# A STUDY OF CONSTRUCTIVIST PASSION OF SECONDARY SCHOOL TEACHERS WITH RESPECT TO THEIR COGNITIVE ABILITY AND EMOTIONAL STABILITY

***A dissertation***

***Submitted in partial fulfilment of requirement of the degree of***

***Master of education***


***Guide***

***Dr. Jayshree Das***

***Investigator***

***Ms. Suman Menghani***

***Department of Education (CASE)***

***Faculty of Education and Psychology***

***The Maharaja Sayajirao University of Baroda,***

***Vadodara 390002***

***April, 2020***

**Department of Education**

Centre of Advanced Study in Education

The Maharaja Sayajirao University of Baroda

Vadodara

# CERTIFICATE

This is to certify that Ms. Suman Menghani has conducted her dissertation work entitled "A STUDY OF CONSTRUCTIVIST PASSION OF SECONDARY SCHOOL TEACHERS WITH RESPECT TO THEIR COGNITIVE ABILITY AND EMOTIONAL STABILITY" under my guidance and supervision for the partial fulfilment of the degree of Master of Education (M.Ed.) at Centre of Advanced study in education (CASE) , Faculty Education and Psychology , The Maharaja Sayajirao University of Baroda, Vadodara. To the best of my knowledge, this dissertation is her genuine and original work. I find it satisfactory and fit for submission and evaluation.

Dr. Jayshree Das

Department of Education (CASE)

# DECLARATION

I Suman Menghani, hereby declare that the dissertation entitled "A STUDY OF CONSTRUCTIVIST PASSION OF SECONDARY SCHOOL TEACHERS WITH RESPECT TO THEIR COGNITIVE ABILITY AND EMOTIONAL STABILITY" conducted and submitted by me for the partial fulfilment of the M.Ed. programme at The Department of Education , Faculty of Education & Psychology ,The Maharaja Sayajirao University of Baroda, Vadodara , is my original work and has not been submitted earlier either to The Maharaja Sayajirao university of Baroda or to any other institution for any course requirement . I also declare that no chapter of this dissertation in whole or in part is taken from any earlier work done either by me or any other person.

Place: Vadodara Suman Menghani

Date: 26th March Investigator

# ACKNOWLEDGEMENT

First of all, I would like to thank and praise God, The Almighty, for providing me this opportunity, granting me the capability, guiding me to proceed successfully, for answering my prayers and giving me strength to plod on during each and every phase of my life.

I owe my sincere thanks to Prof. R.C. Patel, Dean and Head, Faculty of Education and Psychology who has been a source of constant support and motivation throughout the endeavour. He has always been supportive and lent a patient ear to all my problems.

I am highly indebted to my guide Dr. Jayshree Das, Associate Professor, Department of Education, Faculty of Education and Psychology, for her constant encouragement, patience, understanding and systematic guidance at every stage of dissertation.

I convey my sincere thanks to Prof. Ashutosh Biswal, Prof. Dipti Oza, Prof. S.C Panigrahi, Dr. Bhavin Chauhan and Ms. Pragya Singh. They have constantly allowed the paper to be my own work, but steered me in the right direction whenever they thought I needed it.

I want to thank the all school's principal who granted me the permission for my data collection along with all the teachers for helping in the data collection. A sincere gratitude towards the students who participated in the study, it would not have been possible without their co-operation.

I would also like to thank my friends, classmates and all Ph.D. research scholars for providing a helping hand whenever needed.

I want to especially thank the Librarians of the CASE Library at The Department of Education and Psychology. They were very helpful to complete my work.

I want to express my gratitude to my parents and family for always motivating me and help me push forward this wouldn't have been possible without you.

Vadodara Ms. Suman Menghani

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## 1.0.0 INTRODUCTION

Education is vital for social change. It is living through a continuous reconstruction of experiences with time. There is a phenomenal change in theory, practice and pedagogy considering the research, need and development of technology. In this process, the education field has observed a paradigm shift from teacher centered education to learner centered education giving more emphasis on learning by doing. In the present scenario, rote learning and learning by repetition have been emphasized on very few times, instead more emphasis is given on engaging students in active learning by constructing their own knowledge by taking into consideration their own abilities, perception and the available surroundings.

Philosophers, psychologists and educationalists have emphasized that learning takes place in the minds of learners considering the immediate surroundings through experiences. Learning is considered as the internalization of ideas, views and thoughts. It emphasizes on the ideas, views, thoughts and experiences that already exist with learner as it becomes the main source of learning. Hence, prior knowledge and experience of the learner provide a base for new learning. The above views have given rise to an innovative way of learning called 'constructivist learning' or 'learning with a constructivist perspective' where the learners are allowed to construct their own knowledge with the help of the available learning resources.

Highlighting the constructivist learning, National Curriculum Framework (NCF, 2005) proposed five guiding principles for curriculum development viz.

(i) Connecting knowledge to life outside the school
(ii) Ensuring that learning shifts away from rote methods
(iii) Enriching the curriculum so that it goes beyond textbooks
(iv) Making examinations more flexible and integrating them with classroom life
(v) Nurturing an overriding identity informed by caring concerns within the democratic polity of the country

The apex body related to school education, National Council of Educational Research and Training (NCERT) has also taken a step towards constructivism by preparing textbooks that promote student interaction and activity based learning, while at the same time minimizing the scope for rote learning. These books are used by most of the schools affiliated to the Central Board of Secondary Education (CBSE). Various state boards have also taken the initiative in this direction by including NCERT textbooks in their syllabus. There have also been attempts to translate these textbooks in their regional languages so that those can be used in vernacular medium schools. In addition, the NCF has also urged that a teacher should be a facilitator of children's learning in a manner that helps children to construct their own knowledge and get meaning out of it. The teacher in this process is a co-constructor of knowledge. It also opens out possibilities for the teacher to participate in the construction of syllabi, textbooks and teaching-learning materials. Such roles demand that teachers be equipped with an adequate understanding of curriculum, subject-content and pedagogy, on one hand, and the community and school structure and management, on the other. Teachers need to be well versed with the constructivism and need to have passion for it. They need to consider constructivism as a part and parcel of their life. This new perspective of learning has influenced the role of teachers to a great extent.

Unlike traditional methods, classrooms are no more teacher dominated but initiate learner ownership. Constructivist teaching requires teacher to encourage and accept student autonomy and initiative. A constructivist teacher is expected to be positive and passionate about putting constructivist philosophy into practice by providing learning experiences that are relevant and realistic. It should also represent complexities of real world which in turn evolves problem- solving, higher order thinking skills and deep understanding of content among learners. It demands a teacher to have deep knowledge and understanding in content knowledge, psychology and the pedagogy. It requires adequate cognitive ability for teachers to work in a constructivist environment like, idea generation, problem – solving, memory, flexibility and decision making to aid knowledge construction. It also requires teachers to possess emotional stability that facilitates them to actively understand the needs of the students to ensure their progress. Teachers need to be flexible to accept the ideas of students and to guide them in the right direction. This

needs the teachers to have a balanced personality having the qualities like constructivist passion, cognitive ability and the emotional stability. The present research work is an attempt to study these three aspects of secondary teachers like, constructivist passion, cognitive ability and the emotional stability and to examine the relations among these aspects.

### 1.1.0 OBJECTIVES OF SECONDARY SCHOOL EDUCATION

Secondary stage of school education is the stage between elementary and higher secondary stage of education. This stage generally comprises of grades 9 and 10. Secondary school students usually fall in the age group of 14 to 16 years. Students of this age group are going through crucial stage of adolescence period where they are experiencing rapid physical, cognitive, emotional and social development. In this phase, teachers even play an important role to guide them in the right direction to achieve the goals of education during this stage. The objectives of education at this stage have been changing over a period of time considering the scenario, technology, requirement of the nation and the existing pedagogy. Let us examine the objectives of secondary education at different times stated by various committees and commissions.

University Education Commission (1948-49) clearly stated that school should diversify its outcomes in such a way that many students could effectively participate in real life by taking up jobs or self-employment and only very few would continue study beyond school. The commission emphasized more on the vocational aspect of secondary education.

Secondary Education Commission (1952-53) also emphasized on vocationalization of secondary education giving importance on developing democratic citizenship among students along with intellectual, moral and social qualities.

National Policy on Education (1968) sought to end the dichotomy between work and education to make the products good workers as well as educated individuals. It recommended a minimum of 10 years of common curriculum for building citizenship in a democracy and for linking the “work of knowledge” with the “world of work”.

National Policy on Education (1986) had some important features like common school curriculum, minimum levels of learning, value education, role of media and

education technology, work experience, emphasis on teaching of Mathematics and Science, Sports and Physical Education and education for international understanding.

National curriculum framework (2005) has laid importance in providing a school culture that nurtures children's identities as 'learners', enhances the potential and interests of each child. Specific activities ensuring participation of all children-abled and disabled- are essential conditions for learning by all.

The major objective of commissions and policies is to provide such education that makes children employable or self employed. Some other objectives are to reduce the dichotomy between work and education, to develop democratic citizenship along with international understanding in students. Most suitable way to achieve these objectives is to adopt constructivism in Indian classrooms.

### 1.2.0 CONSTRUCTIVISM

Constructivism as a new theory of learning, is ruling the education system all-over the world. It is contrary to traditional teacher dominated classroom and encompasses the learner centered education system. It keeps the children active in a classroom and engages in knowledge construction process.

According to constructivist approach, learners bring their personal experiences into the classroom and these experiences have a tremendous impact on students' views of how the world works. Students come to learning situations with a variety of knowledge, feelings, and skills, and this is where learning should begin. This knowledge exists within the student and is developed as individuals interact with their peers, teachers, and the environment. Learners construct understanding or meaning by making sense of their experiences and fitting their own ideas into reality. This phenomenon is presented by Jean Piaget and other psychologist in the form of learning theories to explain the process of learning through constructivism.

### 1.2.1 THEORIES SUPPORTING CONSTRUCTIVIST LEARNING PROCESS

The constructivist process of learning has emerged after conducting various researches on human learning. In this process of learning, learners are active agents who engage in their own knowledge construction by integrating new information with prior knowledge and experience into their mental structure. This learning process is

seen as a process of meaning making in social, cultural, historical and political context. Here are few theories supporting constructivist learning process.

**(a) Vygotsky's Socio-cultural theory**

This theory of human learning describes learning as a social process and the origination of human intelligence in society or culture. It lays down that the social interactions play a fundamental role in the development of cognition.

The other aspect of this theory is the concept that, potential for cognitive development is limited to 'Zone of Proximal Development' (ZPD). This zone is the area of exploration for which the student is cognitively prepared, but requires help and social interactions to fully develop. A teacher or more experienced peer is able to provide the learner with 'scaffolding' to support the student's evolving understanding of knowledge domains for development of complex skills. Collaborative learning, discourse, modeling and scaffolding are the strategies to facilitate self directed learning, intellectual and skill development in the learners.

**(b) Jean Piaget's theory of cognitive development**

Jean Piaget's research on the development of child's cognitive functions is regarded by many as founding of principles of constructivist theory. He observed that the learning occurs through adaptation to interactions with the environment. Disequilibrium (mental conflict which demands resolution) gives rise to assimilation of a new experience, which is added to the existing knowledge of the learner, or accommodation, which is modification of existing knowledge of the learner, or to accommodation, which is modification of existing understanding to provide for new experience.

The learner plays an active role in learning activities that develops higher order thinking skills among students. A teacher should focus on the process of learner's thinking and just on its product. The crucial role of child's self-initiation should be recognized instead of presentation ready- made knowledge to them. A teacher should also accept the individual differences at different developmental stages.

**(c) Jerome Bruner's learning theory**

Bruner's theory on constructivism encompasses the idea of learning as an active process wherein those learning are able to form new ideas based on what their current knowledge is as well as their past knowledge. A cognitive structure is defined as the mental processes which offer the learner the ability to organize experiences and derive meaning from them. These cognitive structures allow the learner to push past the given information in constructing their new concepts.

The learner, often a child, will take pieces of their past knowledge and experiences and organize them to make sense of what they know, then base further concepts and solve additional problems based upon a combination of what they already processed and what they think should be processed next. The teacher should provide feedback that is directed towards intrinsic motivation.

### 1.2.2 FEATURES OF CONSTRUCTIVIST TEACHING AS LISTED IN NATIONAL CURRICULUM FRAMEWORK-2005

Like in the other parts of school system of the world, the Indian school system found the importance of constructivism and adopted in school education. NCERT considered and advocated constructivism as a quality parameter for classroom teaching and learning in the state and central school syllabus. It has expounded constructivism as one of the important pedagogical practice in 'National Curriculum Framework-2005'. Following are the important constructivist pedagogical practices listed in NCF 2005.

1. In Constructivist view, learning process emphasizes on construction of knowledge.

2. Students interact with materials and experiences provided by the teachers to construct their knowledge in the background of prior knowledge.

3. Structuring and restructuring of ideas leads to progress in students' learning process.

4. Students construct their mental images of relationship i.e., cause and effect relationship through relevant activities.

5. Knowledge construction is also a social process. In true sense, complex knowledge situated in group and needs collaborative learning to enable the students to engage in discussion of meaning, sharing of multiple views and to change their internal representation of external reality.

6. Students construct their knowledge individually as well as socially.

### 1.2.3 CONSTRUCTIVISM AS PHILOSOPHY

Constructivism is seen as a wider concept when it is considered as a philosophy. It is a philosophy of learning founded on the premise that, by reflecting on experiences, one constructs our own understanding of the world they live in. Any philosophy can be best understood by defining its nature with respect to it metaphysics, epistemology and axiology.

- Metaphysics- Constructivism considers reality as constructed by one self. This reality is not consistent and verifiable. It does not believe in generalization.
- Epistemology- Constructivism believes that knowledge is 'constructed' on the basis of prior knowledge, human perception and social experience.
- Axiology- Constructivism says that values are developed through experiences that a person gets.

### 1.2.4 IMPACT OF CONSTRUCTIVISM ON LEARNING

- Curriculum- It requires elimination of standardized curriculum. It promotes customized curricula designed according to the prior knowledge of the learner. It also emphasizes on providing learning experiences that engage learner in problem- solving.
- Instruction- Teacher tries to establish connection between facts and the new understanding expected to be developed among students. Teachers design their teaching strategies according to the students' responses and encourage students to analyze, interpret, and predict information. Teachers also rely upon open-ended questions and promote extensive dialogue among students.
- Assessment- It calls for elimination of grades and standardized testing. Instead, assessment becomes part of the learning process so that students play a larger role in judging their own progress.

### 1.2.5 ROLE OF TEACHER IN CONSTRUCTIVIST TEACHING

Teacher has to discharge diverged role in classroom to create constructivist environment. Brooks and Brooks, (1999) listed the following role of constructivist teacher in their famous book 'In search of understanding: the Case for Constructivist Classrooms".

1. Constructivist teacher encourages and accepts student autonomy and initiative.

2. Constructivist teacher uses raw data and primary sources, along with manipulative, interactive, and physical materials.

3. When framing the tasks, Constructivist teacher uses cognitive terminology such as "classify", "analyze", "predict" and "create".

4. Constructivist teacher allows student responses to drive lessons, shift instructional strategies and alter content.

5. Constructivist teacher inquiries about students understanding of concepts before sharing their own understandings of those concepts.

6. Constructivist teacher encourages students to engage in dialogue, both with teacher and with one another.

7. Constructivist teacher encourages student inquire by asking thoughtful, open-ended questions and encouraging students to ask questions of each other's.

8. Constructivist teacher seeks elaboration of students' initial responses.

9. Constructivist teacher engages students in experiences that might engender constructions to their initial hypotheses and then encourage discussion.

10. Constructivist teacher allows wait time after posing questions.

11. For students to learn, they need to receive different 'lenses' to see things in new ways.

12. Constructivist teacher provides time for students to construct relationships and create metaphors.

13. Constructivist teacher nurtures student's natural curiosity through frequent use of the learning cycle model.

### 1.2.6 CONSTRUCTIVIST PASSION

Dr. Robert Vallerand has done extensive work into defining passion as a modern psychological construct. He defined passion as, "a strong inclination towards a self-defining activity that people love, that they consider important, and in which they devote significant amounts of time and energy" (Vallerand, 2010). A self-defining activity means one that contributes significantly to a person's identity — the difference between being a footballer (a passion) and playing a football (a pastime).

Constructivist passion can be defined as powerful fondness of teacher towards constructivism and making all possible efforts to practice it in everyday teaching-learning process. The following components can be considered to determine constructivist passion among teachers.

**a) Passion for learning**

An individual who has passion for learning is intrinsically motivated to acquire new knowledge. A teacher who is has passion for learning, makes all efforts towards self development by learning new and innovative methods of teaching. She exhibits life-long learning competency that can help her to provide creative and constructive learning experiences to the students.

**b) Passion towards teaching profession**

Strong positive attitude towards teaching is a pre-requisite for a teacher to have passion for constructivism. Teachers with positive attitude towards teaching will be enthusiastic, devoted and committed towards their work. They will not hesitate to put in extra time and efforts to enhance students learning.

**c) Initiation**

It is an ability to act proactively. A constructivist teacher should have the ability to take initiative to develop and experiment new and innovative activities in the

classroom that proves to be beneficial for students in enhancing their knowledge and skill.

**d) Commitment towards novelty in work**

A person who continuously strives to bring improvement and innovation in his/her work is said to be committed towards novelty. Constructivism requires a teacher to be committed towards novelty because such a teacher can be passionate about developing new and upgraded methods and approaches.

**c) Accepting criticism**

Accepting criticism develops insight, explains a new prospective and shows things that one may have overlooked earlier. A constructivist teacher will possess the quality of positively accepting criticism and looking for all possible solutions to enhance her skills, be more self- aware and make her more competent and effective to facilitate students.

**d) Support for students' orientation**

Students' orientation reflects students' involvement in all the aspects of learning. A teacher who supports students' orientation will allow student to develop understanding at their own pace, encourages and accepts student's participation in knowledge construction, designing learning activities, self- evaluation and reflection. It includes students' social background along with academic history.

**e) Trusting students**

Trusting students is a prerequisite for constructivism. A teacher has to place faith in students as they are the one who lead a constructivist classroom. A teacher who has trust in student believes in inculcating quality of self- discipline. She accepts and encourages active role of students in the class.

**f) Perseverance**

Perseverance is the quality of continuing with something even through it is difficult. If a teacher possesses the quality of perseverance, she will make continuous efforts to adopt constructivism in the classroom by accepting all its challenges.

(g) **Open-mindedness**

An open-minded person is the one who is willing to listen to and consider other person's ideas and suggestions. A teacher who demonstrates constructivist passion will be willing to consider new methods of teaching and will not be rigid towards adopting those methods in the classroom.

(h) **Practicing higher order thinking skills.**

A person practicing higher order thinking skills will have ability of synthesizing, analyzing, reasoning, comprehending, application, and evaluation. A teacher with constructivist passion will practice higher order thinking in her day to day activities in the school.

## 1.3.0 COGNITIVE ABILITY

Cognition explains how a person understands the world and acts in it. It is a set of mental abilities that form a part of all the actions that humans perform. It is also described as an interaction between knowledge- driven processes and sensory processes, and between controlled processes and automatic processes; this interaction is continuous and life-long process.

According to Karthiyayini (2018), Cognitive ability includes ability to attend, perceive, discover, recognize, imagine, judge, conceptualize, remember, learn and indulge in meaningful speech and also to consequent growth in knowledge and adjustment to environment. Cognitive abilities are brain-based skills we need to carry out any task from the simplest to the most complex. They have more to do with the mechanisms of how we learn, remember, problem-solve, and pay attention, rather than with any actual knowledge. For instance, answering the telephone involves perception (hearing the ring tone), decision taking (answering or not), motor skill (lifting the receiver), language skills (talking and understanding language), social skills (interpreting tone of voice and interacting properly with another human being).

Cognitive abilities or skills are supported by specific neuronal networks. For instance memory skills rely mainly on parts of the temporal lobes and parts of the frontal lobes (behind the forehead).

Teachers with strong cognitive abilities are more likely to experiment and develop new methods of teaching in the classroom to achieve maximum learning among students. Strong cognitive abilities of teachers may facilitate efficient implementation of constructivist approach in the classroom.

### 1.3.1 DIMENSIONS OF COGNITIVE ABILITY

Followings are the major dimensions of cognitive abilities.

**a) Idea generation**

The stage of idea generation, also called "ideation", whose objective is individual or collective identification of new ideas or opportunities, is often recognized as one of the highest leverage point for an organization (Touobia, 2006). This is the creative stage where new ideas are generated and/or new opportunities identified. According to Titus, idea generation, or the act of generating novel, applicable ideas, is the activity most frequently associated with creative problem solving. Osborn stated that individuals are likely to experience the greatest difficulty during idea generation. Idea generation is any conclusion existing in the mind as a result of a mental understanding, awareness, or activity.

In philosophy, ideas are usually defined as mental representational images of some object. Ideas can also be abstract concepts that do not present as mental image. Many philosophers have considered that capacity to create and understand the meaning of ideas is an essential and defining feature of human beings. In a popular sense, an idea arises in a reflective, spontaneous manner even without thinking or serious reflection, for example, while talk about the idea of a person or place. A new or original idea can often lead to innovation.

Idea generation is also important because it enables an individual to expand its current range of thinking. It facilitates out of the box thinking, taking up challenging tasks and finding best possible way to overcome it. It is eminent for putting constructivist approach in to practice as it helps teachers to evolve innovative ways of teaching that in turn leads to knowledge construction in students.

**(b) Problem- solving**

Problem- solving is a mental process that involves discovering, analyzing and solving problems. The ultimate goal of problem- solving is to overcome obstacles and find solution that best resolves the issue. The best strategy for solving a problem depends largely on the unique situation. In some cases, people are better off learning everything they can about the issue and then using factual information to come up with a solution. In other instances, creativity and insight are the best options.

According to Skinner (1968), "Problem-solving is a process of overcoming difficulties that appear to interfere with the attainment of a goal. It is a procedure of making adjustment in spite of interferences". Following are the steps in problem- solving.

- **Identifying the problem:** This step is not as simple as it sounds. In many cases people might mistakenly indentify the wrong source of problem, which will make attempts to solve it inefficient or even useless.
- **Defining the problem:** It is necessary to define the problem in dept once it is identified because a problem well defined is half- solved.
- **Framing a strategy:** A strategy to be employed varies depending upon the situation and individual's unique preferences.
- **Organizing information:** Before coming up with a solution, it is important to first organize all the available information, the better prepared one will be the one to come up with the accurate solution.
- **Allocating resources:** Due to limited availability of resources, it is necessary to prioritize the problems to be solved and allocate the resources according to it.
- **Monitoring Progress:** Problem-solvers tend to monitor their success and if they are not making progress towards reaching their goal, they re-evaluate their approach and if necessary retrace the steps to solve the problem.

- **Evaluating the results:** Evaluating the results helps to find best possible solution to the problem. The evaluation may be immediate or delayed depending upon the type of problem and solution.

Being able to solve problems sometimes involves dealing with pragmatics (logic) and semantics (interpretation of the problem). The ability to understand what the goal of the problem is and what rules could be applied represents the key to solving the problem. Sometimes the problem requires some abstract thinking and coming up with a creative solution.

Problem- solving ability in teachers aids them to understand the problem thoroughly and find the most suitable solution to it. It helps teachers to think critically and to make decisions that lead to achievement of learning outcomes.

**(c) Memory**

Memory is the faculty of the mind by which information is encoded, stored and retrieved. Memory is vital to experience. Without memory, men will not be men. If men cannot remember past events, they cannot learn or develop language, relationships, nor personal identity.

"The power that we have to store our experiences, and to bring them into the field of our consciousness some time after the experiences have occurred, is termed memory". (Ryburn, 1956)

There are three main stages in the formation and retrieval of memory:

- **Encoding:** receiving, processing and combining of received information.
- **Storage:** creation of a permanent record of the encoded information in short term or long term memory.
- **Retrieval, recall or recollection:** calling back the stored in formation in response to some cue for use in a process or activity.

Memory helps teachers in storing the previous learning experiences and its impact on knowledge construction of students. It facilitates teacher to design new learning experiences for the students by recalling or collecting the previous experience. It makes a teacher more creative and innovative.

**(d) Cognitive flexibility**

Cognitive flexibility is the human ability to adapt the cognitive processing strategies to face new and unexpected conditions in the environment (Cañas et al., 2003).This definition involves three important concepts .Firstly, cognitive flexibility is an ability which could imply a process of learning, that is, it could be acquired with experience. Secondly, cognitive flexibility involves the adaptation of cognitive processing strategies. A strategy, in the context of this definition, is a sequence of operations which search through a problem space (Payne et al., 1993). Therefore, it refers to changes in complex behaviors, not in discrete responses. Finally, the adaptation will occur to new and unexpected environmental changes after a person has been performing a task for some time.

Cognitive flexibility helps in updating old beliefs by adapting to new information; multi-faceted thinking and establishing similarities between completely unrelated concepts. It facilitates a constructivist teacher to accept and encourage active participation of student in the teaching learning process and also helps to evaluate students' level of understanding in a better manner.

**(e) Decision making**

"Decision making is the study of identifying and choosing alternatives based on the values and preferences of the decision maker. Making a decision implies that there are alternative choices to be considered, and in such a case we want not only to identify as many of these alternatives as possible but to choose the one that best fits with our goals, objectives, desires, values, and so on." (Harris, 1980)

In psychology, decision making is regarded as the cognitive process resulting in the selection of a belief or a course of action among several alternative possibilities. Every decision making process produces a final choice; it may or may not prompt action. It is the process of identifying and choosing alternatives based on the values and preferences of the decision maker. According to JunosFulop (2008), a general decision making process can be divided into following steps:

- **Define the problem**

The goal of this step is to express the issue in a clear, one-sentence problem statement that describes both the initial conditions and the desired conditions.

- **Determine requirements**

Requirements are conditions that any acceptable solution to the problem must meet. Requirements spell out what the solution to the problem must do.

- **Establish goals**

Goals are broad statements of intent and desirable programmatic values.... Goals go beyond the minimum essential must have's (i.e. requirements) to wants and desires.

- **Identify alternatives**

Alternatives offer different approaches for changing the initial condition into the desired condition. Be it an existing one or only constructed in mind, any alternative must meet the requirements. If the number of the possible alternatives is finite, we can check one by one if it meets the requirements.

- **Define Criteria**

Decision criteria, which will discriminate among alternatives, must be based on the goals. It is necessary to define discriminating criteria as objective measures of the goals to measure how well each alternative achieves the goals.

- **Evaluate the alternative against criteria**

Every correct method for decision making needs, as input data, the evaluation of the alternatives against the criteria.

- **Validate solutions against problem statement**

The alternatives selected by the applied decision making tools have always to be validated against the requirements and goals of the decision problem.

Decision making is an important cognitive skill for teachers as it helps a teacher to understand the learning difficulties of the students, analyze all possible methods to overcome those difficulties and select the best method that achieve the learning objectives.

### 1.4.0 EMOTIONALSTABILITY

Emotion is a complex experience of consciousness, bodily sensation and behavior that reflects the personal significance of a thing, an event, or state of affairs. Many types of emotions like pleasure, frustration, love, affection, fear, anger, hate makes a person happy and at times sorrowful. Stability in emotion means firmly established or fixed, not easily upset or disturbed, well balanced and capable to remain in same status. An individual who is able to keep his emotions stable and under control even in extreme situations, might still be emotionally stunned or be childish in his behavior sometimes. (Karthiyani, 2017)

Emotions are subjective experiences that vary from individual to individual depending upon the perception, past experiences and cognitive interpretation of the situation. Emotions can be understood as an agitated or exited state of body and mind.

According to Crow and Crow (1973), “Emotion is an affective experience that accompanies generalized linear adjustment and mental and physiological stirred-up states in the individual and that shows itself in his overt behavior”.

According to Smithson (1974) has viewed emotional stability as a multi-trait non-cognitive psychological concept. He defines emotional stability as a process inwhich personality is continuously striving for greater sense of emotional healthboth intra-psychically and intra-personality. Emotional stability enables the personto develop an integrated and balanced way of perceiving the problems of life.

Thorndike and Hagen (1979) consider that emotional stability of a person is characterized by evenness of moods, intent, interests, optimism, cheerfulness, composure, feeling of being in good health, freedom from feeling of guilt, worry or loneliness, freedom from day dreaming, freedom from perseveration of ideas and moods.

Menninger (1999) recommended the criteria of emotional maturity, includes the ability to deal constructively with reality, to adapt to change, a relative freedom from symptoms that are produced by tensions and anxieties, to find more satisfaction in giving than receiving and to relate to other people in a consistent manner with mutual satisfaction and helpfulness. The capacity to sublimate and to redirect one's instinctive hostile energy into creative and constructive outlets.

An emotionally stable individual has the capacity to make effective adjustment with himself, members of his family, his peers, society and culture. However, stability does not mean merely the capacity for such attitudes and functions, but also the ability to enjoy them fully. Emotional stability is an important and useful state of being. With emotions managed and under control, yet still having the ability to feel intense emotion and understand the reason for the emotions, gives power over the circumstances.

Emotional stability means, in essence, controlling one's emotions rather than allowing your emotions to control yourself. That does not mean we should hide or suppress our emotions, though we can use muscle relation, yoga, guided imagery and other relaxation tools to reduce their intensity. An emotionally stableperson will have many of the following traits: (1) Knowing what one wants and making it happen. (2) Thinking before acting and having control over one's behavior. (3) Self reliance and the ability to take responsibility for one's life and actions. (4) Patience. (5) The ability to connect with others in a cooperative and positive way. (6) Genuinely caring about others and demonstrating that ability. (7)Honesty and living by one's principles. (8) Having moderation and balance in all things. (9) Having the ability to follow through, even when it is difficult. (10)Humility and the ability to say, 'I was wrong, I am sorry.'(Singh, 2013)

Emotional stability is obtained through inner conviction. This conviction results from the trust in one's faith and in the ideas one possesses. This is what gives one a sense of security. It neutralizes environmental instability and helps one to face pressure or helps to maintain equal control by refraining from excess and extravagance.

Emotional stability is essential among teachers as it supports them to perform their role competently. It aids teachers to face challenges that are encountered during

the teaching learning process through critical and rational thinking. It assists them to work as facilitator and motivator for developing a positive outlook towards life among students.

### 1.5.0 RATIONALE

Process of education has certain stated and unstated educational goals and the responsibility of achievement of these goals rests on the teachers. The recipients of the education are the students and the subject matter of education is the content which is passed on from the teachers to the students. Thus, education process consists of a tri-polar structure viz. the teacher, the student and the subject matter. The objectives of this process are achieved through the learning. According to NCF (2005) Children learn in a variety of ways—through experience, making and doing things, experimentation, reading, discussion, asking, listening, thinking and reflecting, and expressing oneself in speech, movement or writing—both individually and with others. They require opportunities of all these kinds in the course of their development. It is assumed that the learning should be taken place properly among students. Learning is best retained when it is acquired through experiences (Dale, 1969) as most of the senses are involved in the process of experience. This type of learning is possible through constructivism, which is the major focus of learning today.

Constructivism is an innovative approach of learning that highlights student centered classroom. In the constructivist perspective, learning is a process of the construction of knowledge by the learners based on their individual differences. Learners actively construct their own knowledge by connecting new ideas to existing ideas on the basis of materials/activities presented to them (experience).Constructivism based instructional design foster critical thinking and creates active and motivated learners and they make up their mind to invent and construct new ideas(NCF, 2005). Constructivism based teaching is important because it creates learner who are independent and curious thinkers. In this process, teacher acts as facilitator and guide by providing opportunities to question, enquire debate, reflect, and arrive at concepts or create new ideas. An element of challenge is critical for the process of active engagement and learning various concepts, skills and positions through the process. Teachers can be trained in the philosophy of

constructivism easily, if they have the passion for it. In the proposed study an attempt will be made to know the constructivist passion of the secondary school teachers with respect to certain aspects like, their cognitive ability and emotional stability.

Our government has made a great attempt to put constructivism into practice by designing NCF, 2005 that guides teachers to carry out constructivist approach in classrooms. The NCERT has also taken steps towards implementing constructivism by designing the text books that leaves space for students to construct their own knowledge. Another initiative was taken by National Council for Teacher Education (NCTE) by increasing the duration of teacher education courses to two years which provides more time for internship that gives an opportunity to be teachers to practice innovative methods of teaching in their classrooms including constructivist methods. So it can be said that the country is all set to practice constructivism in the classroom but the question that remains unanswered is- Are our teachers ready for this change?

As per the need of the time, teacher should have passion towards constructivism. He/She should be motivated to be initiative, learn new methods and approaches, experiment novelties and should encourage students' orientation in the classroom. A teacher having constructivist passion can be trained and learned to be a constructivist teacher. It is the time to see whether our teachers are ready having constructivist passion to be trained in the philosophy of constructivism. Researcher believes that a constructivist teacher should have high in cognitive ability and should be emotionally stable also. Cognitive ability will help a teacher to plan the most suitable activity that can enhance learners meaning making abilities. At the same time, emotional stability aids teacher to be empathetic towards the learner to understand and evaluate the progress of the learner. It is also time to know the relationship of constructivist passion of teachers with their cognitive ability and emotional stability. Secondary is a phase that prepares students for the world of vocations and higher education. It is very critical for a child to develop different kinds of higher order thinking which is possible through constructivist philosophy in education. As CBSE is all set to implement the constructivist philosophy in the teaching and learning, it is high time to know the constructivist spirit among the secondary school teachers affiliated to CBSE. Also, from the review of related literature, no study was found on the constructivist passion or similar traits that can show the inclinations towards the constructivism philosophy. Hence, the proposed study is an attempt in this direction to

establish the relationship of constructivist passion of teachers with their cognitive ability and emotional stability.

### 1.6.0 STATEMENT OF THE PROBLEM

A Study of Constructivist Passion of Secondary School Teachers with respect to their Cognitive Ability and Emotional Stability.

### 1.7.0 OBJECTIVES OF THE STUDY

The present study was conducted with the following objectives.

1. To study the constructivist passion of secondary school teachers.
2. To study the cognitive ability of secondary school teachers.
3. To study the emotional stability of secondary school teacher.
4. To study the correlation between constructivist passion and cognitive ability of secondary school teachers.
5. To study the correlation between constructivist passion and emotional stability of secondary school teachers.
6. To study the correlation between cognitive ability and emotional stability of secondary school teachers.
7. To study the influence of cognitive ability and emotional stability on constructivist passion of secondary school teachers.

### 1.8.0 HYPOTHESIS

The following null hypotheses were formulated to achieve the said objectives of the present study to be tested at 0.05 levelof significance.

**$H_0$1**There will be no significant relationship between constructivist passion and cognitive ability of secondary school teachers.

**$H_0$2** There will be no significant relationship between constructivist passion and emotional stability of secondary school teacher.

**$H_0$3**There will be no significant relationship between cognitive ability and emotional stability of secondary school teachers.

**$H_0$4**There will be no significant influence of cognitive ability and emotional stability on constructivist passion of secondary school teachers.

## 1.9.0 OPERATIONAL DEFINITION OF TERMS

Following terms used in the present study are operationally defined in terms of measurable and observable terms.

**a) Constructivist Passion:** Constructivist passion of a secondary school teacher is the score secured by him/her in the constructivist passion scale prepared by the investigator.

**b) Cognitive Ability:** Cognitive ability of a secondary school teacher is the score secured by him/her in the cognitive ability scale developed by Karthiyayini (2017).

**c) Emotional Stability:** Emotional stability of a secondary school teacher is the score secured by him/her in the emotional stability scale developed by Karthiyayini (2017).

## 1.10.0DELIMITATIONS OF THE STUDY

The present study is delimited to the teachers of the secondary schools in Vadodara city affiliated to Central Board of Secondary Education (CBSE), New Delhi only.

## 1.11.0 SCHEME OF CHAPTERIZATION

The present study follows the listed scheme of chapterization.

Chapter I details the introduction of the present study along with all the taken variables. The chapter helps to build the rational for the present study. The appropriateness of the study and the reason to conduct the study is presented in this chapter. The chapter also presents the details of the objectives of the study, the hypothesis,operational definition of terms and delimitations of the present study.

Chapter II gives a detail of the reviewed literatures in the field of cognitive ability, emotional stability and constructivist passion. This helped the researcher to prepare the implications of the review of related literature for the present study. It also helped the researcher to consider different methodological aspects for the present study.

Chapter III details with the methodology adopted in the present study. This chapter details about the design of the study, the population and sample, the procedure followed to develop and select the tools used for data collection and the procedure of data analysis adopted.

Chapter IV provides details of the analysis and interpretation of collected data. The chapter also provides the findings of the present study and implications of the same.

Chapter V presents the whole study in a nutshell along with the major findings of the present study, the discussion on the results arrived at after the analysis, implications drawn from the present study and suggestions. This chapter is followed by the Bibliography and Appendices.

# Chapter – II

# Review of Related Literature

# CHAPTER II
# REVIEW OF RELATED LITERATURE

## 2.0.0 INTRODUCTION

Review of related literature gives a clear idea to the researcher about the researchers that have been conducted in his/ her field of research. In the present study researcher has carried out review in two categories. The first category is reviews related to constructivist learning/passion, the second category reviews are related to cognitive ability and the third category is related to emotional stability/intelligence. The researcher has made an attempt to understand the objectives, sample and sampling techniques, research design, data collection tools, data analysis techniques and the findings of the related studies. On the basis of the analysis of the review of related literature, the implication of the related literature is developed for the present study.

## 2.1.0REVIEWS RELATED TO CONSTRUCTIVIST LEARNING/PASSION

**Philippe (2009)** conducted a study entitled "Passion does make a difference in people's lives: A look at well-being in passionate and non- passionate individuals". The purpose of the present research was to examine the differences in well-being between passionate and non-passionate individuals of various age groups. Research has provided empirical support for the concept of passion. The tool for data collection used was a two-factor structure of the Passion Scale, an instrument developed to measure harmonious and obsessive passion. Results using this scale revealed that both harmonious and obsessive passion were positively associated with measures of activity valuation, perceptions of the activity as a passion, time and energy investment in the activity, and inclusion of the activity in the person's identity. The findings of the study (total n = 885) provided support for the hypothesis that being harmoniously passionate for an activity contributes significantly to both hedonic and eudaemonist well-being, while being obsessively passionate for an activity or having no passion at all does not contribute to well-being.

**Moeller (2013)** conducted a study entitled "Passion as a concept of psychological motivation". This thesis focused on the psychological construct of passion for activities, particularly on the conceptualization, measurement, stability and inter-

individual variability of passion. A first paper reviews the literature about passion and related constructs and suggests a new definition of passion as an individual's coinciding desire and commitment towards an activity. The second paper of this thesis suggests a scale for the assessment of desire, commitment, and further more specific components of passion. The third paper investigated the relation of passion to specific facets of personality, particularly the sensitivity to reward and positive trait affectivity. Finally, the fourth paper investigated the stability of passion among adolescents across a period of two years, and disentangles the extents to which situation-specific and person-specific influences account for the observed variance in passion.The main findings of this thesis are:1. Most psychological definitions of passion coincide in defining passion as a multifaceted construct that describes an individuals' coinciding experience of desire and commitment towards an activity, including the feeling of strong approach motivation, high arousal affect, continuous action plans pertaining to the activity, identification with the activity, and long-term goals referring to the activity.2. Commitment is a central component of passion. The conducted studies support the definition of passion as coincidence of commitment and desire for activities. 3. Passion is positively correlated with affect- and reward-related personality traits, particularly with the sensitivity to reward and positive trait affectivity.

**Ganiger (2014)** conducted a study on development and implementation of ICT aided constructivist learning approach for the professional development of pre service teachers. The objectives of the study were 1. To develop and check the effectiveness of ICT aided constructivist learning approach in science for the pre-service teachers. 2. To study the level of professional development of Pre-Service teachers through ICT Aided Constructivist Learning Approach. the sample includes all of 35 science method pre service teachers of university college of education of Dharwad, as experimental group, whereas, that of 30 Science Method Pre-Service Teachers of Dr. Kamala Baliga College of Education, Kumta, as the Control Group of the academic year 2011-2012. About 437 school students constituted the sample. The Colleges of Education were selected purposively, whereas, the Pre-Service Teachers and the School Students were selected through cluster sampling. The tools used for data collection were questionnaire, reaction scales, observation schedule, semi- structured interview schedule, focused group discussions, field notes of researcher and rubrics

were constructed to assess the lesson designs. The findings of the study revealed that 1. ICT Aided Constructivist Learning Approach (ICTACLA) inclusive of Lesson Designs through ICTACLA and Introductory User Manual was found to be well developed. 2. The Pre-Service Teachers, School Students and Teacher Educators were found to have favourable reactions towards the developed programme based on ICTACLA. 3. The interventions provided to pre- service teachers were found to be effective. 4. It is evident from all the findings that the ICTACLA has been found to be effective at both the Teacher Education and School level. 5. It is evident through all the findings that the ICTACLA has been found to be effective in facilitating the Professional Development of the Pre-Service Teachers.

**Mondal (2014)** conducted a study of constructivism towards teaching in the secondary school of Santiniketan, West Bengal. The main objectives of the study were 1.To study relationship between the teaching method and the achievement of the secondary school students of Santiniketan. 2. To examine the difference between male and female teachers regarding constructivist approach. 3. To study whether the experience of teachers have impact on constructivism approach. The investigator has adopted two tools to conduct the study. To conduct pre test and post test, the investigator has developed achievement test (for 25 marks) separately for grade 9 and 10 students. And to gather information from the teachers the investigator has constructed a questionnaire consists 20 items with “yes” or “no” options. The major findings of the study were 1. In both grade 9 and grade 10, the post-test scores are significantly higher than the pre-test scores. It shows constructivist approach play important role in teaching and learning in the secondary level. 2. There is a significant difference between the male and female teachers in respect of constructivist approach in their teaching learning. The male teachers have more constructivist approach. 3. There is no significant difference between the experience of teachers and constructivist approach in their teaching.

**Paradkar (2015)** conducted a study on development and effectiveness of constructivism based instructional package for student teachers. The main objectives of the study were 1.To analyze the content of textbook of English language of 10th std. for Marathi medium Schools. 2. To develop an instructional package based on constructivism for 10th std. 3.To give training of instructional package to student teachers.4. To implement the package on students of 10th std. 5.To compare the result

of package with Experimental and controlled group. The tools used for data collection were course content check list, constructivist observatory assessment scale (COAS) to observe the lessons of student teachers, test papers to check the effectiveness of the programme. The major findings of the study were 1. The English textbook focused on more constructivist activities like thinking, problem solving, group projects, group presentations, dramatization, role plays, etc. 2. The training of constructivism based instructional package produced positive change in the experimental group regarding curiosity and assimilation of previous knowledge. Hence the package is effective for conformity of the previous knowledge. 3. The programme was helpful in providing motivation to students as well it developed skills like problem- solving, observation and scaffolding.

**Johri (2016)** conducted a study on Effect of self-efficacy and perceived organizational support on employee work passion and career satisfaction. This study begins with the development of valid and reliable measure of 'work passion'. In doing so, dimensions of 'work passion' were identified with the help of literature and expert interviews. To measure these dimensions, various items were generated and these items were subjected to exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Result of both EFA and CFA yielded a` 17-item work passion scale (WPS) with four distinct dimensions. Further, a model investigating effect of self-efficacy and perceived organizational support (POS) on work passion and the role of work passion in predicting career satisfaction was developed and tested via structural equation modelling (SEM). Results suggest that self-efficacy and POS are positively related to work passion and work passion is positively related to career satisfaction. Results also confirm that work passion partially mediates the relationship between antecedents and career satisfaction.

**Mohil (2016)** conducted a study entitled "Effect of passion for work, psychological capital and emotional intelligence on work-related outcomes of bank managers". The major objective was to study the effect of the two types of passion for work (harmonious and obsessive), four dimensions of psychological capital (self-efficacy, hope, resiliency, and optimism) and four dimensions ofemotional intelligence (self emotion appraisal, others emotion appraisal, use ofemotion, and regulation of emotion), firstly on a global score of job satisfaction andsecondly on the three components of burnout (exhaustion, cynicism, and professionalefficacy).The

sample comprised of 200 middle level managers from Public Sector Banks.The sample was selected from the various branches and offices of the Public Sector Banks in the tri-city of Chandigarh, Mohali and Panchkula.The following standardized tests were used in the investigation – Passion Scale(Vallerand et al., 2003), Psychological Capital Questionnaire (PCQ-24; Luthans, Youssef et al., 2007), Wong and Law Emotional Intelligence Scale (WLEIS; Wong &Law, 2002), Generic Job Satisfaction Scale (GJSS: MacDonald &MacIntyre, 1997),and Maslach Burnout Inventory – General Survey (MBI-GS: Schaufeli, Leiter,Maslach& Jackson, 1996).In accordance with the objectives of the study the means, standard deviations,and percentages were calculated. Pearson product moment correlation was performed individually with all the variables to investigate the nature and degree of relationships between all the variables of the study. The stepwise multiple regressions were carried out to identify the predictive efficiency of the independent variables viz. two types of passion for work, four dimensions of psychological capital, and four dimensions of emotional intelligence for the dependent variables viz. job satisfaction and three components of burnout among the middle level managers in Public Sector Banks. The descriptive analyses of the study revealed that middle level managers in Public Sector Banks are high on all four dimensions of emotional intelligence (self emotions appraisal, others emotion appraisal, use of emotion, regulation of emotion),job satisfaction; range from moderate to high on both types of passion for work(harmonious and obsessive), all four dimensions of psychological capital, two components of burnout (cynicism, professional efficacy); and are low on the third component of burnout (exhaustion).

**Parasurama (2017)** conducted a study to see the impact of technology based constructivist teaching on academic achievement of IX standard students of Bengaluru city. The main objectives of the study were 1. To develop Constructivist Teaching (CT) and Technology Based Constructivist Teaching (TBCT) package for selected units of IX standard Social Science subject. 2. To find out the impact of CT and TBCT on the academic achievement of students. The study employed purposive sampling technique. The sample comprised of 156 students studying in IX standard of two schools (Government and Private School) of Bengaluru city affiliated to state board. Among these 80 students were from government school and remaining 76 students from private school. The collected data was analyzed using normality test, descriptive statistics, and inferential statistics. The major findings of the study were 1.

The study found that the students of both CT and TBCT group were performed better in their post-test compare to pre-test in government as well as private school. This means, the treatment CT and TBCT has influenced on the students' academic achievement. 2. Further comparison of academic achievement of students in CT and TBCT groups revealed that students of TBCT group performed for better in their post-test mean scores of academic achievement when compare to CT group. It indicates that, students were focused more in knowledge construction in the TBCT group with the help of technology component (integration of technology) along with the 5 E's Instructional model, Jigsaw, constructivist assessment and scaffolding.

**Kunat (2018)** conducted a study titled 'Passion and creativity- together or separately?' with an objective to find the relationship between passion and creativity. The tools used for data collection were the standardized tool for analysing both harmonious and obsessive passion is The Passion Scale (Vallerand et al., 2003; Vallerand 2008, 2015), which is now a basis for a number of empirical studies of passion related to various types of human activities. Analysis of these stages shows that there can occur a sort of coupling between passion and human creativity. Passion can be a source of human creativity, which itself can also be a platform for searching and developing passion in oneself. In the case of research based on Vallerand's Dualistic Model of Passion which aimed to recognize a correlation of passion with creativity, it was possible to establish a positive correlation between harmonious passion and creativity. The research suggests that harmonious passion facilitates creativity seen as both a person's talent, process and the work. It is a factor that triggers innovation, new ideas and has a positive effect on the creative process.

**Nayak (2018)** conducted a study to know the effect of ICT mediated constructivist approach on Mathematics learning amongst Secondary school students. The objectives of the study were 1. To study the effect of ICT mediated constructivist approach on mathematics learning amongst secondary students. 2. To study the perception of teachers as observed during the process of intervention. 3. To make an in-depth case study of some school students taught mathematics through ICT mediated constructivist approach so as to gain an understanding about the effectiveness of approach. The tools employed were SPM IQ test, attitude towards mathematics inventory (ATMI). The findings of the study revealed that ICT mediated

constructivist approach of learning is significantly better than the traditional teaching approach.

## 2.2.0 REVIEWS RELATED TO COGNITIVE ABILITY

**Das (1984)** conducted a study titled 'Structure of cognitive abilities among normal and tribal children as a function of developmental level'. The main focus has been given (i) to understanding of the nature of intellectual functioning among children who come from different socio-cultural background identified in terms of physical setting, social status, income level, education of parents, and (ii) to visualize the observation which would be more relevant to distinct age groups. The basic purpose of present investigation was to identify and compare the structure of cognitive abilities among normal and tribal children at two different age levels i.e. under 7 and above 10 years. In order to have better comparison, the normal children were divided into two groups namely High SLS and Low SSL. Hence, there were in all, three groups of children. The design of the study consisted of 2(Age) x 3(Social groups) factorial design.

It has been proposed to identify not only the processing habits used by these groups differing in age and social background but also to look at the structure of ability within each group with reference to processes involved. One hundred fifty boys were selected from Class I and V equally drawn from normal and tribal schools of Puri and Keonjhar districts of Orissa State. The investigator administered the following tests to all children in small groups and individually depending upon the nature of the test: a) Figure Copying Test (FCT), b) Hidden Patterns Test (HPT), c) Raven1s Coloured Progressive Matrices (RPM), d) Visual Short-Term Memory (V3TM), e) Digit Span Forward and Backward (DSF, DSB), f) Memory-For-Designs (MFD), g) Children's Embedded Figures Test (CiiFT), h) Matching Familiar Figures Test (MFFT), i) Colour Naming and Colour V/ord Test (C, CW), j) Culture Fair Intelligence Test (CFIT).The results were analysed using 2x3 Factorial analysis of variance. The intercorrelacions of all test scores for different sub-groups were computed which were factor analysed using varimax rotation. Results revealed that children above 10 years are superior to children less than 7 years in analytical ability as measured by FCF. Children coming from high socio-economic background are significantly superior to low SES normal and tribal children. The order of performance follows a sequence i.e. from nigh SES normal to tribal through low SES

normal. Further, the performance of low SES normal children is very close to tribal children at both the age levels. The analytical ability assessed by using HPT and CEFT revealed consistent results with that of FCT establishing the fact that analytical ability is associated with development and social background. Intelligence level was examined by using RPM, CFIT. The results of these tests indicated that younger children are less intelligent than that of older ones. High SES normal children are more intelligent than low SES normal and tribal children. Further, the low SEC normal and tribal children do not differ significantly in their intellectual level at both age levels.

**Barik (1997)** conducted a study on Cognitive Abilities and Academic Achievement of Children: Effects of Social Disadvantageand Maternal Employment. The primary objective of the study was to find out the effects of social disadvantage and maternal employment on the cognitive abilities and classroom academic achievement of primary school children. The study involved a 2x2 factorial design in which both the factors were between factors. The first factor referred to the social dimension, having two levels (i.e., social advantage and disadvantage); the second factor referred to the maternal employment status having two levels (i.e., employed mothers and unemployed mothers). Thus, there were four resultant cells having 40 fourth grade Oriya medium primary school children as subjects, within the age range of 9 to 10 years, in each cell. The dependent measures were cognitive abilities (measured by Raven's Coloured Progressive Matrices, Figure Copying, Digit Span-Forward, Digit Span-Backward, Letter Span-Forward, Letter Span-Backward, Serial Recall, Category of Clustering in Free Recall test and Torrance Test of Creative Thinking - Figural Form - A), and Classroom academic achievements (measured by the total marks, taking the marks in all the subjects together, obtained by the children in the final examination of the previous class). The data were analyzed by the help of bi-variate ANOVA and Scheffe test. Results revealed that socially disadvantaged fourth grade Oriya medium primary school children, irrespective of maternal employment status, were found to be inferior to their socially advantaged counterparts in their cognitive abilities (i.e., nonverbal intellectual abilities, both, short-term and long-term memory capacities, and nonverbal creative thinking abilities) and also in their classroom academic achievements.

**Biswal (1998)** conducted a study on 'Awareness and cognitive abilities of secondary students (IX and X) of Orrisa regarding population, environment and resources'. In the present research studies an attempt has been made to gain an insight as to the levels of the cognitive awareness ability of the secondary school students (of different socio-economic groups) of Orissa in relation to population, environment and resources. The following materials and methods of research were employed in the present investigation. The sampling universe comprised of the secondary schools and students of class X of Orissa (who would be examined for the curricula of class IX and X together at the High School Certificate Examination conducted by BSE, Orissa at the end of Class X) besides science teachers of the schools investigated. In all 66 schools either fully funded by government or aided by government were selected. Of these schools, 42 were located in rural, 14 in semi-urban and in urban environment. 66 science teachers from 66 schools and 410 students of classes X from 13 schools were administered with the tools and questionnaires prepared. Questionnaires were administered on the science teachers and awareness and achievement tests on students. Further, the awareness and achievement test developed on the basis of exemplar lessons were administered on the selected control and experimental groups of students. The data collected was subjected to rigorous statistical testing to draw reasonable inferences based on the findings. The data is computerised through the WIPRO PC-XT. The values of Mean, SD, Correlation Coefficient, Regression and Two-Way Analysis of variance were determined using d-BASE Package O.S : M.S. DOS 6.0 version. During present study, the urban students were found to possess better knowledge of population and resources than those in semi-urban and rural settings. But with reference to environment, the rural students had maximum knowledge, understanding and application skills when compared with urban and semi-urban students. Again it is the rural students, who had the maximum understanding and application skills in the issues related to resources than the urban and semi-urban students. These results when adjudged against the published accounts, it appears that apart from the macro factors like family size, occupation, caste, gender and habitation, there are other factors like the school processes and the associated infrastructural manpower and physical facilities capable of stimulating/motivating the students to awake, arise and stop not till their academic goals of achievement are reached. The impact of the physical environment, organisational structure of the school and the infrastructural facilities available, influence the educo-ecology of the school

processes. The educo-ecology of the school system is relatively a new approach to understand the parameters involved in the teaching-learning process of the school. This is distained to play a pivotal role in influencing the awareness and achievement of students in general. In the present studies, it is observed that the library, playground and garden constitute the trinity of essential factors that positively can enhance the efficacy of teaching-learning process.

**Hanji (2010)** conducted a study to investigate into the association of personal competencies and social competencies of secondary school students with their cognitive abilities. The major objectives of the study were 1.To determine the relationship between personal competencies and cognitive abilities of secondary school students. 2. To determine the relationship between social competencies and cognitive abilities of secondary school students. 3. To determine the main and interaction effect of personal competencies on cognitive abilities of secondary school students. 4. To determine the main and interaction effect of social competencies on cognitive abilities of secondary school students. Secondary schools in the two districts were considered to select the sample of the study. In the present study, stratified random sampling technique is adopted in the case of selection of educational divisions and random sampling technique adopted in the case of selection of students. The major findings of the study are 1. There is a positive significant relationship between self-awareness, self-regulation, and motivation on all the 3 components of cognitive components i.e. abstract reasoning and scientific reasoning, problem solving. 2. There is a significant main effect from self-awareness, self-regulation, and motivation on all the 2 dimensions of cognitive abilities like abstract reasoning and scientific reasoning. 3. The study reveals that there is positive significant relationship between Social Competencies like empathy, team capabilities and communication on all the 3 dimensions of cognitive competencies like abstract reasoning, scientific reasoning and problem solving abilities of secondary school students. 4. There is a significant interaction effect of empathy and communication on problem solving ability of secondary school students.

**Shree (2016)** conducted a study on Play Intervention in Developing Cognitive Abilities of Children with Intellectual Disability. The major objectives of the study were 1. To study the effectiveness of play intervention to develop cognitive abilities of children with intellectual disability. 2. To design Play Intervention for developing

Cognitive Abilities of Children with Intellectual Disability. 3. To develop Cognitive Abilities Rating Scale (CARS) for Children with Intellectual Disability. Since, the nature of independent variable and sample size was such that it was only best possible suited to manipulate and conduct the present study in 'mixed method approach'. The researcher decided to carry out her study through mixed method approach i.e., single-subject experimental design and case study. Applying case study methods within the context of a single-subject study could enhance the study of an intervention's effect. Since the present study deals exclusively with intellectual disabled populations; the purposive sampling has been used. For the purpose of this study, the targeted population included children from one integrated school having 55-70 IQ level and aged between 7-12 year old mild children with intellectual disability. The tools used in the study was Cognitive Ability Rating Scale (CARS) for Children with Intellectual Disability and some of the play interventions were Kith-kith, Musical Chairs, Card play, The Leader Says, Jigsaw puzzles, Hide & Seek. Results of this study seem to support play activity as an intervention for developing cognitive ability of children with intellectual disability. The findings demonstrated children's cognitive ability rating scale (CARS) scores increased across phases. Interpretation of percent of non-overlapping data (PND) value indicated that play intervention was an effective for children with intellectual disability.

## 2.3.0 REVIEWS RELATED TO EMOTIONAL STABILITY AND EMOTIONAL INTELLIGENCE

**Dang (1998)** conducted a study on Emotional stability patterns and attitude towards teaching of teachers. The main objectives of the study were 1. To study that teachers vary in the stability/neuroticism variable and its sub-dimensions with reference to sex and experience. 2. To study that teachers vary in attitude towards teaching with reference to sex and experience. The study employs two tools: one to assess the emotional stability/neuroticism traits, and another to assess teachers' attitude towards teaching. The finding of the study revealed that 1. Male teachers possess more of happiness, composure, positive self-concept, self-importance, inferiority freedom, non-fastidiousness, self-consciousness, self-confidence, independence and nervous strength. 2. Female teachers possess more of composure, freedom from generalized anxiety, guilt freedom, positive self-concept, inferiority freedom, self-confidence, independence, nervous strength, happiness and self-

importance but are significantly self-conscious. 3. Prospective female teachers seem to possess more of guilt freedom, inferiority freedom, self-confidence and composure (poise). However, a trend is perceptible that they tend to possess nervous strength, happiness, less hypochondriacs, positive self-concept, self-consciousness, obsession, and independence despite having some compulsions.

**Devi (2012)** conducted a study titled 'Well- being of high school teachers in relation to marital status, emotional intelligence, life satisfaction and personality readiness.' The main objectives of the study were 1.To study and compare the well-being of high school female teachers with respect to their marital status and emotional intelligence, life satisfaction and personality readiness. 2. To study and compare the well-being of high school female teachers with respect to emotional intelligence and life satisfaction, personality readiness. 3. To study the interrelationship between emotional intelligence, life-satisfaction and personality hardiness among high school female teachers on a total sample of well-being. 4. To study the interrelationship between emotional intelligence, life-satisfaction and personality hardiness among married high school female teachers on a total sample of well-being. 5. To study the interrelationship between emotional intelligence, life-satisfaction and personality hardiness among unmarried high school female teachers on a total sample of well-being. The following tools were selected and used by the investigator in the study; Well-being Scale by Singh and Gupta (2001), Emotional Intelligence Scale by Schutte et al., (1998), Life Satisfaction Scale by Alam and Srivastava (1983), Personality Hardiness Scale by Kobasa (1992). The major findings of the study revealed that 1. There is no significant difference in the level of well-being of married and unmarried high school female teachers having high and low level of emotional intelligence. 2. There is no significant interactional effect of marital status and emotional intelligence on the level of well-being of high school female teachers. 3. There is no significant difference in the level of well-being of high school female teachers having high and low level of emotional intelligence. 4. There will be no relationship of emotional intelligence and life satisfaction with well-being of unmarried high school female teachers. 5. Well-being is positively and significantly related with emotional intelligence among married high school female teachers.

**Serebryakova et al. (2012)** conducted a study titled "Emotional Stability as a Condition of Students' Adaptation to Studying in a Higher Educational Institution."

The objective of the paper is analysis and description of findings of an empiric study on the issue of social and psychological adaptation of first year students to studying in a higher educational institution. Methods/Statistical analysis: Using the methods of theoretical analysis the paper's authors plan and carry out an experimental study, which made it possible to relate personality's social-psychological adaptation to personality's emotional stability as well as to prove the need for developing programs of psychological content that optimize personality's adaptive processes. Findings: Based on the findings of scientists in the area of social-psychological adaptation, we understand this phenomenon as a process of interaction between a personality and social environment that results in adaptiveness, which means effective accustoming to social environment by a personality through accepting of its standards of interaction, system of values and forms of domain-specific activity as well. We consider the level of development of emotional stability as personal formation the base of social-psychological adaptation.

**Mohan (2015)** conducted a study on cognitive styles of student teachers in relation to their social and emotional intelligence. The main objectives of the study were 1.To study the Cognitive Styles of Student Teachers in Mahabubnagar District. 2. To study the cognitive styles of Student Teachers in relation to their gender, Location (Urban /Rural), Social status. 3. To know the Cognitive Styles of Student Teachers in relation to their Social Intelligence and emotional intelligence. 4. To correlate the relation between Cognitive Styles, Social Intelligence and Emotional Intelligence among Student Teachers. The researcher has analyzed the data by adopting the relevant statistics such as Percentages, Mean, SD, F-test, and Pearson Product Moment of Correlations. The major findings of the study were 1. Most of the Student Teachers possess systematic style which means that these Student Teachers uses a well-defined step-by-step approach when solving a problem and look for an overall method or pragmatic approach and they make an overall plan for solving the problem. 2. Most of the Student Teachers possess an unpredictable ordering of analytical steps while solving a problem, they rely on experience patterns characterized by universalized areas or hunches and explore and abandon alternatives quickly. 3. It observed that all the dimensions of social Intelligence, Student Teachers are good at four dimensions i.e. Patience, Cooperativeness, Tactfulness and Sense of Humour where as they possess low ability in four dimensions i.e. Confidence,

Sensitivity, Recognition of Social Environment and Memory. It implies that most of the Student Teachers possess Moderate and High level of Social Intelligence. 4. Most of the Student Teachers i.e. nearly 60% possess low level of emotional intelligence which implies that these Student Teachers are not capable to recognize one's own emotions, and also not capable to manage their own emotions and are unable to realize how one's own emotions affect other people. 5. There exists a positive and moderate association between Systematic Style and Emotional Intelligence. It implies that Student Teachers who are moderate in Systematic Style were also moderate in the Emotional Intelligence. There exists a positive and moderate association between Intuitive Style and Emotional Intelligence. It implies that Student Teachers who are moderate in Intuitive Style are also moderate in the Emotional Intelligence.

**Karthiyayini (2018)** studied cognitive ability and emotional stability in relation to teacher effectiveness of high school teachers. Some of the objectives of the study were 1.To find out the cognitive ability of high school teachers. 2. To find out the teacher effectiveness of high school teachers. 3. To find out emotional stability of high school teachers. 4. To find out whether there is any significant difference in cognitive ability, emotional stability and teacher effectiveness based on school related variables like type of management, location of school, board of studies, subjects, etc. and personal variables like gender, age, marital status, educational qualification, etc. The findings showed that 1. there was no significant difference between cognitive ability of high school teachers with respect to personal variables but the dimension of cognitive ability namely flexibility which is statistically significant. 2. There was significant difference in cognitive ability of teacher with respect to school related variables like type of school, subjects, board of studies, etc. 3. There was no significant difference in emotional stability of high school teachers with respect to school related variables and personal variables. This study also revealed that 1. There is low level of positive correlation between cognitive ability and emotional stability. 2. There was moderate correlation between cognitive ability and teacher effectiveness. 3. There is low positive correlation between emotional stability and teacher effectiveness.

## 2.4.0 IMPLICATIONS OF THE REVIEW OF RELATED LITERATURE FOR THE PRESENT STUDY

From the review of related literature of various studies conducted in India and abroad on constructivist approach, cognitive ability and emotional stability and passion presented in this chapter, it was observed that these variables play a major role in the teaching learning process (Barik, 1997; Hanji, 2010; Mohan, 2015; Ganiger, 2014; Nayak, 2018). It also helps to establish the relation between various factors such as cognitive ability and emotional stability of secondary school teachers with passion and constructivism (Modler, 2013; Mohan, 2015). Various personal and academic variables such as teaching experience, qualification and gender are also studied to understand its relationship with constructivist approach and passion in teaching among secondary school teachers (Nayak, 2018; karthiyani, 2018). The related literature reviewed in this chapter showed that most of the studies were conducted among pre- service teachers and school students at various levels (Dang, 1998; Paradkar, 2015; Shree, 2016). It was revealed that there is lack of study in constructivist approach among in service teachers. So the investigator decided to conduct the study in this area of in service teachers. The review of related literature helped the investigator to find various research gaps mentioned below:

• Study needs to be done in the area of constructivist approach among in service teachers as it helps in lesson planning, problem solving, professional development, continuous development of teachers.

• Also, constructivist approach if adopted by in service teachers helps to improve overall result of students, improves academic scores and achievement of students, and it better than traditional approach. Though constructivist approach has many benefits both for teacher and learner, it is not used in actual classroom setting. So the investigator finds it a gap in the system that needed an in depth study.

• The review of related studies also showed that emotional stability of teachers varied with respect to gender, teaching experience and educational qualification. Emotional stability is an essential pre requisite for happiness, satisfaction and stable personality of teachers. Most the studies in review showed that studies on emotional stability is conducted on secondary school students. Though it is an essential quality required among in service teachers, there was a dearth of research in this area. So the

investigator has studied the relationship between constructivist passion and emotional stability of in service teachers.

• The review of related studies also showed that cognitive ability and emotional stability are directly related. But these studies were conducted on secondary school students. Since cognitive ability of teachers helps in teaching and affects teaching aptitude of teachers, the investigator felt it to be an important aspect to study. So the investigator has also studied the relationship between cognitive ability and emotional stability of in service teachers.

• Passion is a concept of psychological motivation. Passion for teaching among teachers helps in sustaining desire to remain in teaching field, develops commitment of teachers and is positively correlated with reward related personality traits. It also affects emotional intelligence and work related outcomes. But most of the studies on passion were conducted in industrial sector and not in teaching sector. So the investigator has studied passion as one of the variables. Constructivist passion is directly related to cognitive ability and emotional stability of teachers.

The study of the related literature has helped the investigator to have a clear perspective of the problem chosen for the present investigation. The review of the related literature has enabled the investigator to formulate relevant hypothesis for the study. Further based on the review designed the method of research, description of the variable, sample selection, selection of suitable tools, administration and scoring have been adopted and which is discussed in the succeeding chapter.

# Chapter – III

# Research Methodology

# CHAPTER III

# METHODOLOGY

## 3.0.0 INTRODUCTION

In any given investigation, it is desirable to identify and use the most appropriate research method based on the objectives of the study. The decision about the method to be employed however depends upon the nature of the problem selected and the kind of data necessary for its solution. Any research program should really add not on to the fund of knowledge but also to provide the possible solutions to some of the vital issues in the society.

This chapter provides an idea about how the entire research study was conducted. It speaks about the sampling procedure adopted by the investigator, design and development of tools for the study with respect to various objectives, method used for the collection of data and data analysis done for the interpretation of the results.

## 3.1.0 METHODOLOGY OF THE STUDY

Survey method was used in the present study. In the survey research, data is collected from a large sample and analyzed representing a specific population. On the basis of the analysis of data the description of the group is done and on the basis of the inference statistics the inference is done for the entire population. It seeks to find the real facts with regard to existing conditions. Following process of the survey method was used in the present study.

### 3.1.1 POPULATION OF THE STUDY

There are 40 CBSE affiliated secondary schools in Vadodara city. Hence, the population comprises of approximately 400 secondary school teachers (10 teachers for a school having 2 sections in both IXand X) in Vadodara city.

### 3.1.2 SAMPLE OF THE STUDY

Sample for the present study was selected randomly. 5 schools were selected randomly and all the secondary teachers of those selected 5 schools constituted as the

sample of the present study. Hence, the sample comprised of 154 secondary teachers of the schools affiliated to CBSE in Vadodara city.

### 3.1.3 TOOLS FOR DATA COLLECTION

The following tools were used to collect data for the present study.

**a) Constructivist Passion Scale:** A constructivist passion scale considering the dimensions of constructivist passion was prepared by the investigator. From the review of related literature, 10 different dimensions of constructivist passion were selected. Those were Passion for learning, Initiation, Commitment towards novelty in work, Accepting criticism, Support for students' orientation, Trusting students, Perseverance, Open- mindedness, Practicing higher order thinking skills and passion towards teaching profession. Again 5 activities were identified in each and every dimension. Details of the meaning and activities related to all the dimensions are given as follow:

**(1) Passion for learning**

An individual who has passion for learning is intrinsically motivated to acquire new knowledge. A teacher who is has passion for learning, makes all efforts towards self development by learning new and innovative methods of teaching. She exhibits life-long learning competency that can help her to provide creative and constructive learning experiences to the students.

a) I love to attend workshops and seminars of my interest areas even those are organized at far off places and/or even one has to pay for attending those.
b) I often read journals and periodicals related to the areas of my interest to keep myself updated.
c) I am interested to organize events like seminars, conferences and workshops in and around my school to help others to disseminate and acquire new information.
d) I like to read e-contents, use MOOCs and other online contents to know about the latest teaching methods and practices around the globe.
e) I always try to learn something from others even from my students.

**(2) Initiation**

It is an ability to act proactively. A constructivist teacher should have the ability to take initiative to develop and experiment new and innovative activities in the classroom that proves to be beneficial for students in enhancing their knowledge and skill.

a) I like to explore and implement new tested methods of teaching that would facilitate knowledge construction of students.
b) I would like to take risk to implement an innovative method in my teaching-learning.
c) I do not hesitate to implement any of my new ideas in my class those would be helpful for students.
d) I believe and initiate self discipline among students.
e) I accept the role of co-curricular activities those help students in knowledge construction.

**(3) Commitment towards novelty in work**

A person who continuously strives to bring improvement and innovation in his/her work is said to be committed towards novelty. Constructivism requires a teacher to be committed towards novelty because such a teacher can be passionate about developing new and upgraded methods and approaches.

a) I am keen to bring novelty in my teaching by integrating other subjects like art and craft.
b) I always suggest students to complete their project and assignment works with novelty.
c) I encourage students to bring novelty in their thoughts and to express them through the activities like poems, discussion and essay writing.
d) I admire novelty in answers from students in our traditional examinations.
e) I believe that Novelty is the spice of life.

**(4) Accepting criticism**

Accepting criticism develops insight, explains a new prospective and shows things that one may have overlooked earlier. A constructivist teacher will possess

the quality of positively accepting criticism and looking for all possible solutions to enhance her skills, be more self- aware and make her more competent and effective to facilitate students.

a) I wholeheartedly accept criticisms related to my work.
b) I immediately respond to the criticisms related to my work.
c) While accepting the criticisms of others, I do not dilute my own views.
d) I preach students to give and take criticism in a positive mindset.
e) I humbly thank my critics as they are the only persons interested for my betterment.

**(5) Support for students' orientation**

Students' orientation reflects students' involvement in all the aspects of learning. A teacher who supports students' orientation will allow student to develop understanding at their own pace, encourages and accepts student's participation in knowledge construction, designing learning activities, self-evaluation and reflection.

a) I believe that students are good and capable of constructing their own knowledge irrespective of their orientation.
b) I promote students to manage their own learning process for knowledge construction.
c) I encourage reflection of students irrespective of their orientation.
d) I would like to take students' suggestions while designing my classroom activities.
e) I love to handle my classes as per the level of the students

**(6) Trusting students**

Trusting students is a prerequisite for constructivism. A teacher has to place faith in students as they are the one who lead a constructivist classroom. A teacher who has trust in student believes in inculcating quality of self- discipline. She accepts and encourages active role of students in the class.

a) I believe that child learns better in a liberal environment.
b) I believe in inculcating self-discipline among students.

c) I encourage multiple perspectives of any teaching content from the students.
d) I accept when students make noise while doing group activities.
e) I often allow students to design, create, manage and solve their problems.

**(7) Perseverance**

Perseverance is the quality of continuing with something even through it is difficult. If a teacher possesses the quality of perseverance, she will make continuous efforts to adopt constructivism in the classroom by accepting all its challenges.

a) I continuously make efforts to help weak student by assigning varieties of tasks.
b) I try again and again to solve a problem but do not give up.
c) I try to make the classes liberal and self motivated irrespective of the environment of the school.
d) I can use any new method of teaching for the construction of knowledge among students.
e) I strongly emphasize on the evaluation practices those focus on knowledge construction rather than memorization of information.

**(8) Open-mindedness**

An open-minded person is the one who is willing to listen to and consider other person's ideas and suggestions. A teacher who demonstrates constructivist passion will be willing to consider new methods of teaching and will not be rigid towards adopting those methods in the classroom.

a) I positively consider other's opinions and revise my plans accordingly.
b) I preach students to be open-minded and listen to each other.
c) I listen anything from any students related to teaching learning and do not ignore anyone.
d) I am ready to work in any type of system and environment.
e) I accept any of my faults easily and analyse it further.

**(9) Practicing higher order thinking skills.**

A person practicing higher order thinking skills will have ability of synthesizing, analyzing, reasoning, comprehending, application, and evaluation. A teacher with constructivist passion will practice higher order thinking in her day to day activities in the school.

a) I always analyze my classroom activities to achieve my objectives.
b) I am very keen to find out good points from others and add those points in my activities whenever needed.
c) I manage my instructional process including evaluation to facilitate higher order thinking among students.
d) I try to make each of my activities logical.
e) I always try to add some newness in my activities.

**(10) Passion towards teaching profession**

Strong positive attitude towards teaching is a pre-requisite for a teacher to have passion for constructivism. Teachers with positive attitude towards teaching will be enthusiastic, devoted and committed towards their work. They will not hesitate to put in extra time and efforts to enhance students learning.

a) I do my professional work religiously.
b) I do not see the time and space while doing something for students' learning.
c) I feel overwhelmed when I found some development among students due to my efforts.
d) I feel proud to be a part of the teaching profession.
e) I believe my profession energizes me to lead my life.

The constructivist passion scale was then validated by the experts. The items of the scale have five categories of responses namely strongly agree, agree none, disagree and strongly disagree. The minimum score secured by a respondent on the scale can be 50 and maximum can be 250. All the statements in the scale were positive. The scale is given in appendix-1.

**b) Cognitive Ability Scale:** Cognitive ability of secondary school teachers was measured with the help of Cognitive Ability Scale developed by Karthiyayini

(2017). The Cognitive ability scale comprises of five dimensions i.e. idea generation, problem-solving, memory, cognitive flexibility and decision making. There were 10 items each for the dimensions like, idea generation, problem-solving, and decision making, whereas, there were 5 items each for the dimensions like memory and cognitive flexibility. Hence the scale was with a total of 40 items in the given five dimensions. The items of the scale have five categories of responses namely strongly agree, agree none, disagree and strongly disagree. Out of the 40 items in the scale, 33 items were positive and 7 items were negative. Item numbers 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 29, 30, 31, 32, 33, 34 and 40 were positive items and item numbers 26, 28, 35, 36, 37, 38, 39 were negative items. The minimum score secured by a respondent on the scale can be 40 and maximum can be 200. The reliability of cognitive ability questionnaire was established using Spearman Brown's split half method and it was found to be 0.863 which infers that the scale is highly reliable. The validity of the tool is established by taking the square root of the reliability coefficient i.e. $\sqrt{r} = \sqrt{0.863} = 0.928$. Thus it may be inferred that this tool is highly valid. The scale is given in appendix-2.

**c) Emotional Stability Scale:** Emotional stability of secondary school teachers was measured with the help of emotional stability scale developed by Karthiyayini (2017) having following characteristics: (1) this scale has 40 items with three types of responses i.e. Yes, No and Sometimes. The score for a Yes response is 2, No is 0 and sometimes is 1. Hence, the minimum score of a respondent of the scale can be 0 and maximum can be 80. (2) It consists of both positive and negative items. The items 1,2,4,6,10,12,14,18,22,24,26,27,30,31,34,36,38 and 40 were positive and items 3,5,7,8,9,11,13,15,16,17,19,20,21,23,25,28,29,32,33,35,37 and 39 were negative. The reliability of emotional stability questionnaire was established using Spearman Brown's split half method and it was found to be 0.826 which infers that the scale is highly reliable. The validity of the tool is established by taking the square root of the reliability coefficient i.e. $\sqrt{r} = \sqrt{0.826} = 0.909$. Thus it may be inferred that this tool is highly valid. The scale is given in appendix-3.

### 3.1.4 ANALYSIS OF DATA

For the purpose of descriptive analysis of data mean, standard deviation, standard error of mean, skewness and kurtosis were used. For the purpose of inferential analysis, product moment correlation and multiple correlation were used as per the requirement of the data.

Detailed analysis and interpretation of data is given in chapter IV.

# Chapter – IV

# Analysis and Interpretation of Data

# CHAPTER IV

# ANALYSIS AND INTERPRETATION OF DATA

## 4.0.0 INTRODUCTION

In the previous chapter, a detailed description of the research methodology and tools for data collection was presented. Also, the process of data collection and the methods applied for analysis and interpretation of the data though various statistical measures were presented. The present chapter deals with the analysis and interpretation of data according to the objectives and hypotheses of the present study. In social science research, where direct knowledge of population parameters is rare, hypothesis testing is the often used strategy for generalization. Thus, testing the hypothesis enables us to make probability statements about population parameters.

According to Kerlinger (1978), analysis means the categorizing, ordering, manipulating and summarizing data to obtain answers to research questions. The rationale of analysis is to condense data into an intelligible and interpretable form so that the relations in the research problems can be studied. Analysis of data means studying the tabulated material in order to determine the inherent factors or meanings. The analysis is an essential component for any scientific study and for ensuring that we have all relevant data for making contemplated comparison as well as related analysis. The statistical analysis describes the characteristics of the data which gives the investigator an insight into the problem. Interpretation is the final phase of the analysis process. It calls for a critical examination of the results of one's analysis in the light of all the limitations of data gathering.

The major objective of the present study was to find the status of Constructivist Passion, Cognitive Ability and Emotional Stability of secondary school teachers and to establish relationship between these variables. The data has been subjected to following statistical analysis namely mean, standard deviation, standard error of mean, frequency, percentage, pearson's product moment correlation and multiple correlation.

### 4.1.0 DESCRIPTIVE ANALYSIS OF DATA

Descriptive statistics are numerical and graphical methods used to summarize data and bring forth the underlying information. The numerical methods include measures of mean, standard deviation, standard error of mean, frequency and percentage.

### 4.1.1 COGNITIVE ABILITY OF SECONDARY SCHOOL TEACHERS ALONG WITH IT'S DIMENSIONS

The cognitive ability of secondary school teachers were measured with the help of Cognitive Ability Scale developed by Karthiyayini (2017) including five dimensions like, idea generation, problem-solving, memory, cognitive flexibility and decision making. Data analysis for cognitive ability is done with the help of mean, standard deviation, frequency, percentage and standard error of means which is given in the following tables and figure.

**Table 4.1: Mean and Standard Deviation, Standard Error of Means and Maximum possible score wise distribution of Cognitive Ability of 154 (N) Secondary School Teachers along with its Dimensions.**

| Cognitive Ability and its Dimensions | Maximum Score | Mean | Percentage of Mean | Standard Deviation | Standard Error of Mean |
|---|---|---|---|---|---|
| **Cognitive Ability** | 200 | 160.85 | 80.42 | 11.62 | 0.94 |
| a) Idea Generation | 50 | 40.56 | 81.12 | 3.25 | 0.26 |
| b) Problem Solving | 50 | 41.40 | 82.8 | 3.60 | 0.29 |
| c) Memory | 25 | 19.36 | 77.44 | 2.53 | 0.20 |
| d) Flexibility | 25 | 20.60 | 82.4 | 2.43 | 0.19 |
| e) Decision Making | 50 | 38.94 | 77.88 | 5.06 | 0.40 |

From the table 4.1, it was observed that the mean score of cognitive ability of secondary teachers was 160.85 out of the total score of 200 with the standard deviation of 11.62 and the standard error of mean of 0.94. From the said mean, it can be said that secondary school teachers were high in their cognitive ability with 80.42 % of mean score. Also, from the said standard deviation and standard error of mean, it

can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was observed that the mean score of idea generation as a dimension of cognitive ability of secondary teachers was 40.56 out of the total score of 50 with the standard deviation of 3.25 and the standard error of mean of 0.26. From the said mean, it can also be said that secondary school teachers were high in their idea generation component of the cognitive ability with 81.12% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was observed that the mean score of problem solving as a dimension of cognitive ability of secondary teachers was 41.4 out of the total score of 50 with the standard deviation of 3.60 and the standard error of mean of 0.29. From the said mean, it can be said that secondary school teachers were high in their problem solving ability component of the cognitive ability with 82.8 % of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be quite homogenous with low level of standard errors.

From the same table, it was observed that the mean score of memory as a dimension of cognitive ability of secondary teachers was 19.36 out of the total score of 25 with the standard deviation of 2.53 and the standard error of mean of 0.20. From the said mean, it can be said that secondary school teachers were moderately high in their memory component of the cognitive ability with 77.44 % of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was also observed that the mean score of flexibility as a dimension of cognitive ability of secondary teachers was 20.60 out of the total score of 25 with the standard deviation of 2.43 and the standard error of mean of 0.19. From the said mean, it can be said that secondary school teachers were high in their flexibility component of the cognitive ability with 82.40% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be quite homogenous with very low level of standard errors.

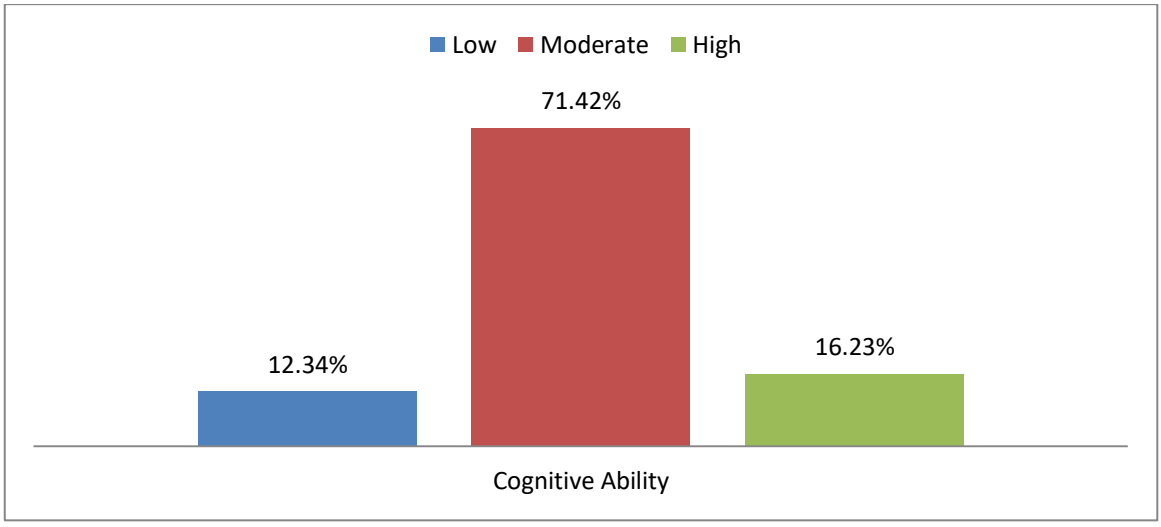
From the same table, it was also observed that the mean score of decision making as a dimension of cognitive ability of secondary teachers was 38.94 out of the total score of 50 with the standard deviation of 5.06 and the standard error of mean of 0.40. From the said mean, it can be said that secondary school teachers were moderately high in their decision making component of the cognitive ability with 77.88 % of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be quite homogenous with low level of standard errors.

Further description of secondary school teachers in terms of the level of cognitive ability is given in table 4.2 and figure 4.1.

**Table 4.2: Frequency and percentage wise distribution of Secondary School Teachers in terms of the levels of Cognitive Ability.**

| | **Level of Cognitive Ability** | **Frequency** | **Percentage** |
|---|---|---|---|
| Cognitive Ability | Low | 19 | 12.34 |
| | Moderate | 110 | 71.42 |
| | High | 25 | 16.23 |
| Total | | 154 | 100 |

**Figure 4.1: Bar graph showing the Percentage Distribution of Secondary School Teachers in terms of their Cognitive Ability.**




Secondary school teachers were divided in the high, moderate and low level of cognitive ability considering the total score above 173 as high, considering the total score between 149 and 173 as moderate and the total score below 149 as low.

From the table 4.2 it was found that 16.23 percentage of secondary school teachers were with high cognitive ability, 71.42 percentage of secondary school teachers were with moderate cognitive ability and the rest 12.34 percentage of secondary school teachers were with low cognitive ability. It has been observed from the same table that a large number of secondary school teachers were moderate in cognitive ability.

### 4.1.2 EMOTIONAL STABILITY OF SECONDARY SCHOOL TEACHERS

The emotional stability of secondary school teachers were measured with the help of Emotional Stability Scale developed by Karthiyayini (2017). Data analysis for emotional stability is done with the help of mean, standard deviation, frequency percentage and standard error of means which is given in the following tables and figure.

**Table 4.3: Mean and Standard Deviation, Standard Error and Maximum possible score wise distribution of Emotional Stability of 154 (N) Secondary School Teachers.**

| Variable | Maximum Score | Mean | Percentage of Mean | Standard Deviation | Standard Error of Mean |
|---|---|---|---|---|---|
| **Emotional Stability** | 80 | 52.69 | 65.86 | 8.66 | 0.70 |

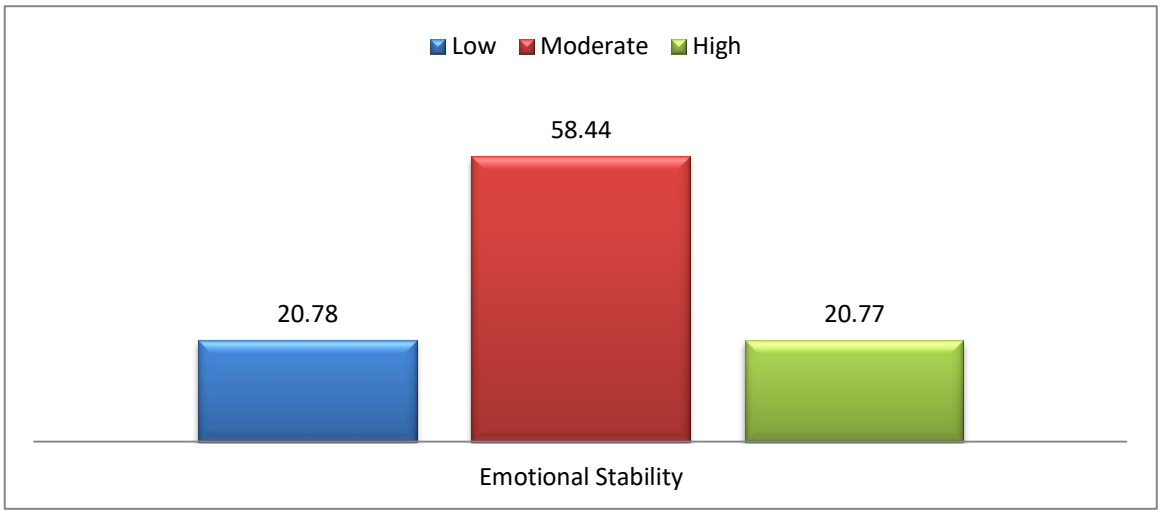
From the table 4.3, it was observed that the mean score of emotional stability of secondary teachers was 52.69 out of the total score of 80 with the standard deviation of 8.66 and the standard error of mean of 0.70. From the said mean, it can be said that secondary school teachers were moderate in their emotional stability with 65.86% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with low level of standard errors.

Further description of secondary school teachers in terms of the level of emotional stability is given in table 4.4 and figure 4.2.

**Table 4.4: Frequency and percentage wise distribution of Secondary School Teachers in terms of their levels of Emotional Stability.**

| Variable | Level | Frequency | Percentage |
|---|---|---|---|
| Emotional Stability | Low | 32 | 20.78 |
| | Moderate | 90 | 58.44 |
| | High | 32 | 20.77 |
| Total | | 154 | 100 |

**Figure 4.2: Bar graph showing the Percentage Distribution of Secondary School Teachers in terms of their Emotional Stability.**




Secondary school teachers were divided in the high, moderate and low level of emotional stability considering the total score above 60 as high, total score between 46 and 60 as moderate and the total score below 46 as low.

From the Table 4.4 it was found that 20.77 percentage of secondary school teachers were with high emotional stability, 58.44 percentage of secondary school teachers were with moderate emotional stability and the rest 20.78 percentage of secondary school teachers were with low emotional stability. It has been observed from the same table that a large number of secondary school teachers were moderate in emotional stability.

### 4.1.3 CONSTRUCTIVIST PASSION OF SECONDARY SCHOOL TEACHERS

The constructivist passion of secondary school teachers were measured with the help of Constructivist Passion Scale developed by investigator including ten dimensions like, passion for learning, initiation, commitment towards novelty in work, accepting criticism, supporting students' orientation, trusting students,

perseverance, open- mindedness, practicing higher order thinking skills and passion towards teaching profession. Data analysis for constructivist passion is done with the help of mean, standard deviation, frequency percentage and standard error of means which is given in the following tables figures.

**Table 4.5: Mean and Standard Deviation (SD), Standard Error (SE) of Mean and Maximum Possible score wise distribution of Constructivist Passion of 154 (N) Secondary School Teachers along with its Dimensions.**

| Variable and its Dimensions | Maximum Score | Mean | %of Mean | SD | SE of Mean |
|---|---|---|---|---|---|
| **Constructivist Passion** | 250 | 212.29 | 84.916 | 14.12 | 1.13 |
| a) Passion for learning | 25 | 19.06 | 76.24 | 2.91 | 0.23 |
| b) Initiation | 25 | 22.13 | 88 | 2.32 | 0.18 |
| c) Commitment towards novelty in work | 25 | 21.70 | 86.88 | 2.86 | 0.23 |
| d) Accepting Criticism | 25 | 19.95 | 79.80 | 2.46 | 0.19 |
| e) Support for students' orientation | 25 | 21.38 | 85.52 | 2.09 | 0.16 |
| f) Trusting students | 25 | 21.32 | 85.82 | 1.99 | 0.16 |
| g) Perseverance | 25 | 21.40 | 85.60 | 2.36 | 0.19 |
| h) Open- mindedness | 25 | 21.08 | 84.32 | 2.55 | 0.20 |
| i) Practicing higher order thinking skills | 25 | 21.94 | 87.76 | 2.20 | 0.17 |
| j) Passion towards teaching profession | 25 | 22.32 | 89.28 | 2.24 | 0.18 |

From the table 4.5, it was observed that the mean score of constructivist passion of secondary teachers was 212.29 out of the total score of 250 with the standard deviation of 14.12 and the standard error of mean of 1.13. From the said mean, it can be said that secondary school teachers were high in their constructivist passion with 84.916 % of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with low level of standard errors.

From the same table, it was observed that the mean score of passion for learning as a dimension of constructivist passion of secondary teachers was 19.06 out of the total score of 25 with the standard deviation of 2.91 and the standard error of mean of 0.23. From the said mean, it can be said that secondary school

teachers were moderately high in their passion for learning component of the constructivist passion with76.24% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was observed that the mean score of initiation as a dimension of constructivist passion of secondary teachers was 22.13 out of the total score of 25 with the standard deviation of 2.32 and the standard error of mean of 0.18. From the said mean, it can be said that secondary school teachers were high in their initiation component of the constructivist passion with 88% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was observed that the mean score of commitment towards novelty in work as a dimension of constructivist passion of secondary teachers was 21.70 out of the total score of 25 with the standard deviation of 2.86 and the standard error of mean of 0.23. From the said mean, it can be said that secondary school teachers were high in their commitment towards novelty in work component of the constructivist passion with 86.88% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was observed that the mean score of accepting criticism as a dimension of constructivist passion of secondary teachers was 19.95 out of the total score of 25 with the standard deviation of 2.46 and the standard error of mean of 0.19. From the said mean, it can be said that secondary school teachers were moderately high in their accepting criticism component of the constructivist passion with 79.8% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was observed that the mean score of support for students' orientation as a dimension of constructivist passion of secondary teachers was 21.38 out of the total score of 25 with the standard deviation of 2.09 and the standard error of mean of 0.16. From the said mean, it can be said that

secondary school teachers were high in their support for students' orientation component of the constructivist passion with 85.52% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was observed that the mean score of trusting students as a dimension of constructivist passion of secondary teachers was 21.32 out of the total score of 25 with the standard deviation of 1.99 and the standard error of mean of 0.16. From the said mean, it can be said that secondary school teachers were high in their trusting students component of the constructivist passion with 85.82% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was observed that the mean score of perseverance as a dimension of constructivist passion of secondary teachers was 21.40 out of the total score of 25 with the standard deviation of 2.36 and the standard error of mean of 0.19. From the said mean, it can be said that secondary school teachers were high in their perseverance component of the constructivist passion with 85.60% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with is very low level of standard errors.

From the same table, it was observed that the mean score of open- mindedness as a dimension of constructivist passion of secondary teachers was 21.08 out of the total score of 25 with the standard deviation of 2.55 and the standard error of mean of 0.20. From the said mean, it can be said that secondary school teachers were high in their open- mindedness component of the constructivist passion with 84.32% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with very low level of standard errors.

From the same table, it was observed that the mean score of practicing higher order thinking skills as a dimension of constructivist passion of secondary teachers was 21.94 out of the total score of 25 with the standard deviation of 2.20 and the standard error of mean of 0.17. From the said mean, it can be said that secondary

school teachers were high in their practicing higher order thinking skills component of the constructivist passion with 87.76% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with low level of standard errors.

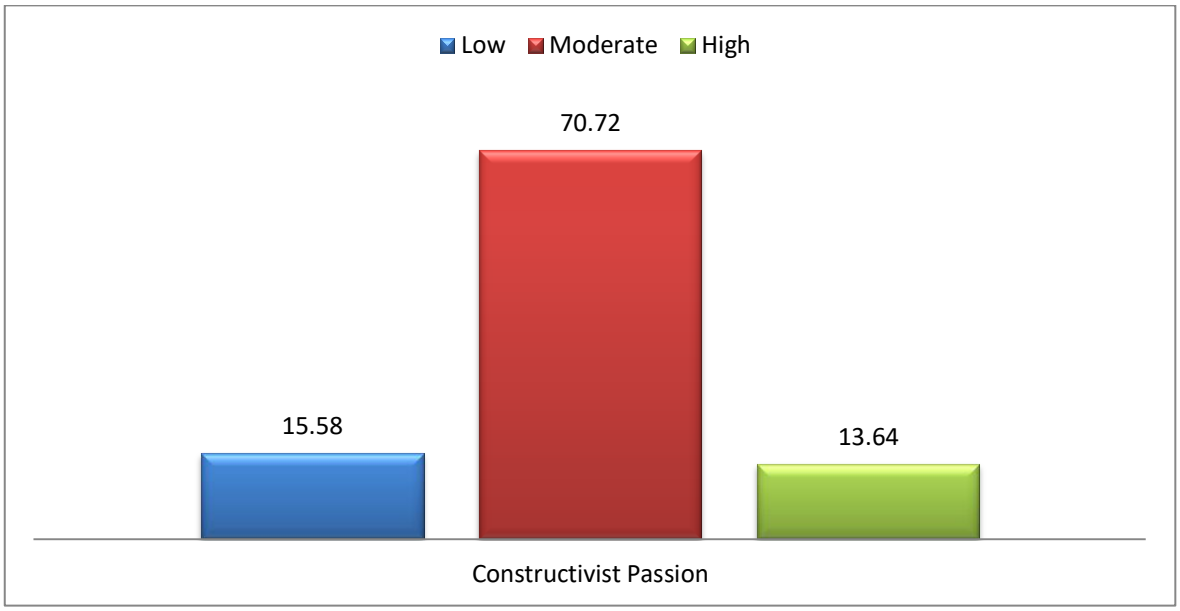
From the same table, it was observed that the mean score of passion towards teaching profession as a dimension of constructivist passion of secondary teachers was 22.32 out of the total score of 25 with the standard deviation of 2.24 and the standard error of mean of 0.18. From the said mean, it can be said that secondary school teachers were high in their passion towards teaching profession component of the constructivist passion with 89.28% of mean score. Also, from the said standard deviation and standard error of mean, it can be said that the group seems to be homogenous with low level of standard errors.

Further description of secondary school teachers in terms of the level of constructivist passion is given in table 4.6 and figure 4.3.

**Table 4.6: Frequency and percentage wise distribution of Secondary School Teachers in terms of the levels of Constructivist Passion**.

| **Variable** | **Level** | **Frequency** | **Percentage** |
|---|---|---|---|
| Cognitive Ability | Low | 24 | 15.58 |
| | Moderate | 109 | 70.72 |
| | High | 21 | 13.64 |
| Total | | 154 | 100 |

**Figure 4.3: Bar graph showing the Percentage Distribution of Secondary School Teachers in terms of their Constructivist Passion.**




Secondary school teachers were divided in the high, moderate and low level of constructivist passion considering the total score above 226 as high, total score between 198 and 226 as moderate and the total score below 198 as low.

From the table 4.6 it was found that 13.64 percentage of secondary school teachers were with high constructivist passion, 70.72 percentage of secondary school teachers were with moderate constructivist passion and the rest 15.58 percentage of secondary school teachers were with low constructivist passion. It has been observed from the same table that a large number of secondary school teachers were moderate in constructivist passion.

### 4.2.0 RELATIONAL ANALYSIS OF DATA

The relationships between Constructivist Passion, Cognitive Ability and Emotional Stability of secondary school teachers were found out using the statistical measures like Pearson's coefficient of correlation and the multiple correlation which are given in the following tables. It also helped the researcher to test the formulated null hypotheses related to these three variables.

To find the correlation between constructivist passion and cognitive ability of Secondary School Teachers and to test the **$H_0$1** i.e. "There will be no significant

relationship between constructivist passion and cognitive ability of secondary school teachers", analyzed data is presented in table 4.7 followed by the interpretation.

**Table 4.7: Coefficient of correlation, level of correlation and level of significance of Correlation between Constructivist Passion and Cognitive Ability of Secondary School Teachers.**

| Correlation Between | r- Value | Relationship | Significance at |
|---|---|---|---|
| Constructivist Passion and Cognitive Ability | 0.459 | Moderate/Substantial | 0.01 |

It has been observer from the table 4.7 that the calculate r-value of the correlation between constructivist passion and cognitive ability of secondary teachers was found to be 0.459 which can be referred as positive and substantial correlation (page. 176 of (Garrett, 2008) between the variables. Further, referring the table 15 (page 201) of (Garrett, 2008) for the degree of freedom (df) 152 at the significant level of 0.01, the calculated value was found to be greater than the table value (0.208). Hence, the **$H_0$1** i.e. "There will be no significant relationship between constructivist passion and cognitive ability of secondary school teachers" is rejected. So it can be said that the correlation between constructivist passion and cognitive ability of secondary teachers was found to be positive, substantial and significant.

To find the correlation between constructivist passion and emotional stability of Secondary School Teachers and to test the **$H_0$2** i.e. "There will be no significant relationship between constructivist passion and emotional stability of secondary school teachers", analyzed data is presented in table 4.8 followed by the interpretation.

**Table 4.8: Coefficient of correlation, level of correlation and level of significance of Correlation between Constructivist Passion and Emotional Stability of Secondary School Teachers.**

| Correlation Between | r- Value | Relationship | Significance at |
|---|---|---|---|
| Constructivist Passion and Emotional Stability | 0.371 | Moderate/ Substantial | 0.01 |

It has been observer from the table 4.8 that the calculate r-value of the correlation between constructivist passion and emotional stability of secondary teachers was

found to be 0.371 which can be referred as positive and substantial correlation (page. 176 of (Garrett, 2008) between the variables. Further, referring the table 15 (page 201) of (Garrett, 2008) for the degree of freedom (df) 152 at the significant level of 0.01, the calculated value was found to be greater than the table value (0.208). Hence, the **$H_0$2** i.e. "There will be no significant relationship between constructivist passion and emotional stability of secondary school teachers" is rejected. So it can be said that the correlation between constructivist passion and emotional stability of secondary teachers was found to be positive, substantial and significant.

To find the correlation between emotional stability and cognitive ability of Secondary School Teachers and to test the **$H_0$3** i.e. "There will be no significant relationship between cognitive ability and emotional stability of secondary school teachers", analyzed data is presented in table 4.9 followed by the interpretation.

**Table 4.9: Coefficient of correlation, level of correlation and level of significance of Correlation between Cognitive Ability and Emotional Stability of Secondary School Teachers.**

| Correlation Between | r- Value | Relationship | Significance at |
|---|---|---|---|
| Cognitive Ability And Emotional Stability | 0.413 | Moderate/ Substantial | 0.01 |

It has been observer from the table 4.9 that the calculate r-value of the correlation between cognitive ability and emotional stability of secondary teachers was found to be 0.413 which can be referred as positive and substantial correlation (page. 176 of (Garrett, 2008) between the variables. Further, referring the table 15 (page 201) of (Garrett, 2008) for the degree of freedom (df) 152 at the significant level of 0.01, the calculated value was found to be greater than the table value (0.208). Hence, the **$H_0$3** i.e. "There will be no significant relationship between cognitive ability and emotional stability of secondary school teachers" is rejected. So it can be said that the correlation between cognitive ability and emotional stability of secondary teachers was found to be positive, substantial and significant.

To find the multiple correlation of cognitive ability and emotional stability on constructivist passion of secondary school teachers and to test the **$H_0$4** i.e. "There will be no significant influence of cognitive ability and emotional stability on

constructivist passion of secondary school teachers", the summary of multiple correlation is given in table 4.10.

**Table 4.10: Summary of Multiple Correlation of Cognitive Ability (CA) and Emotional Stability (ES) on Constructivist Passion (CP) of Secondary School Teachers with N=154.**

| Between Variables | r Value | Multiple Correlation (R) | F Value and DF | Level of Significance | SE of R | 0.99 Confidence interval | Degree of R |
|---|---|---|---|---|---|---|---|
| CP & CA | 0.459 | 0.528 | 29.247 DF= 2/151 | 0.01 | 0.05 | 0.4 to 0.66 | Moderate/ Substantial |
| CA & ES | 0.413 | | | | | | |
| ES & CP | 0.371 | | | | | | |

From the table 4.10, the correlations of 0.459, 0.413 and 0.371 were found between the variables Constructive passion and Cognitive ability; Cognitive ability and Emotional stability; and Constructive passion and Emotional stability respectively. The multiple correlation considering Constructive passion as dependent variable and cognitive ability and Emotional stability as independent variables, was found to be 0.528. The F-value of ANOVA for regression-residual model was found to be 29.247 and this F-value was found to be significant at 0.01 level of significance with the degree of freedom (DF) of 2 and 151. Hence, the multiple correlation between these three variables was found to be significant at our decided level of significance i.e. 0.01. Further analyzing, from the same table the standard error of multiple correlation was found to be 0.05. From the said multiple correlation and the standard error of multiple correlation, the 0.99 confidence interval for the population R is from 0.4 to 0.66. The said confidence interval of correlation can be considered as moderate or substantial (page. 176) of (Garrett, 2008). So, on the basis of this analysis the calculate R can be considered as moderately significant. Hence, the **$H_0$4** i.e. "There will be no significant influence of cognitive ability and emotional stability on constructivist passion of secondary school teachers" is rejected and it can be said that cognitive ability and emotional stability had moderately significance influence on the constructivist passion of secondary school teachers

### 4.3.0 CONCLUSION

The present chapter described in details the descriptive and relational analysis of data related to Cognitive ability, Emotional stability and Constructivist passion of secondary school teachers. The major findings and discussion thus obtained from the analysis have been summarized and presented along with a brief report of the research study in the next chapter.

# Chapter –V

# Summary, Discussion and Conclusion

# CHAPTER V

# SUMMARY, DISSCUSSION AND CONCLUSION

## 5.0.0 INTRODUCTION

This chapter presents the summary of the entire study, major findings of the present study, discussions of the major findings and suggestions for the future endeavors. The findings are drawn out from the analysis of the data and the interpretations of the data arrived from the data analyzed.

## 5.1.0.OVERVIEW OF STUDY

Education is a vital component for social change. It is living through a continuous reconstruction of experiences with time. There is a phenomenal change in theory, practice and pedagogy considering the research, need and development of technology. In this process, the education field has observed a paradigm shift from teacher centered education to learner centered education giving more emphasis on learning by doing. In the present scenario, though rote learning and learning by repetition have been emphasized, more emphasis is given on engaging students in active learning by constructing their own knowledge and taking into consideration their own abilities, perception with regards to the available surroundings.

Philosophers, psychologists and educationalists have emphasized that learning takes place in the minds of learners considering the immediate surroundings through experiences. Learning is considered as the internalization of ideas, views and thoughts that already exist with the learner making it the main source of learning. Hence, prior knowledge and experience of the learner provide a base for new learning. The above views have given rise to an innovative way of learning called ‘constructivist learning’ or ‘learning with a constructivist perspective’ where the learners are allowed to construct their own knowledge with the help of the available learning resources.

Highlighting the constructivist learning, National Curriculum Framework (NCF, 2005) proposed five guiding principles for curriculum development viz.

(vi) Connecting knowledge to life outside the school

(vii) Ensuring that learning shifts away from rote methods

(viii) Enriching the curriculum so that it goes beyond textbooks

(ix) Making examinations more flexible and integrating them with classroom life

(x) Nurturing an overriding identity informed by caring concerns within the democratic polity of the country

The apex body related to school education, National Council of Educational Research and Training (NCERT) has also taken steps towards constructivism by preparing textbooks that promote student interaction and activity based learning, while at the same time minimizing the scope for rote learning. These books are used by most of the schools affiliated to the Central Board of Secondary Education (CBSE). Various state boards have also taken the initiative in this direction by including NCERT textbooks in their syllabus. There have also been attempts to translate these textbooks in their regional languages so that those can be used in vernacular medium schools. In addition, the NCF has also urged that a teacher should be a facilitator of children's learning in a manner that helps children to construct their own knowledge and get meaning out of it. The teacher in this process is a co-constructor of knowledge. It also opens out possibilities for the teachers to participate in the construction of syllabi, textbooks and teaching-learning materials. Such roles demand that teachers be equipped with an adequate understanding of curriculum, subject-content and pedagogy, on one hand, and the community and school structure and management, on the other. Teachers need to be well versed with the constructivism and need to have passion for it. They need to consider constructivism as a part and parcel of their life. This new perspective of learning has influenced the role of teachers to a great extent.

Unlike traditional methods, classrooms are no more teacher dominated but initiate learner ownership. Constructivist teaching requires teacher to encourage and accept student autonomy and initiative. A constructivist teacher is expected to be positive and passionate about putting constructivist philosophy into practice by providing learning experiences that are relevant and realistic. It should also represent complexities of real world which in turn evolves problem- solving, higher order thinking skills and deep understanding of content among learners. It demands a teacher to have deep knowledge and understanding of content, psychology and the pedagogy. It requires adequate cognitive ability for teachers to work in a

constructivist environment like, idea generation, problem – solving, memory, flexibility and decision making to aid knowledge construction. It also requires teachers to possess emotional stability that facilitates them to actively understand the needs of the students to ensure their progress. Teachers need to be flexible to accept the ideas of students and to guide them in the right direction. This needs the teachers to have a balanced personality as well as having qualities like constructivist passion, cognitive ability and the emotional stability. The present research work was an attempt to study these three aspects and qualities of secondary teachers whilst examining the relationship between these aspects.

### 5.2.0 STATEMENT OF THE PROBLEM

A Study of Constructivist Passion of Secondary School Teachers with respect to their Cognitive Ability and Emotional Stability.

### 5.3.0 OBJECTIVES OF THE STUDY

The present study was conducted with the following objectives.

8. To study the constructivist passion of secondary school teachers.
9. To study the cognitive ability of secondary school teachers.
10. To study the emotional stability of secondary school teacher.
11. To study the correlation between constructivist passion and cognitive ability of secondary school teachers.
12. To study the correlation between constructivist passion and emotional stability of secondary school teachers.
13. To study the correlation between cognitive ability and emotional stability of secondary school teachers.
14. To study the influence of cognitive ability and emotional stability on constructivist passion of secondary school teachers.

### 5.4.0 HYPOTHESIS

The following null hypotheses were formulated to achieve the said objectives of the present study to be tested at 0.05 levelof significance.

**$H_0$1:** There will be no significant relationship between constructivist passion and cognitive ability of secondary school teachers.

**$H_0$2:** There will be no significant relationship between constructivist passion and emotional stability of secondary school teacher.

**$H_0$3:** There will be no significant relationship between cognitive ability and emotional stability of secondary school teachers.

**$H_0$4:** There will be no significant influence of cognitive ability and emotional stability on constructivist passion of secondary school teachers.

### 5.5.0 OPERATIONAL DEFINITION OF TERMS

Following terms used in the present study are operationally defined in terms of measurable and observable terms.

**a) Constructivist Passion:** Constructivist passion of a secondary school teacher is the score secured by him/her in the constructivist passion scale prepared by the investigator.

**b) Cognitive Ability:** Cognitive ability of a secondary school teacher is the score secured by him/her in the cognitive ability scale developed by Karthiyayini (2017).

**c) Emotional Stability:** Emotional stability of a secondary school teacher is the score secured by him/her in the emotional stability scale developed by Karthiyayini (2017).

### 5.6.0 DELIMITATIONS OF THE STUDY

The present study is delimited to the teachers of the secondary schools in Vadodara city affiliated to Central Board of Secondary Education (CBSE), New Delhi only.

### 5.7.0 METHODOLOGY OF THE STUDY

Survey method was used in the present study. Following process of the survey method was used in the present study.

### 5.7.1 POPULATION OF THE STUDY

There are 40 CBSE affiliated secondary schools in Vadodara city. Hence, the population comprises of approximately 400 secondary school teachers (10 teachers for a school having 2 sections in both IXandX) in Vadodara city.

### 5.7.2 SAMPLE OF THE STUDY

Sample for the present study was selected randomly. 5 schools were selected randomly and all the secondary teachers of those selected 5 schools constituted as the sample of the present study. Hence, the sample comprised of 154 secondary teachers of the schools affiliated to CBSE in Vadodara city.

### 5.7.3 TOOLS FOR DATA COLLECTION

The following tools were used to collect data for the present study.

**Constructivist Passion Scale:** A constructivist passion scale considering the dimensions of constructivist passion was prepared by the investigator. From the review of related literature, 10 different dimensions of constructivist passion were selected. Those were Passion for learning, Initiation, Commitment towards novelty in work, Accepting criticism, Support for students' orientation, Trusting students, Perseverance, Open- mindedness, Practicing higher order thinking skills and passion towards teaching profession. Again 5 activities were identified in each and every dimension.

**Cognitive Ability Scale:** Cognitive ability of secondary school teachers was measured with the help of Cognitive Ability Scale developed by Karthiyayini (2017). The Cognitive ability scale comprises of five dimensions i.e. idea generation, problem-solving, memory, cognitive flexibility and decision making. There were 10 items each for the dimensions like, idea generation, problem-solving, and decision making, whereas, there were 5 items each for the dimensions like memory and cognitive flexibility. Hence the scale was with a total of 40 items in the given five dimensions. The items of the scale have five categories of responses namely strongly agree, agree, none, disagree and strongly disagree.

**Emotional Stability Scale:** Emotional stability of secondary school teachers was measured with the help of emotional stability scale developed by Karthiyayini (2017). It has 40 items with three types of responses i.e. Yes, No and Sometimes. The score for a Yes response is 2, No is 0 and sometimes is 1. Hence, the minimum score of a respondent of the scale can be 0 and maximum can be 80.

### 5.7.4 ANALYSIS OF DATA

For the purpose of descriptive analysis of data mean, standard deviation, standard error of mean, skewness and kurtosis were used. For the purpose of inferential analysis, product moment correlation and multiple correlation were used as per the requirement of the data.

### 5.8.0 MAJOR FINDINGS OF THE STUDY

Following major findings were drawn from the analysis and interpretation of data.

(i) Secondary school teachers were found high in their cognitive ability with 80.42 % of mean score. The group was found to be homogenous in terms of their mean cognitive ability score. Teachers were also found with similar mean score ranging from 82.8% to 77.44% in all the five components of cognitive ability like idea generation, problem solving, memory, flexibility and decision making. Out of these secondary school teachers 71.42% were found moderate, 12.34% were found low and 16.23% were found high in their cognitive ability.

(ii) Secondary school teachers were found moderate in their emotional stability with 65.86 % of mean score. The group was found to be homogenous in terms of their mean emotional stability score. Out of these secondary school teachers 58.44 % were found moderate, 20.78% were found low and 20.77% were found high in their emotional stability.

(iii) Secondary school teachers were found high in their constructivist passion with 80.42 % of mean score. The group was found to be homogenous in terms of their mean constructivist passion score. Teachers were also found with similar mean score ranging from 88% to 76.24% in all the 10 components of constructivist passion. Out of these secondary school teachers 70.722% were found moderate, 15.58% were found low and 13.64% were found high in their constructivist passion.

(iv) The correlation between constructivist passion and cognitive ability of secondary school teachers was found to be positive, substantial and significant.

(v) The correlation between constructivist passion and emotional stability of secondary teachers was also found to be positive, substantial and significant.

(vi) The correlation between cognitive ability and emotional stability of secondary teachers was also found to be positive, substantial and significant.

(vii) The cognitive ability and emotional stability had moderately significance influence on the constructivist passion of secondary school teachers.

### 5.9.0 DISCUSSION

Teachers are the pillars of the entire education system. They build the future of a nation by nurturing young minds. Teachers' plays an important role in the academic and personal life of a student. A teacher with excellent constructivist passion, cognitive ability and emotional stability can provide better education to students in conducive environment through innovative methods of teaching and learning.

One of the major objectives of the study was to define constructivist passion along with its dimensions and develop a tool to know the level of constructivist passion of secondary school teachers of Vadodara city. The dimensions of this component were identified through in-depth study and review of literature related to constructivism and passion. The identified components were Passion for learning, Initiation, Commitment towards novelty in work, Accepting criticism, Support for students' orientation, Trusting students, Perseverance, Open- mindedness, Practicing higher order thinking skills and passion towards teaching profession.

The findings of the present study revealed that nearly 71% of the secondary school teachers were moderate in their cognitive ability. The mean, standard deviation and the standard error of mean of the cognitive ability of secondary school teachers were 161, 11.62 and 0.94 respectively that explains that the score of distribution is clustered more in the centre of the graph. The findings were supported by study conducted by Karthiyayini (2018) while the other research studies by Shree (2016), Hanji (2010) and Das (1984) revealed that cognitive ability of students played an important role in their learning and development. It also states that a teacher with high cognitive ability can be an effective resource for the development of cognitive abilities of the students. The findings related to relational analysis of the data revealed that there is moderate and significant relation between cognitive ability and constructivist passion of teachers. Cognitive ability also has a moderate and significant relationship with emotional stability as well. These findings are supported by the study conducted of Karthiyayini (2018).

The findings of the present study involving emotional stability revealed that nearly 58% of the secondary school teachers were moderate. The mean, standard deviation

and the standard error of mean of the emotional stability of secondary school teachers were 58.69, 5.66 and 0.70 respectively which explains that the score of distribution is clustered more in the center of the graph compared to the other parts. The findings are supported by study conducted by Devi (2012) and Karthiyayini (2018) while there are other research studies by Dang (1998) and Mohan (2015) which reveal that emotional stability of student teachers have an impact on their attitude towards teaching profession and cognitive styles. It also reveals that a teacher with high emotional stability can be an effective source for the overall development of students. The findings related to relational analysis of the data stated that there is moderate and significant relation between emotional stability and constructivist passion of teachers. The results for the component involving cognitive ability also showed results of similar kind which were supported by the findings of the study conducted by Karthiyayini (2018).

The other aspect of the study was the constructivist passion of the teachers. When this component was further studied the analysis revealed that nearly 71% of the secondary school teachers were moderate in constructivist passion. The mean, standard deviation and the standard error of mean of constructivist passion were 212.29, 14.12 and 1.13 respectively that explains that the score of distribution is clustered more in the center of the graph. Due to a paucity of articles related to constructivist passion, other studies analyzing constructivism and passion were reviewed to draw conclusions for the present study. The studies related to constructivism, conducted by Nayak (2018), Mondal (2014) and Parasurama (2017) explained that constructivism plays a vital role in learning of students at secondary school level. The studies conducted by Paradkar (2015) and Ganiger (2014) showed that constructivism is effective in professional development of pre- service teachers. The studies related to passion, conducted by Philippe (2009), Moeller (2013), Johri (2016) and Mohil (2016) showed that passion is important for personal well - being, professional satisfaction and motivation at work place. Hence, there reviewed literature was beneficial for the investigator to define constructivist passion and design a tool to collect the data for the same. As constructivist passion is necessary to implement constructivist methods of teaching, learning and evaluation in the classroom, the teachers with high constructivist passion can be an asset for the development of students.

## 5.10.0 IMPLICATIONS OF THE PRESENT STUDY

The following are the implications drawn out from the findings of the present study:

The findings can give suggestions to government and non- government organizations to frame and conduct professional development programmes for in- service teachers with the aim to enhance constructivist passion, cognitive abilities and emotional stability of secondary school teachers.

The curriculum of pre- service teacher education programmes should be designed with the objective to develop passion towards teaching profession so that teachers are motivated to implement innovative teaching methods in the classrooms.

## 5.11.0 SUGGESTION FOR FURTHER STUDIES

The present research was limited to Secondary School teachers affiliated to CBSE schools of Vadodara in Gujarat. The researcher would like to suggest some more area and issues for the further studies which are as below.

- Similar study can be conducted into other standards and in different affiliated boards.
- The studies could be conducted with a little bigger sample.
- Constructivist passion scale could be standardized and can be used for different sample.
- Apart from cognitive ability and emotional stability, some other variables could be taken for the research.
- Constructivist passion of teachers could be studied with few personal, social and academic variables.

## 5.11.0 CONCLUSION

The present study was conducted with the objective to determine the level of cognitive ability, emotional stability and constructivist passion of secondary school teachers and to determine the relationship among these variable. The findings of the study revealed that most of the in- service teachers have high level of cognitive ability and constructivist passion, whereas, teachers were found moderate in emotional stability. The study also revealed that cognitive ability and emotional stability had moderately significance influence on the constructivist passion of secondary school teachers. Hence, attempt could be taken to enhance the emotional stability of teachers. Though teachers are high in their constructivist passion, they could be motivated to show it in their teaching learning activities.

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# Appendix

# CONSTRUCTIVIST PASSION QUESTIONNAIRE

Answer each of the following questions by putting a tick (√) in the appropriate column. Answer the question in terms of your own personal experiences and feelings. Kindly answer all the questions and your response will be kept confidential.

| Sr. No. | Statements | Very Often | Often | Some-times | Rarely | Never |
|---|---|---|---|---|---|---|
| 1. | I love to attend workshops and seminars of my interest areas even those are organized at far off places and/or even one has to pay for attending those. | | | | | |
| 2. | I often read journals and periodicals related to the areas of my interest to keep myself updated. | | | | | |
| 3. | I am interested to organize events like seminars, conferences and workshops in and around my school to help others to disseminate and acquire new information. | | | | | |
| 4. | I like to read e-contents, use MOOCs and other online contents to know about the latest teaching methods and practices around the globe. | | | | | |
| 5. | I always try to learn something from others even from my students. | | | | | |
| 6. | I like to explore and implement new tested methods of teaching that would facilitate knowledge construction of students. | | | | | |
| 7. | I would like to take risk to implement an innovative method in my teaching-learning. | | | | | |
| 8. | I do not hesitate to implement any of my new ideas in my class those would be helpful for students. | | | | | |
| 9. | I believe and initiate self discipline among students. | | | | | |
| 10. | I accept the role of co-curricular activities those help students in knowledge construction. | | | | | |

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| 11. | I am keen to bring novelty in my teaching by integrating other subjects like art and craft. | | | | | |
| 12. | I always suggest students to complete their project and assignment works with novelty. | | | | | |
| 13. | I encourage students to bring novelty in their thoughts and to express them through the activities like poems, discussion and essay writing. | | | | | |
| 14. | I admire novelty in answers from students in our traditional examinations. | | | | | |
| 15. | I believe that novelty is the spice of life. | | | | | |
| 16. | I wholeheartedly accept criticisms related to my work. | | | | | |
| 17. | I immediately respond to the criticisms related to my work. | | | | | |
| 18. | While accepting the criticisms of others, I do not dilute my own views. | | | | | |
| 19. | I preach students to give and take criticism in a positive mindset. | | | | | |
| 20. | I humbly thank my critics as they are the only persons interested for my betterment. | | | | | |
| 21. | I believe that students are good and capable of constructing their own knowledge irrespective of their orientation. | | | | | |
| 22. | I promote students to manage their own learning process for knowledge construction. | | | | | |
| 23. | I encourage reflection of students irrespective of their orientation. | | | | | |
| 24. | I would like to take students' suggestions while designing my classroom activities. | | | | | |
| 25. | I love to handle my classes as per the level of the students. | | | | | |
| 26. | I believe that child learns better in a liberal environment. | | | | | |
| 27. | I believe in inculcating self-discipline among students. | | | | | |
| 28. | I encourage multiple perspectives of any teaching content from the students. | | | | | |

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| 29. | I accept when students make noise while doing group activities. | | | | | |
| 30. | I often allow students to design, create, manage and solve their problems. | | | | | |
| 31. | I continuously make efforts to help weak student by assigning varieties of tasks. | | | | | |
| 32. | I try again and again to solve a problem but do not give up. | | | | | |
| 33. | I try to make the classes liberal and self motivated irrespective of the environment of the school. | | | | | |
| 34. | I can use any new method of teaching for the construction of knowledge among students. | | | | | |
| 35. | I strongly emphasize on the evaluation practices those focus on knowledge construction rather than memorization of information. | | | | | |
| 36. | I positively consider other's opinions and revise my plans accordingly. | | | | | |
| 37. | I preach students to be open-minded and listen to each other. | | | | | |
| 38. | I listen anything from any students related to teaching learning and do not ignore anyone. | | | | | |
| 39. | I am ready to work in any type of system and environment. | | | | | |
| 40. | I accept any of my faults easily and analyze it further. | | | | | |
| 41. | I always analyze my classroom activities to achieve my objectives. | | | | | |
| 42. | I am very keen to find out good points from others and add those points in my activities whenever needed. | | | | | |
| 43. | I manage my instructional process including evaluation to facilitate higher order thinking among students. | | | | | |
| 44. | I try to make each of my activities logical. | | | | | |

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| 45. | I always try to add some newness in my activities. | | | | | |
| 46. | I do my professional work religiously. | | | | | |
| 47. | I do not see the time and space while doing something for students' learning. | | | | | |
| 48. | I feel overwhelmed when I found some development among students due to my efforts. | | | | | |
| 49. | I feel proud to be a part of the teaching profession. | | | | | |
| 50. | I believe my profession energizes me to lead my life. | | | | | |

# COGNITIVE ABILITY QUSTIONNAIRE

Answer each of the following questions by putting a tick (√) in the appropriate column. Answer the question in terms of your own personal experiences and feelings. Kindly answer all the questions and your response will be kept confidential.

| Sr. No | Statements | Strongly Agree | Agree | None | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| 1. | I often wander my mind to come up with new ideas. | | | | | |
| 2. | I tend to work on many ideas simultaneously. | | | | | |
| 3. | When I get stuck, I tend to leave the idea for a while, do something else, before returning to work on it. | | | | | |
| 4. | I read widely to build new ideas. | | | | | |
| 5. | When I have a new idea, I tend to discuss it with someone to know its potential soundness. | | | | | |
| 6. | I typically create new ideas by combining existing relevant ideas. | | | | | |
| 7. | I have often gone back to the ideas that I have rejected before. | | | | | |
| 8. | I typically modify an existing idea slightly step by step. | | | | | |
| 9. | I often look for new ideas outside of my own field, and try to apply them to my own. | | | | | |
| 10. | I often use the technique of brain storming to build new ideas. | | | | | |
| 11. | When confronted with a problem, I try to judge it or try to understand it from the bottom. | | | | | |
| 12. | While solving a problem I draw a map at my mental level. | | | | | |
| 13. | Internally I develop a system where I can collect | | | | | |

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| | and store the information after solving a problem. | | | | | |
| 14. | In case of solving a problem I first concentrate on its important aspects. | | | | | |
| 15. | I consider a problem in a systematic and step- wise manner. | | | | | |
| 16. | I examine a problem as a whole before considering its aspects separately. | | | | | |
| 17. | While solving a problem I normally believe in facts and figures. | | | | | |
| 18. | I search for additional information systematically and select the source of information carefully. | | | | | |
| 19. | In the process of solving a problem, first of all I identify factors that may cause hurdles. | | | | | |
| 20. | When I seek a solution of a problem, modus operandi is quite extensive and well- organized. | | | | | |
| 21. | I am able to memorize the theorem and laws easily. | | | | | |
| 22. | I remember concept through writing practices. | | | | | |
| 23. | When I come across a new idea, I am able to recollect information regarding it. | | | | | |
| 24. | I do organize information internally in mind. | | | | | |
| 25. | I have high capacity to commit things to memory. | | | | | |
| 26. | I do not appreciate others' talents. | | | | | |
| 27. | I learn good qualities from others. | | | | | |
| 28. | I will not try to develop good co-operation among other group members. | | | | | |
| 29. | I am ready to make changes. | | | | | |
| 30. | I am very keen to explore new things. | | | | | |
| 31. | I consider how best I am to | | | | | |

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| | carry out a decision. | | | | | |
| 32. | When making decisions I like to collect a lot of information as much as possible. | | | | | |
| 33. | I try to be clear about my objectives before choosing. | | | | | |
| 34. | I prefer to leave decisions to others. | | | | | |
| 35. | I do not like to take responsibility for making decisions. | | | | | |
| 36. | I waste a lot of time on trivial matters before getting to the final decision. | | | | | |
| 37. | Even after I have made a decision I delay acting upon it. | | | | | |
| 38. | I delay making decision until it is too late. | | | | | |
| 39. | I cannot think straight, if I have to make a decision in a hurry. | | | | | |
| 40. | I like to consider all the alternatives. | | | | | |

# EMOTIONAL STABILITY QUESTIONNAIRE

Answer each of the following questions by putting a tick (√) in the appropriate column. Answer the question in terms of your own personal experiences and feelings. Kindly answer all the questions and your response will be kept confidential.

| Sr. No. | Statements | | | |
|---|---|---|---|---|
| 1. | My appetite remains as usual when eating just before an exam or an interview. | Yes | No | Sometimes |
| 2. | I find it easy to keep an exciting secret. | Yes | No | Sometimes |
| 3. | A screeching noise on a glass or black board gives me shivers. | Yes | No | Sometimes |
| 4. | I always get along well with my parents, brothers and sisters. | Yes | No | Sometimes |
| 5. | I often make big plans and get excited about them. | Yes | No | Occasionally |
| 6. | I am usually a much contended person. | Yes | No | Usually |
| 7. | I sometimes feel happy and sometimes feel depressed without any apparent reason. | Yes | No | Uncertain |
| 8. | When I do something foolish, I feel so bad that I wish I could just hid somewhere forever. | Yes | No | Perhaps |
| 9. | I wish I want to be a different person from what I am now. | Yes | No | Perhaps |
| 10. | When I plan to do something, I am full of hope and sure that all will go well. | Yes | No | Sometimes |
| 11. | I have sometimes wished that I had never been born. | Yes | No | Perhaps |
| 12. | Even when someone is watching me I can work as fast as usual and without any mistakes. | Yes | No | Uncertain |
| 13. | I believe in spending more time in my work than is actually asked. | Yes | No | Perhaps |
| 14. | Even when I have to decide things in hurry, I stay happy with my decision. | Yes | No | Sometimes |
| 15. | When someone praises me for something I have doubt that they are fooling me or they have made a mistake. | Yes | No | Sometimes |
| 16. | There are times when I have to really struggle with the feelings and I do not feel like doing anything. | Never | Often | Sometimes |

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|---|---|---|---|---|
| 17. | People say that I daydream a lot. | Yes | No | Sometimes |
| 18. | I can remain calm in a contest when I am very much wanted to win. | Yes | No | Sometimes |
| 19. | There are times when other people get on my nerves so much that I just have to lose control of myself for a while. | Yes | No | Sometimes |
| 20. | Sometimes people say that I am not on time and not dependable even thought they like me. | Yes | No | Uncertain |
| 21. | There are days when so many title things go wrong that I feel like I will go mad if anything else goes wrong. | Yes | No | Sometimes |
| 22. | I feel sure that people respect me and pay attention to me as much as they do to others. | Yes | No | Perhaps |
| 23. | I often feel unhappy and do not want to talk to anyone. | Yes | No | Sometimes |
| 24. | I am good at taking care of things that have to be mended or made to work. | Yes | No | Perhaps |
| 25. | There are times when I feel I will never achieve anything. | Yes | No | Sometimes |
| 26. | I can be quite happy when friends refuse to do things my way. | Yes | No | Sometimes |
| 27. | People say that I am a person who can always be counted on to do things exactly and properly. | Yes | No | Uncertain |
| 28. | I would like to be extremely good looking so that people would notice me where ever I go. | Yes | No | Perhaps |
| 29. | I sometime feel so confused that I do not know what I am doing. | Yes | No | Perhaps |
| 30. | I enjoy being a leader so that I can make decisions for a group. | Yes | No | Not sure |
| 31. | In making decisions, I bother to consider everything, even the smallest facts. | Yes | No | Perhaps |
| 32. | I snap my fingers when I am excited and eager to do something. | Yes | No | Perhaps |
| 33. | Even when I am happy, one small thing can quite suddenly make me sad. | Yes | No | Perhaps |
| 34. | People say no matter what happens, I stay calm and self-controlled. | Yes | No | Uncertain |
| 35. | There are times when I do things I think I really should not do. | Yes | No | Sometimes |
| 36. | I like people to tell me exactly how they want things done. | Yes | No | Uncertain |

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| 37. | When I wake up in the morning, I find that I have tossed and turned so much that the whole bed is a mess. | Yes | Never | Sometimes |
| 38. | When people look around my room at home, they say that I keep it neat and tidy. | Yes | Never | Sometimes |
| 39. | There are times when I do pretty wild things not caring what other people will say. | Yes | No | Sometimes |
| 40. | When I go out among other people for the first time, I am always sure I will do the proper thing. | Yes | No | Usually |