

A Study on Cognitive Styles of J.B.T. Trainees in Hamirpur District of Himachal Pradesh State with Respect to Gender, Locale, Stream, and Family Status

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Abstract:

Cognitive styles refer to the preferred way individual processes information. Cognitive development implies the progressive change in mental process which goes on from birth to death. Cognitive process is an activity on the part of the organism, which is of a psychological nature. In this paper an attempt has been made to study cognitive styles of J.B.T. trainees of district Hamirpur in Himachal Pradesh in India with respect to gender, locale, stream & family status variables. J.B.T. trainees are the main people who help in the primary level of education of child. In this study researcher uses causal comparative method of research. Sample was drawn by random sampling, stratified sampling, incidental sampling and purposive sampling from the target population. Sample of 140 J.B.T. trainees was drawn from 5 institutes of district Hamirpur in Himachal Pradesh state. Kirton adaptation/ innovation inventory (KAI) was used in present study. Kirton adaptation/ innovation inventory (KAI) is a paper & pencil measure of cognitive style leading to characteristics pattern of problem solving & decision making. Scoring was done on a five point Likert format. And the 't' test was performed for testing the hypotheses. Result shows that highly significant differences were found among Arts male & Arts female J.B.T. trainees and significant differences were found among Science male & Arts male J.B.T. trainees in district Hamirpur of Himachal Pradesh with respect to their cognitive styles (Innovation/Adaptation).

Key words: Cognitive styles, J.B.T. trainees, gender, locale, stream, family status.

Introduction:

We are living in a new economy driven by knowledge. In recent years, research in T-L process has increasingly its emphasis from predictive studies of success & failure in performance to the understanding of cognitive process that account for terminal behaviour. Cognitive styles are considered as very important dimension of individual differences, which constitute the core basis of effective instructional programmes. For educator the diversity of children's individuality in school setting is an everyday fact of life. There are obvious demographic differences like sex, race, ethnic background & social class that distinguish pupils.

Cognitive styles refer to the preferred way individual processes information. Unlike individual differences in abilities (e.g., GARDNER, GUILFORD, STERNBERG) which describe peak performances, styles describe a person's typical mode of thinking, remembering or problem solving. Furthermore, styles are usually considered to be bipolar dimensions whereas abilities are unipolar (ranging from zero to a maximum value). Having more of ability is usually considered beneficial while a particular cognitive style simply denotes a tendency to behave in a certain manner.

Cognitive development implies the progressive change in mental process which goes on birth to death. Cognitive process is an activity on the part of the organism, which of a psychological nature.

Cognitive development includes various aspects such as development of concept, perception, language, memory, reasoning, thinking, imagination & intelligence. Without the concept of cognitive style it will be quiet difficult to carry out our daily task efficiently & also special tasks needs a certain

pattern of cognitive style which a person must have in order to handle their task successfully.

Cognition:

1. Cognition means “perception + thinking”.
2. Literally meaning of cognition- “to know”.
3. Cognition is the scientific term which means- “the process of thoughts”.

Cognition psychology is a branch of psychology that investigates internal mental process such as problem solving & language.

Nature & Definition of Cognitive Style:

The nature of cognitive style includes its meaning & kind or type. Cognitive style is related to thinking or it is a mental process. Cognitive style is a hypothetical construct that has been developed to explain the process of meditation between stimulus & responses.

Some of the definitions are given below:

“Cognitive style classifies individual according to their preferred mode of information intake (sensing & intuiting), & their preferred mode of information processing & subsequent decision making (thinking or feeling)”. (MAYERS & MACCAULLEY, 1985).

“Whole brain human information processing theory” classifies the brain as having six dimensions, three per hemisphere, which in a sense is a refined model of the hypothetical lateralization theory. (TAGGART, 1988).

An aspect of cognitive style that is less investigated is its “immediate and stable influence on human values & value systems”. (MCINTYRE, CLAXTON, & JONES, 1994).

“Cognitive styles represent dimension of individual differences in cognitive sphere, where individual remains relatively on a constant position”. (UTO, 1994).

“Cognitive styles are two types: convergent thinkers, good at accumulating material from a variety of sources relevant to a problem’s solutions, & Divergent thinkers who proceed more creatively & subjectively in their approach to problem solving”. (HUDSON).

Need & Justification of the study:

A review of the related literature shows that there hardly any study in which cognitive style of J.B.T. students with respect to gender & family status has been explained. Therefore, in the present study investigator kept it as an important objective of the study so that in their unstudied area some light can be thrown.

In this study an attempt has been made to study cognitive style of J.B.T. trainees of district Hamirpur in Himachal Pradesh w.r.t. gender, locale, stream & family status variables. J.B.T. trainees are the main people who help in the primary level of education of child.

Gender as male & female students. Locale as rural & urban students. Stream as arts & sciences. Family status as joint & nuclear families.

Statement of the Problem:

In order to improve the Educational processes at primary standard, cognitive style of J.B.T. trainees should be systematically investigated. In view of the current state of the research on cognitive style, the problem of study was stated as under: **“A STUDY ON COGNITIVE STYLES OF J.B.T. TRAINEES IN HAMIRPUR DISTRICT OF HIMACHAL**

PRADESH STATE WITH RESPECT TO GENDER, LOCALE, STREAM & FAMILY STATUS”

Objectives:

1. To study the difference in cognitive style of male & female J.B.T. trainees in district Hamirpur of H.P. (Himachal Pradesh).
2. To study the difference in cognitive style of science & arts J.B.T. trainees in district Hamirpur of H.P.
3. To study the difference in cognitive style of science male & science female J.B.T. trainees in district Hamirpur of H.P.
4. To study the difference in cognitive style of arts male & arts female J.B.T. trainees in district Hamirpur of H.P.
5. To study the difference in cognitive style of science male & arts male J.B.T. trainees in district Hamirpur of H.P.
6. To study the difference in cognitive style of science female & arts female J.B.T. trainees in district Hamirpur of H.P.
7. To study the difference in cognitive style of joint & nuclear families J.B.T. trainees in district Hamirpur of H.P.
8. To study the difference in cognitive style of rural & urban J.B.T. trainees in district Hamirpur of H.P.
9. To study the difference in cognitive style of rural male & urban male J.B.T. trainees in district Hamirpur of H.P.
10. To study the difference in cognitive style of rural female & urban female J.B.T. trainees in district Hamirpur of H.P.

Scope & delimitation:

The study has focused on the cognitive style of J.B.T. students. Variables are gender, locale, stream & family status. The

sample has been chosen from the five B.Ed. colleges of district Hamirpur of Himachal Pradesh. The present study was delimited in term of its objectives, hypotheses, sample, tools & statistical analysis. The finding of study may be interpreted in term of constraints of study. The generalizations are also understandable within the frame work of delimitation of study.

Meaning of the key terms used:

Cognitive style: It refers to the characteristic ways in which an individual conceptually organising the environment. Cognitive style or thinking style is a term used in cognitive psychology to describe the way individual think, perceive & remember information, or their preferred approach to using such information to solve problems.

JB.T. trainees: It refers to the people who are receiving their internship in teaching, a specialist the theory & practice of primary education.

Gender: Male & Female.

Family status: Joint or nuclear families.

Locale: Rural and urban.

Review of related literature:

The review of related literature studies has been presented in two points:

1. Research studies undertaken in Abroad.
2. Research studies undertaken in India.

Studies by foreign researchers are:

MORGAN (1976) examined convergent & divergent thinking in relation to cognitive style & reported that diverters appear to be more likely to prefer open student teaching & conversers utilize primary process or synthetic as opposed to analytical mode of thoughts.

BLACK (1977) studied the relationship between cognitive style & intelligence on sixth grade population of Newyork. A clear overlap existed with intelligence tests & EFT measures. It is recommended that IQ be measured & controlled whenever relationships are sought between cognitive style & other variables.

GOLDSTEIN & BLACKMAN (1978) stated that cognitive style as the characteristic '6666' ways in which thought is structured & behavioural consistency is viewed by them the product of this structure.

SATTERY (1979) stated that covariance of three cognitive styles with each other & against general intelligence construct. The study was conducted was on 430 students (aged 10-11 years). The field independence as assessed using the embedded figures test & levelling –sharpening by test devised by Gardener et al. (1986). The author found that factor four was the relatively small factor defined by the IQ test & on which embedded some support for the independence of cognitive style from general intelligence.

BORLAN (1981) investigate the relationship of cognitive controls, cognitive style & divergent production among gifted preadolescent. Result of the study shows that significant difference between subjects with an active vigilant style being favoured. No differences were found for the dependent variable of variety & uniqueness of cemented ideation or between the subjects with an active-relaxed cognitive style & the other subjects.

WOLFE (1982) investigated the relationship among sets of variables associated with individual differences cognitive style affective or social trades & measures of academic success. The author concluded that significant co-relation was found between cognitive style & academic success.

MACKENNA, F.P. (1984) reported that on examination, it was found that the measures of field dependence do not meet the criteria for a cognitive style at the conceptual level.

However, at the empirical level there was substantial correlation with standard ability tests.

ADDERLEY (1986) showed that the effects of student cognitive style, teacher cognitive style & instructional methods on the achievement of Baccalaureate nursing students. It was hypothesized that there would be no difference in achievement of students with a field independent cognitive style, who had utilized both an expository & guided discovery instructional method.

KIRTON (1986) found that men may be more intuitive than women. But, women were found to have more analysis organisation than men in Ager & Kirton (1986) study.

FRANK (1986) reported that students of science; mathematics & business were field independence than humanities students.

JOHNSON & EAGLY (1990) reported that women in authority position are more likely to downplay their expertise & authority and are more likely to be democratic i.e. collaborative & participating in dealing with those under them. These qualities are much a part of the facilitating & delegating styles of teaching.

LADD (1993) concluded a study to identify the teaching styles of secondary business education teachers. The findings indicated that most preferred teaching type was social / conceptual. The finding reveals that there were no significant differences in the scales of instructor, authority, inanimate, & iconic.

RIDING & RAYNER (1995) found that personal style was related to effective teaching.

WALSH (1998) made an attempt to study the effect of sex on age the cognitive styles of post secondary students. The finding of the study shows that although some sex & age group differences were significant, the actual magnitude of the difference was not large.

SOMMER (1999) reported that cognitive style variables were significantly related to level of depression.

KIRK (2000) investigated that the relationship of cognitive style to achievement in chemistry. Result indicated that field independence was significantly correlated with academic achievement in Chemistry.

ARMSTRONG & RAYNER, (2002) clear that the style field needs to continue working on the scientific rigour of its theory & measurement as well as its relevance to increase its value as a field of study within the individual differences psychology; otherwise it may become sidelined by mainstream scientific researchers & left to the indulgences of practitioners.

CRESWELL (2003) according to him the research approaches scholars can choose from multiplied over the last two decades, leading to long list of potential research methods, data collection procedures, & data analytic techniques.

PRIOLA ET AL; (2004) gives different style scholars called for increasing the number of qualitative & mixed-method approaches in the field as well as the use of multisource approaches to strengthen the rigour as well as the relevance of the style research.

RAYNER, (2006) studied that due to the origins of cognitive styles research within the psychometric tradition, cognitive style have mostly been studied with qualitative research methods, with the majority using self report measures.

KOZHEVNIKOV, (2007) observed by different cognitive style researchers, the level of interest in the field waxed & wanted over the past 70 years because of the unclear conceptualization of the concept in relation to personality & cognition, the lack of contact with the field of general psychology, the large number of style dimensions, & the variable quality of some early empirical style research.

RICCARDO VIALE (2009) his goal of studies is to single out the obstacles to the academy industry collaboration, the subject of the test should be articulated in at least four

categories: pure scientists, business oriented professor, academic entrepreneurs & industrial researchers.

ZHANG & STERNBERG, (2009) ; RAYNER & COOLS, (2010) defined cognitive styles, as consistent individual differences in way of perceiving, organising & processing information, are extensively studied across diverse research domains & from differing theoretical & conceptual point of view.

Studies by Indian researchers are:

VAIDYA, N (1964) investigated problem solving among certain groups of adolescent pupils (15+) & found that a given problem is solve over a wide IQ range. Furthermore, there is a general tendency among adolescent pupils to set up hypotheses that they test against the given data.

VAIDYA (1979) studied the growth of logical thinking in science during adolescence, on a sample of 100 boys & 100 girls studying in grade VI to X matched on intelligence & socioeconomic status & found that average performance increase with age & a given problem is solved successfully over a wide IQ range both within & across the grades.

PADMINI (1982) studied the growth of exclusion of variables during adolescence on 200 boys & girls in relation to other variables such as intelligence, personality, aptitude. Twelve Piaget type tasks were used to investigate stating & testing of hypotheses ability of adolescents.

MATHUR (1983) in a study of logical thinking among certain group of adolescent on a sample of 160 pupils studying in grades sixth to tenth ranging in between 11+ to 15+ respectively, she found increase in the performance of Piaget type task & IQ with grades.

SANDHU (1984) in a study of adolescent thought observed the increase in performance on Piaget type task with age in adolescent pupil & found significant inter-correlations between all seven schemes of thought of adolescents.

MISHRA, R.M (1986) conducted a study entitled, “a study of the role of hypotheses in problem solving in relation to personality traits, intelligence & socioeconomic status of 11+ school going children”. The major findings were:

- All boys had sure creative sign of insight, irrespective of place & school.
- Intelligence & socioeconomic status helped in reducing error among pupils.

AGRAWAL (1987) in his study entitled, “a study of reasoning pattern in science among certain groups of adolescent pupils studying the different type of school” reported significant sex differences.

DUTT, SUNIL (1989) conducted a study entitled “the effect of problem solving strategies on the problem solving ability in science of high school students in relation to in anxiety level & intelligence”. The main findings were:

- Intelligence was found to be highly correlated to problem solving.
- Anxiety has no contribution.
- Problem solving insignificantly correlated with achievement in science subjects through positive.

ASHOK KUMAR PANDEY (1992) in his study “divergent thinking in relation to scholastic achievement cognitive style, self concept & interest pattern” reported significant correlation between cognitive style & different dimension of creativity. It shows that learners with more complex & analytic cognitive structure show greater ability of divergent thinking.

KUSUM DUBEY (1997) in her study of problem solving ability with creativity & achievement in science reported the following results:

- Significant difference of means of scores w.r.t. scores of the variables of creativity especially originality.
- Significant difference of means of scores w.r.t. creative performance between good & poor problem solvers.

- Problem solving ability is found to be highly correlated with creative ability.
- Creative performance insignificantly but positively correlated with achievement in science subject.

VERMA & KATOCH (2001) reported that women teachers were more analytical than their counterpart male teachers in cognitive styles. They also found that most effective teachers to be significantly more analytic than least effective teachers.

KATOCH, K. (2002) found that most & least effective teachers differed significantly in their cognitive style. Most effective teachers had more analytic cognitive style than least teachers.

KUMAR RAJ (2002) found that male & female secondary teachers do not differ significantly with respect to their cognitive style.

KUMAR RAJ (2002) found that male students were higher on field independent cognitive style than female students & main effect of culture was found to be on cognitive style.

KUMARI BABITA (2007) found that male & female with arts & science prospective secondary teachers do not differ significantly with respect to their cognitive style.

SHARMA ANUPRIYA (2009) found that male & female teacher educators do not differ significantly with respect to their cognitive style.

PATIYAL ANUPAMA (2010) found that B.Ed. students having rural & urban background do not appear to differ significantly to their systematic & intuitive cognitive style.

Research methodology:

There are research methods: the historical, normative survey, experimental-the causal comparative method, the case study & genetic method etc. Considering the present problem in the

present investigation, the causal comparative method of research was employed. The casual comparative deals with the present events only.

Sampling:

In the present investigation random sampling, stratified sampling, incidental sampling & purposive sampling techniques were used.

Population:

All the JBT students in the B.Ed. colleges of district Hamirpur in Himachal Pradesh state.

Sample:

In the present study five B.Ed. colleges of district Hamirpur in Himachal Pradesh & 140 sample were drawn which includes JBT trainees on the basis of gender, locale, stream & family status.

- 60 students from DIET Gauna Karour Hamirpur.
- 20 students from SVNPG College Tarkwari.
- 20 students from DDM Sai College Kallar.
- 20 students from Trisha College Jol Sapper.
- 20 students from Hamir College Hamirpur.

Tool used:

Kirton adaptation/ innovation inventory (KAI) was used in present study. Kirton adaptation/ innovation inventory (KAI) is a paper & pencil measure of cognitive style leading to characteristics pattern of problem solving & decision making.

This inventory has 32 items & uses a 5-point response format asking subject to whether it is “very easy” “easy” neither easy nor hard, hard or “very hard” to describe himself by each of items theoretically KAI score may range 30-160. The reliability of the KAI using Kuder Richardson formula 20 coefficient (N=532) was 0.88, accounting for 78% of the internal

variance. Calculated for an additional independent sample of 276 subjects with KR-20 was 0.88. the test reliability was calculated at 0.82 using sample of 64 people in the final year of secondary school, with a 7 month interval between test.

Adaptation/ innovation inventory was designed by Dr. B.P. Verma in Hindi version which was made suitable to Indian situations.

Adaptation/ innovation inventory has a single dimension of cognitive style with two extremes. The two extremes are Innovative cognitive style & adaptive cognitive style. Inventory has 32 items distributed among two extremes i.e. 12 items for innovative style & 20 items for adaptive style.

Administration of the Inventory:

The inventory which is designed by Dr. B.P.Verma in Hindi version administered personally by the investigator to the JBT trainees in their corresponding classrooms.

Scoring:

Adaptation/ innovation inventory is a self-report research tool which gives an estimate of cognitive style of an individual in a five point-LIKERT format.

Five response categories are:

Strongly disagree (SD), Disagree (D), Undecided (U), Agree (A), and Strongly Agree (SD).

For statement number 1-12 the respondent has to refer to the above scale & for statement number 12-32 the respondent has to refer to reverse of above.

Statistical Techniques Used:

1. Descriptive statistics like Mean, Standard Deviation were used to compare the two groups.
2. The 't' test was performed for testing the research hypotheses.

Conclusion:

1. Male & Female J.B.T. trainees do not differ significantly with respect to their cognitive style (Innovation/Adaptation).
2. Science & Arts J.B.T. trainees do not differ significantly with respect to their cognitive style (Innovation/Adaptation).
3. Science male & Science female J.B.T. trainees do not differ significantly with respect to their cognitive style (Innovation/Adaptation).
4. Highly significant differences were found among Arts male & Arts female J.B.T. trainees in district Hamirpur of Himachal Pradesh with respect to their cognitive style (Innovation/Adaptation). As shown below with table and diagram:

Groups	N	Mean	Standard Deviation	Degree of Freedom	't' value	Remarks
Arts male	34	97.147	8.156	71	3.012	Highly significant
Arts female	39	102.192	5.756			

5. Significant differences were found among Science male & Arts male J.B.T. trainees in district Hamirpur of Himachal Pradesh with respect to their cognitive style (Innovation/Adaptation). As shown below with table and diagram:

Groups	N	Mean	Standard Deviation	Degree of Freedom	't' value	Remarks
Science male	36	101.167	5.270	68	2.433	Significant
Arts male	34	97.147	8.156			

6. Science female & Arts female J.B.T. trainees do not differ significantly with respect to their cognitive style (Innovation/Adaptation).
7. Joint family & Nuclear family J.B.T. trainees do not differ significantly with respect to their cognitive style (Innovation/Adaptation).
8. Rural & Urban J.B.T. trainees do not differ significantly with respect to their cognitive style (Innovation/Adaptation).
9. Rural male & urban male J.B.T. trainees do not differ significantly with respect to their cognitive style (Innovation/Adaptation).
10. Rural female & urban female J.B.T. trainees do not differ significantly with respect to their cognitive style (Innovation/Adaptation).

Suggestions:

The following suggestions may be undertaken for future researchers:

- The same kind of study may be conducted among other districts & also in other states.
- The same kind of study may be conducted among school, College & Universities level teachers & students.
- The study may be designed to predict the teaching effectiveness in relation to the cognitive style of teacher educators.
- The similar kind of study may be conducted on other teaching subjects such as social sciences, commerce etc.

Educational implications:

The study has its implications for the educational planners, administrators, policy makers, media person, and voluntary organisations & especially for teachers.

The finding showed that:

- To keep development in cognitive style of J.B.T. trainees, proper facilities should be provided, which will reduced tension & frustration.
- In the college there should be guidance & counselling bureau/ services for the development of cognitive style.
- Students should be provided good environment in the college so they can also be taught that cognitive style can be treated with the help of counsellors.
- The college should conduct seminars & conferences regarding the problem related to cognitive style of students.
- In the family the parents should provided congenial environment for the better development of cognitive style of the students.

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