

A COMPARATIVE STUDY OF TEACHER EFFECTIVENESS AND PERSONALITY TRAITS OF SENIOR SECONDARY SCHOOL TEACHERS ON THE BASIS OF THEIR INFORMATION AND COMMUNICATION TECHNOLOGY KNOWLEDGE

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Summary

“A student spends 25,000 hours in the campus. The school must have the best of teachers who have the ability to teach, love teaching and build moral qualities”
A.P.J. Abdul Kalam

Education is the base of human's development and personification. Education is vitally important to all nations as it plays crucial role in economic, cultural and social development. Teaching is an essential part of education. There is a currently worldwide movement of teacher effectiveness, school improvement and educational reforms. In these movements teacher effectiveness is the salient concern for most of researchers, policy makers and practitioners. **Barr (1952)** remarked, **“Teacher effectiveness may be essentially a relationship between teachers, pupils and other persons concerned with the education, understanding all affected and facilitating aspects of immediate situation.”** Teacher effectiveness plays an important role in teaching-learning process. Teacher effectiveness is the product of a number of variables namely academic, subject mastery, intellectual level, love for children, job satisfaction, teaching experience, professional growth, age of teacher, techniques used in teaching etc.

Personality dimension of a teacher play a crucial role in the effectiveness of his performance in the school setting. Therefore, teacher's personality is a crucial factor in arranging the conditions of the learner's environment for effective teaching. According to **Woodworth (1929)** **“personality is the quality of the individual's total behaviour, it is how he acts, when his activity is taken as a whole”**.

The most striking innovation in the field of education is the integration of information and communication technology in education. The use of information and communication technology (ICT) in education makes teaching-learning process effective and interesting. ICT is an electronic means of capturing, processing, storing, communicating information.

Teacher's Personality traits affect the teacher effectiveness. The effectiveness of education system depends on the effectiveness of its teachers. The results will definitely contribute in the field of teaching. Hence, there is a need to study the effect of ICT familiarity on teacher effectiveness of senior secondary school teachers. Therefore the knowledge of ICT and the use of it in education in appropriate situation are important. During the present global scenario, this study will be fruitful in attaining the goals in the perspective of ICT.

Besides its theoretical importance, the present study is significant from the applied angle also. This study provides us merits and demerits of teacher's personality and teaching-learning process. The present problem provides direction for professional development of the teachers for developing the right kind of knowledge towards ICT forefficient and effective teaching. So the present study can provide assistance to teacher, policy makers, planners and administrators in understanding the degree of influence of different demographic factors, such as sex, academic streams, location of school, teaching experience, rural and urban background on teacher effectiveness and personality.

Thus, the investigator motivated to study teacher effectiveness and personality traits in relation to ICT knowledge of senior secondary school teachers. Research area was Almora district of Uttarakhand state.

Statement of the Problem

The research problem is stated as **“A comparative study of teacher effectiveness and personality traits of senior secondary school teachers on the basis of their information and communication technology knowledge”**

Objectives of the Study

The major objectives of the study were as:

1. To compare the teacher effectiveness of senior secondary school teachers on the basis of their ICT knowledge.
2. To compare the personality traits of senior secondary school teachers on the basis of their ICT knowledge.
3. To compare the teacher effectiveness of senior secondary school teachers on the basis of their sex.
4. To compare the personality traits of senior secondary school teachers on the basis of their sex.
5. To compare the ICT knowledge of senior secondary school teachers on the basis of their sex.
6. To compare the teacher effectiveness of senior secondary school teachers on the basis of their teaching experience.
7. To compare the personality traits of senior secondary school teachers on the basis of their teaching experience.
8. To compare the ICT knowledge of senior secondary school teachers on the basis of their teaching experience.
9. To compare the teacher effectiveness of senior secondary school teachers on the basis of their types of school.
10. To compare the personality traits of senior secondary school teachers on the basis of their types of school.
11. To compare the ICT knowledge of senior secondary school teachers on the basis of their types of school.
12. To compare the teacher effectiveness of senior secondary school teachers on the basis their academic stream.
13. To compare the personality traits of senior secondary school teachers on the basis of their academic stream.
14. To compare the ICT knowledge of senior secondary school teachers on the basis of their academic streams.
15. To compare the teacher effectiveness of senior secondary school teachers on the basis of their rural and urban background.
16. To compare the personality traits of senior secondary school teachers on the basis of their rural and urban background.
17. To compare the ICT knowledge of senior secondary school teachers on the basis of their rural and urban background.
18. To compare the teacher effectiveness of senior secondary school teachers on the basis of their location of school, i.e. rural and urban background.
19. To compare the personality traits of senior secondary school teachers on the basis of their location of school, i.e. rural and urban background.
20. To compare the ICT knowledge of senior secondary school teachers on the basis of their location of school, i.e. rural and urban background.
21. To compare the teacher effectiveness of senior secondary school teachers on the basis of their caste, i.e. reserved and unreserved.
22. To compare the personality traits of senior secondary school teachers on the basis of their caste, i.e. reserved and unreserved.
23. To compare the ICT knowledge of senior secondary school teachers on the basis of their caste, i.e. reserved and unreserved.
24. To compare the teacher effectiveness of senior secondary school teachers on the basis of their type of post, i.e. permanent and temporary.
25. To compare the personality traits of senior secondary school teachers on the basis of their type of post, i.e. permanent and temporary.
26. To compare the ICT knowledge of senior secondary school teachers on the basis of their type of post, i.e. permanent and temporary.

Operational Definitions of Variables Used in Research

The operational definitions of various variables, which are used in the present research study, are as follows:-

Comparative Study- A study in which a participant is randomly assigned to one of two or more different treatment groups for purposes of comparing the effects of the treatments, comparative study means the study of similarities and differences in the behaviour of different groups.

Teacher Effectiveness- Teacher effectiveness is used broadly, to mean the collection of characteristics, competencies, and behaviours of teachers at all educational levels that enable students to reach desired outcomes, which may include the attainment of specific learning objectives as well as broader goals such as being able to solve problems, think critically, work collaboratively and become effective citizens.

Personality Traits- A personality trait is a characteristic that is distinct to an individual. Personality traits are simply: actions, attitudes, behaviours you possess. **Atkins & Hilgard** (1983) said “**A trait refers to any characteristics that differ from person to person in a relatively permanent and consistent way.** A trait is a composite based on many specific behaviours covered by the name given to it. The word trait, for instance, is used to indicate that a person is perfectly honest, and to predict his behaviour in any situation involving honesty, though in most cases he may have an intermediate degree of the trait which means that he may be honest in some situations but not in others. The extent to which a trait gives a faithful description depends on the extent to which the behaviours collected under the trait definition are coherent and present in the same person. Personality is the dynamic organization within the individual of those psychological systems that determine his adjustments to his environment. It recognizes the changing nature of personality and focuses on the inner aspect rather than on superficial manifestations. A man’s personality is the total picture of his organized behaviour, especially as it can be characterized in his fellow men in a consistent way. According to **Cattell** “personality is that which permits a predication of that a person will do in a given situation”. A person’s personality comprises of both his innate powers and acquired traits. The important among them are: physical and mental health, self-consciousness, will power, sociability, adjustability, and developmental continuity.

Information and Communication Technologies- Information and communication technologies consist of the hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information (voice, data, text, images). According to **G. B. Harrison** “ICT may be defined as the use of information in order to meet human need or purpose including reference to the use of contemporary devices such as the internet”. ICT is often categorised into two broad types:-

1. The traditional computer-based technologies (things one can typically do on a personal computer or using computers at home or work) and
2. The more recent, and fast-growing range of digital communication technologies (which allows people and organisations to communicate and share information digitally)

Senior Secondary School- Senior secondary school comprising classes XI-XII.

Teacher- Teachers are subjective insiders involved in classroom instruction as they go about their daily routines of instructing students, grading papers, taking attendance, evaluating their performance as well as looking at the curriculum. According to the **dictionary of education**, “**a teacher is a person employed in an official capacity for the purpose of guiding and directing the learning experiences of pupils or students in an educational institution, whether public or private.**”

Senior Secondary School Teachers- Teachers who were teaching XI and XII class students known as senior secondary school teachers.

Sex- Sex denotes biologically determined, thus unchangeable, difference between them. Sex is state of being male or female.

Living Place- Particular position or area belongs to any person or things where he/she lives, i.e. rural and urban background.

Teaching Level- Position of class taught by teacher during teaching time.

Situation of School- Particular position or area of any school, i.e., situated in rural and urban.

Type of School- Schools categorised on the basis to its management, i.e. government, private aided and public schools.

Government School- Institutions/schools managed and financed by central/state governments, autonomous organisations set up by the central/state governments.

Private Aided School- Institutions/schools managed by an individual, trust or a private organisation and is receiving regular maintenance grants either from a local body or from the central/state governments.

Public Schools-Institutions/schools managed by an individual, trust or a private organisation and do not receive regular maintenance grants either from local body or government (central/state). An institution which is in receipt of an ad-hoc grant for a specific purpose like building grant, grant for strengthening of library or laboratory facilities, one time subsidy towards teacher salary etc. But does not receive regular maintenance grant should be treated as an unaided institution.

Academic Streams-Academic stream just means your course of study, that is, what courses you will take in the future; the direction your studies will go or, your institution could possibly have different academic streams already written out for you, that you will choose from.

Teaching Experience-Formal teaching in a college is considered as the teaching experience. Teacher experience is directly relevant to the classroom/lecture hall. Teaching experience is defined as working years of the teachers in senior secondary schools.

Science Subject Teacher-The teacher who teaches science subjects as biology, mathematics, physics, chemistry etc.

Art Subject Teacher-The teacher who teaches art subjects as Hindi, drawing, commerce, home science, social science, etc.

Urban Area-An urban area is the region surrounding a city. Most inhabitants of urban areas have non-agricultural jobs. Urban areas are very developed; meaning there is a density of human structures such as houses, commercial buildings, roads, bridges, and railways. Urban area can refer to towns, cities, and suburbs.

Rural Area- A rural area or countryside is a geographic area that is located outside towns and cities. Their people are lives slower pace of life.

Caste- A caste is one of the traditional social classes into which people are divided in a Hindu society. Caste is the system of dividing people in a society into different social classes. The caste system shapes nearly every facet of Indian life.

Unreserved Caste- Unreserved caste or forward caste (referred as general class) is a term used in India to denote social groups that do not qualify for reservation benefits and other affirmative action schemes operated by the government of India.

Reserved Caste- Reserved caste is a term used in India to denote socially backward classes that do qualify for reservation benefits and other affirmative action schemes operated by the government of India. Caste reservation is an affirmative action program with fixed quotas. India has three main disadvantaged groups as scheduled tribes, scheduled caste and other backward castes. Now in present time reservation is also given on the basis of economic conditions which are known as economically weaker section.

Type of Post- A post in a company or organization is a job or official position in it, usually one that involves responsibility.

Permanent Teachers- Clients require a member of staff who will work with them on a permanent employment contract. This also includes fixed term contracts (where you will be contracted through the client/employer's payroll). For permanent positions, you will be eligible for full employee benefits offered by the clients/employee.

Temporary Teachers- Clients require a member of staff to work with them on a flexible basis. Typically, these assignments will be for a fixed term and cover increases in workload, illness cover or maternity/paternity cover. You will have a contract of service (through change) for an agreed hourly or daily rate, which will cover the time you work and you will be entitled to holidays of up to 28 days per annum, based on the amount of time that you work.

Review of Related Literature

The review investigated on teacher effectiveness and personality traits on the basis of information and communication technology (ICT) systems and their applications and use in teaching and the importance of use of pedagogical theories. Keeping in view the objectives of the present investigation the review of related literature is presented under the following headings:

Studies Related to Teacher Effectiveness

Anderson (1954) conducted a study entitled “A study of certain criteria of teaching effectiveness”, was undertaken. 30 teachers who received the university teacher certificates and who are employed in high schools in the state of Wisconsin constituted the sample. It was noted that there was no adequate basis to prove what is good teaching.

Pachaiyappani and Raj (2014) conducted a study to evaluate the teacher effectiveness of secondary and higher secondary school teachers. The results concluded that male and female teachers do not differ significantly in their teacher effectiveness and urban teachers were found to be more effective in their teaching than rural teachers. Significant difference in teacher effectiveness was found among the school teachers with respect to teaching experience and type of school management.

Shah (2017) conducted a study in “Effectiveness of learning styles on educational achievement of the students of standard-XI in context to gender.” He found the following findings:-

1. There was no significant different in educational achievement among students having visual learning style, auditorial learning style and kinaesthetic learning style.
2. In matter of educational achievement, girls are superior to boys among students having visual learning style.
3. In matter of educational achievement, boys are superior to girls among students having auditorial learning style.
4. In matter of educational achievement, girls are superior to boys among students having kinaesthetic learning style.

Studies Related to Personality Factors

Ryans (1969) pointed out that man teachers are significantly higher emotional stability than women teachers.

Chachra (1987) showed that the student-teacher possessed personality profiles as A, B, C, E, F, G, H, I, L, M, N, O, Q1, Q2, Q3, and Q4. It indicates that these student-teachers were reserved in nature, average intelligent (according to 16 P.F. only), and emotionally less stable, humble and sober.

Nautiyal and Lohani (2018) conducted a study entitled “Professionalism among teacher educators in relation to their personality traits and family environment”, was undertaken. It was noted that:

- i. Personality factors A, C, F, H, L, M, N and Q1 did not significantly affected the dimensions of professionalism of the teacher educators.
- ii. Personality factor Q2 significantly affected the teaching performance and marginally affected the constructivist, inclusive and innovative dimensions of professionalism of the teacher educators.

Studies Related to Information and Communication Technology

Greenhill (1959) found that students who had studied zoology by television lessons had obtained good results. Further he observed through his experience for a period of five years that the television instruction was effective.

Bradley and Vezquez (1983) found that a CAI lesson was more effective for teaching of history and science respectively, at secondary level.

Mary (2002) conducted a study to examine the pedagogical reasoning: Issues and solutions for the teaching and learning of ICT in secondary schools. It is cleared from the analysis of the pedagogical reasoning process in relation to teaching ICT that the lack of ICT content knowledge of some ICT teachers is only a small part of the problem. The other categories of knowledge where deficiencies have been identified; pedagogical content knowledge, subject specific aspects of general pedagogical knowledge, knowledge of learners and curriculum knowledge, will require an extensive collaborative effort involving teachers and researchers.

NayalandChamyal (2016) conducted a study on “A comparative study of computer and internet knowledge among secondary school teachers in Bhaisiyachhana block” and found following conclusions:

1. Female teachers were more knowledge of computer and internet than male teachers.
2. Science stream teachers were more knowledge of computer and internet than art stream teachers.
3. Higher secondary teachers were more knowledge of computer and internet than secondary teachers.
4. Teachers who have teaching experience less than 15 years were knowledge of computer and internet than the teachers who have teaching experience more than 15 years.

Hypotheses of the Research

A hypothesis is used in an experiment to define the relationship between two variables.

In the present study null hypotheses were used for checking the relationships between two variables are as follows:

1. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their ICT knowledge.
 - 1.1. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their low and average ICT knowledge.
 - 1.2. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their average and high ICT knowledge.
 - 1.3. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their high and low ICT knowledge.
2. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their ICT knowledge.
 - 2.1. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their low and high ICT knowledge.
 - 2.2. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their high and average ICT knowledge.
 - 2.3. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their low and average ICT knowledge.
3. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their sex.
4. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their sex.
5. Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their sex.
6. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their teaching experience.
 - 6.1 Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their 1-10 years and 11-20 years teaching experience.
 - 6.2 Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their 11-20 years and above 20 years teaching experience.
 - 6.3 Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their 1-10 years and above 20 years teaching experience.
- 7 Their is no significant difference in personality traits of senior secondary school teachers on the basis of their teaching experience.
 - 7.1 Their is no significant difference in personality traits of senior secondary school teachers on the basis of their 1-10 years and 11-20 years teaching experience.
 - 7.2 Their is no significant difference in personality traits of senior secondary school teachers on the basis of their 11-20 years and above 20 years teaching experience.
 - 7.3 Their is no significant difference in personality traits of senior secondary school teachers on the basis of their 1-10 years and above 20 years teaching experience.
- 8 Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their teaching experience.
 - 8.1 Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their 1-10 years and 11-20 years teaching experience.
 - 8.2 Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their 11-20 years and above 20 years teaching experience.
 - 8.3 Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their 1-10 years and above 20 years teaching experience.

- 9 Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their type of school.
- 9.1 Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their public and government type of school.
- 9.2 Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their government and private aided type of school.
- 9.3 Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their public and private aided type of school.
- 10 Their is no significant difference in personality traits of senior secondary school teachers on the basis of their type of school.
- 10.1 Their is no significant difference in personality traits of senior secondary school teachers on the basis of their public and government type of school.
- 10.2 Their is no significant difference in personality traits of senior secondary school teachers on the basis of their government and private aided type of school.
- 10.3 Their is no significant difference in personality traits of senior secondary school teachers on the basis of their public and private aided type of school.
- 11 Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their type of school.
- 11.1 Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their public and government type of school.
- 11.2 Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their government and private aided type of school.
- 11.3 Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their public and private aided type of school.
12. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their academic streams.
- 12.1. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their art and science academic streams.
- 12.2. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their science and commerce academic streams.
- 12.3. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their art and commerce academic streams.
13. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their academic streams.
- 13.1. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their art and science academic streams.
- 13.2. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their science and commerce academic streams.
- 13.3. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their art and commerce academic streams.
14. Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their academic streams.
- 14.1. Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their art and science academic streams.
- 14.2. Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their science and commerce academic streams.
- 14.3. Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their art and commerce academic streams.
15. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their rural and urban background.
16. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their rural and urban background.
17. Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their rural and urban background.
18. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their location of school, i.e. rural and urban background.
19. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their location of school, i.e. rural and urban background.
20. Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their location of school, i.e. rural and urban background.

21. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their caste, i.e. unreserved and reserved.
22. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their caste, i.e. unreserved and reserved.
23. Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their caste, i.e. unreserved and reserved.
24. Their is no significant difference in teacher effectiveness of senior secondary school teachers on the basis of their type of post, i.e. permanent and temporary.
25. Their is no significant difference in personality traits of senior secondary school teachers on the basis of their type of post, i.e. permanent and temporary.
26. Their is no significant difference in ICT knowledge of senior secondary school teachers on the basis of their type of post, i.e. permanent and temporary.

Research Design

Research design puts the entire research plan on the paper and thus by serving as a blueprint for the research, it helps the researcher for work logically. The selection of research design depends on the objectives of the study, variables taken into consideration and the condition under which it is conducted.

Research Method

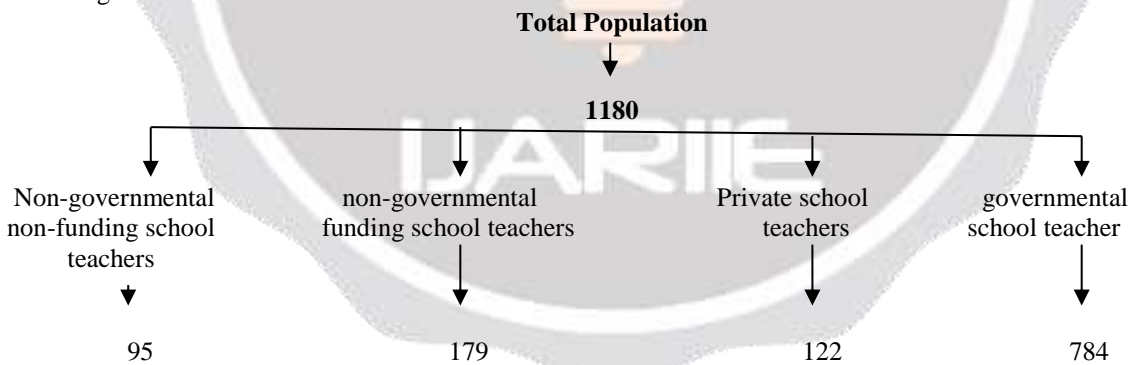
In the present research problem the survey type research method was used.

Variables Used in Study

Dependent Variable- Teacher effectiveness, personality traits
Independent Variable- Information and communication technology knowledge

Population of the Study

The total 1180 senior secondary school teachers in the various higher secondary schools of Almora district in the academic session 2018-19 were the population of the present investigation mentioned as following:-

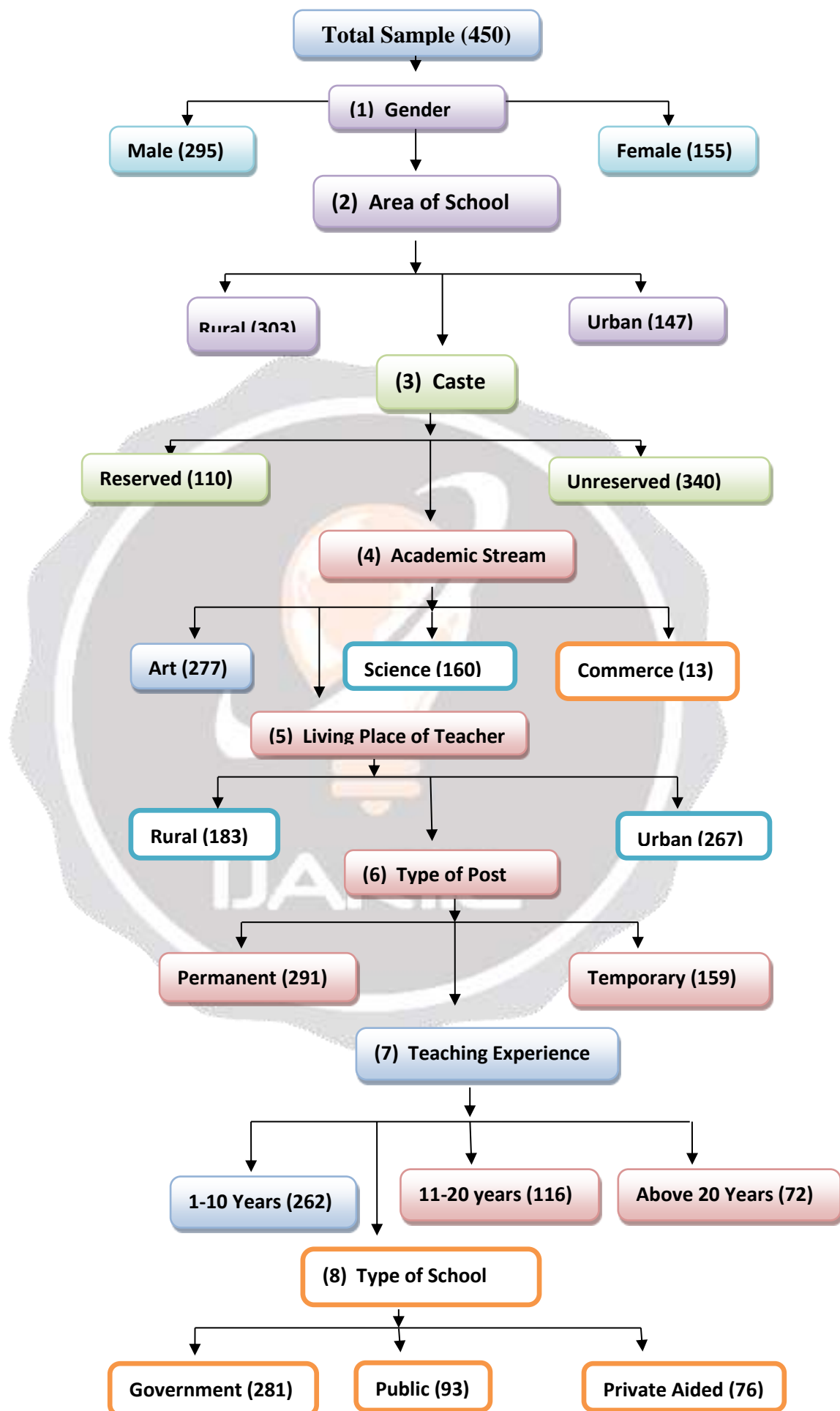


Sample and Sampling Method

Sample of the present study consisted of **450 government, private aided and public senior secondary school teachers in Almora district, Uttarakhand, India**. The sample of teachers for this study was selected by **stratified random sampling technique** and 70 schools were selected.

Sampling Design

In the present study out of total population 1180 as 784 governmental school teachers, 122 private schoolteachers, 95 non-governmental non-funding school teachers and 179 non-governmental funding school teachers were selected by random sampling method, keeping in view the sex, location of school etc. Sample of 450 teachers were selected by stratified random sampling technique. It is being discussed about the various sub samples taken in the sample, which is presented are following:



Description of Research Tools

For the present study, the investigator was used the following research tools:-

1. Teacher effectiveness scale was developed and standardized by Dr. G. S. Nayal and D. S. Chamyal to measure the teacher effectiveness of senior secondary school teachers.
2. Cattle's 16 P.F. tools to measure the personality traits.
3. Information and communication technology knowledge scale was developed and standardized by Dr. G. S. Nayal and D. S. Chamyal to measure the ICT knowledge of senior secondary school teachers.

Techniques of Data Collection

The data collection involved the administration of the teacher effectiveness scale, 16 personality factors (P.F.) form A and information and communication technology knowledge scale. The research tools were administered in the senior secondary school teachers and 450 teachers were included in the investigation.

Statistical Techniques Used

Data were analyzed using statistical techniques, such as, mean, standard deviation and correlation, and t-test.

Conclusions

The following were the conclusions of the present study:-

Low ICT knowledge teachers and average ICT knowledge teachers were similar in their teacher effectiveness.

Average ICT knowledge teachers and high ICT knowledge teachers were similar in their teacher effectiveness.

High ICT knowledge teachers and low ICT knowledge teachers were similar in their teacher effectiveness.

Both low ICT knowledge teachers and high ICT knowledge teachers were found similar in their all 16 personality traits namely A, B, C, E, F, G, H, I, L, M, N, O, Q1, Q2, Q3 and Q4.

Both high and average ICT knowledge teachers were found similar in their 12 personality factors namely A, B, C, E, G, H, I, M, O, Q1, Q2 and Q3 and different for 4 personality factors F, L, N and Q4.

Both low and average ICT knowledge teachers were found similar in their 12 personality factors namely A, B, C, E, G, H, I, M, O, Q1, Q2 and Q3 and different for 4 personality factors F, L, N and Q4.

Male teachers had more teacher effectiveness than female teachers.

Both male teachers and female teachers were found similar in their 5 personality factors namely A, B, E, O and Q2 and different for 11 personality factors C, F, G, H, I, L, M, N, Q1, Q3 and Q4.

Male teachers had more ICT knowledge than female teachers.

The 11-20 years teaching experience teachers had more teacher effectiveness than 1-10 years teaching experience teachers.

11-20 years teaching experience teachers and above 20 years teaching experience teachers had similar teacher effectiveness.

Above 20 years teaching experience teachers had more teacher effectiveness than 11-20 years teaching experience teachers.

Both 1-10 years teaching experience teachers and 11-20 years teaching experience teachers were found similar in their 12 personality factors namely A, C, E, F, G, I, M, N, O, Q1, Q2 and Q4 and different for 4 personality factors B, H, L and Q3.

Both 11-20 years teaching experience teachers and above 20 years teaching experience teachers were found similar in their 15 personality factors namely A, B, E, F, G, H, I, L, M, N, O, Q1, Q2, Q3 and Q4 and different for personality factor C.

Both 1-10 years teaching experience teachers and above 20 years teaching experience teachers were found similar in their 15 personality factors namely A, B, C, E, F, G, H, I, L, M, N, O, Q1, Q2 and Q4 and different for 1 personality factor Q3.

Both 1-10 years teaching experience teachers and 11-20 years teaching experience teachers were similar in their ICT knowledge.

Both 11-20 years teaching experience teachers and above 20 years teaching experience teachers were similar in their ICT knowledge.

1-10 years teaching experience teachers had more ICT knowledge than above 20 years teaching experience teachers.

Both public school teachers and government school teachers were similar in their teacher effectiveness.

Government school teachers had more teacher effectiveness than private aided school teachers.

Public school teachers had more teacher effectiveness than private aided school teachers.

Both public and government school teachers were found similar in their 14 personality factors A, B, C, E, F, G, H, I, L, M, N, Q1, Q2 and Q3 and different for 2 personality factors O and Q4.

Both public and private aided school teachers were found similar in their 13 personality factors A, B, E, F, I, L, M, N, O, Q1, Q2, Q3 and Q4 and different for 3 factors C, G and H.

Both public and private aided school teachers were found similar in their 13 personality factors A, B, E, F, G, I, L, M, N, O, Q1, Q2 and Q3 and different for 3 personality factors C, H and Q4.

Public school teachers had more ICT knowledge than government school teachers.

Government school teachers had more ICT knowledge than private aided school teachers.

Both public school teachers and private aided school teachers were similar in their ICT knowledge.

Science stream teachers had more teacher effectiveness than art stream teachers.

Science stream teachers and commerce stream teachers had similar teacher effectiveness.

Art stream teachers and commerce stream teachers were similar in their teacher effectiveness.

Both art stream teachers and science stream teachers were found similar in their 15 personality factors A, B, E, F, G, H, I, L, M, N, O, Q1, Q2, Q3 and Q4 and different for 1 personality factor C.

Both science stream teachers and commerce stream teachers were found similar in their 14 personality factors A, C, E, F, G, H, L, M, N, O, Q1, Q2, Q3 and Q4 and different for 2 factors B and I.

Both art stream teachers and commerce stream teachers were found similar in their 14 personality factors A, C, E, F, G, H, L, M, N, O, Q1, Q2, Q3 and Q4 and different for 2 factors B and I.

Science stream teachers had more ICT knowledge than art stream teachers.

Both science stream teachers and commerce stream teachers were similar in their ICT knowledge.

Commerce stream teachers had more ICT knowledge than art stream teachers.

Both rural background teachers and urban background teachers were similar in their teacher effectiveness.

Both rural background teachers and urban background teachers were found similar in their 13 personality factors A, B, C, F, H, I, L, M, N, O, Q1, Q2 and Q3 and different for 3 factors E, G and Q4.

Both rural background teachers and urban background teachers were similar in their ICT knowledge.

Both rural area school teachers and urban area school teachers were similar in their teacher effectiveness.

Both urban and rural area teachers were found similar in their all 14 personality traits A, C, E, F, G, H, I, L, N, O, Q1, Q2, Q3 and Q4 and different for 2 factors B and M.

Urban area school teachers had more ICT knowledge than rural area school teachers.

Unreserved caste teachers had more teacher effectiveness than reserve caste teachers.

Both unreserved and reserved caste teachers were found similar in their 11 personality factors A, B, C, E, F, I, M, N, O, Q2 and Q4 and different for 5 personality factors G, H, L, Q1 and Q3.

Unreserved caste teachers had more ICT knowledge than reserved caste teachers.

Permanent teachers had more teacher effectiveness than temporary teachers.

Both permanent teachers and temporary teachers were found similar in their all 16 traits.

Both permanent teachers and temporary teachers were similar in their ICT knowledge.