Null Hypothesis:

There is no significant difference in the mean scores of cognitive style between religions.

Table 5: Significance Difference between Religion of Degree Students in their Cognitive Style

Religion	Sum of Squares	Mean Squares	Df	'F' Value	Level of Significance
Between Groups	2565.511	1282.756	2	0..655	NS
Within Groups	581827.635	1959.016	297		
Total	584393.147		299		

It is evident from the Table 5, the calculated 'F' value is 0.655, which is not significant at 0.05 level. Hence, the framed null hypothesis is accepted and research hypothesis is rejected. It is inferred that there is no significant difference among sub samples of religion with respect to their cognitive style.

Parental Occupation and Cognitive Style:

Null Hypothesis:

There is no significant difference between employed and unemployed with respect to their cognitive style

Table 6: Significance Difference between Employed and Unemployed Degree Students in their Cognitive Style

Parental Occupation	N	Mean	SD	't' Value	Level of Significance
Employed	140	124.32	44.71	0.229	NS
Unemployed	160	125.49	43.89		

It is evident from Table 6, the calculated 't' value 0.229, which is not significant at 0.05 level. Hence, the framed null hypothesis was accepted and research hypothesis is rejected. It is inferred that there is no a significant difference found between parental occupation employed and unemployed with respect to their cognitive style.

Degree Obtained and Cognitive Style:

Null Hypothesis:

There is no significant difference between UG and PG degree students with respect to their cognitive style

Table 7: Significance Difference between UG and PG Degree Students in their Cognitive Style

Degree obtained	N	Mean	SD	't' Value	Level of Significance
UG	160	122.05	44.70	1.214	NS
PG	140	128.25	43.56		

It is evident from Table 7, the calculated 't' value 1.214, which is not significant at 0.05 level. Hence, the framed null hypothesis was accepted and research hypothesis is rejected. It is inferred that there is no a significant difference found between degree obtained UG and PG degree students with respect to their cognitive style.

Major Findings:

- ✓ It is inferred that there is a no significant difference found between male and female degree students with respect to their cognitive style.
- ✓ It is inferred that there is a no significant difference found between rural and urban degree students with respect to their cognitive style.

- ✓ It is inferred that there is no significant difference among sub samples of type of management with respect to their cognitive style.
- ✓ It is inferred that there is no significant difference found between arts and science degree students with respect to their cognitive style.
- ✓ It is inferred that there is no significant difference among sub samples of religion with respect to their cognitive style.
- ✓ It is inferred that there is no a significant difference found between parental occupation employed and unemployed with respect to their cognitive style.
- ✓ It is inferred that there is no a significant difference found between degree obtained UG and PG degree students with respect to their cognitive style.

Recommendation for Researcher:

Research should investigate the effect that cognitive style has on students' ability to solve problems accurately and efficiently. Do the more adaptive solve problems more efficiently than the more innovative? Research should also assess whether cognitive style influences students' ability to solve both ill-defined and structured problems regarding various real-life problems in the context of agriculture. More generally, studies should examine the impact of cognitive style on students' critical thinking, problem solving, and met cognitive skills.

Conclusion:

The findings of this study also suggest that degree students' cognitive style has no effect on their sub samples. It is comforting to know that students were able to achieve at similar levels, regardless of their cognitive style. Finally, there was a lack of simple main effects in the study. Specifically, the variables of cognitive style and the other sub samples did not interact with one another. This finding suggests that neither cognitive style had a bearing on degree students' performance on the criterion-referenced test. Kirton (1994) posited that the more adaptive would prefer a reflective learning style, while the more innovative would prefer a more hands-on, experiential approach. Perhaps employing reflective exercises during an experientially based learning activity enabled both the more adaptive and more innovative to learn the biofuels content at similar levels.

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