4.1. Introduction

The mission of exploration is to create new information. As an analyst one increases information throughout the way of perusing, talking about and exploring. The examination and how it is directed, is affected by the specialist's learning, comprehension and outlook on the subject. The distinctive hypothetical models and viewpoints of exploration, which the analyst trusts in shapes how the specialist takes a gander at the world and acts in it (Denzin and Lincoln, 1994). On the other hand, the decision of exploration methodology is not just reliant on the analyst's learning and seeing, however ought to additionally be affected by the examination questions we set out to explain (Yin, 1994; Holme and Solvang, 1991).

4.2. Research Design

As per Trochim (2005), exploration configuration gives to hold the examination to extend together. A configuration is used to structure the examination, to show how the greater part of the significant parts of the exploration undertaking cooperates to attempt to address the focal exploration questions. The exploration configuration offers the parts and the arrangement for effectively completing the study. The examination outline is the "spine" of the exploration.

Research studies are composed in a specific manner to expand the possibilities of gathering the data required to answer a particular inquiry. The data gathered through examination is just helpful if the exploration configuration is sound and takes after the exploration strategy. Painstakingly succeeding the techniques and strategies illustrated in the exploration will help raise the risk that the aftereffects of the examination will be exact and noteworthy to others. The configuration of the study is likewise paramount on the grounds that different specialists can then duplicate the results. The all the more as often as possible the results are duplicated, the more probable it is that specialists and general society will acknowledge these discoveries as exact. Furthermore, the exploration outline needs to make clear the techniques used to
guarantee the security of examination subjects, whether human or creature, and to support the respectability of the data gathered in the study.

This section presents the research design, which is been utilized in this investigation. It is presented in terms of population, sample and the sample selection, information-collection instrument, management of the instrument and the data analysis process.

There are numerous approaches to perform research, and several contrasting perspectives and traditions in the field of research methodology, see, for example, Bell (1993) and Blaxter et al. (1996). The expression "technique" alludes here to the path in which issues are worked up and answers are searched for, according to Taylor and Bogdan (1994). One can use descriptive, exploratory and explanatory research.

### 4.2.1. Descriptive Research Design

A descriptive study is one in which information is collected without any manipulations. Sometimes these are denoted as “correlational” or “observational” studies. The Office of Human Research Protections (OHRP) defines it as, any study that is not truly experimental. A descriptive study can offer information about the naturally occurring health status, behavior, attitudes or other features of a particular group when conducted on human. Descriptive studies are also undertaken to demonstrate associations or relationships between things in the world around you.

As indicated by Dane (1990), descriptive research includes looking at a sensation to characterize it all the more completely or to separate it from other phenomena. He further states that distinct research includes endeavors to characterize or measure a specific sensation, normally by endeavoring to assess the quality or power of conduct, or the connection between two practices. Phillips & Pugh (2000) contend that in unmistakable research one tries to discover the points of confinement of at one time proposed generalizations.

This research is a descriptive research since it has collected data of the existing status. This study utilizes quantitative method, which has been designed to get opinions of school principal, teachers, administration, parents and students about their school on
how the school functions and their views and perspective on how much implementation of TQM is undertaken in their school.

4.3. Sampling
Sampling is the procedure of picking members for a research study. Sampling includes picking a small number of members that will represent a bigger number of members. Sampling is utilized on the grounds that it is troublesome or illogical to incorporate all people of a population. In any case, research undertakings are intended to guarantee that enough members are enlisted to create helpful data that might be summed up to or illustrated to the members spoken to.

4.3.1 Universe of the Study: Various boards like IGCSE, ICSE, CBSE, SSC, IB, HSC and ISC have different curricula, which are offered, by the schools. Hence it was planned to conduct study of Secondary and Higher Secondary education institutes offering ICSE, ISC, SSC, HSC and CBSE Board curricula.

All the stakeholders for example principal, management, teachers, school staff, parents and students were included in the study.

4.3.2 Sampling Frame: The schools offering ICSE, ISC, CBSE, HSC and SSC Board curricula.

4.3.3 Sampling Techniques: The Stratified Random Sampling Technique was utilized and this is the most productive sampling procedure.

A stratified sampling is a procedure in which the specialist partitions the whole target populace into diverse subgroups and after that haphazardly chooses the last subjects relatively from the distinctive subgroups. This sort of sampling is utilized when the specialist needs to highlight particular subgroups inside the populace.
Utilizing a stratified example will dependably accomplish more stupendous accuracy than a basic arbitrary specimen, gave the subgroups have been picked so parts of the same subgroup are as comparative as could be expected under the circumstances regarding the normal for investment. The more the contrasts between the subgroups, the more stupendous measure of exactness are attained.

The researcher obtained the list of all the schools affiliated to different boards (stratification). From amongst each list, schools were selected randomly. Once the school was identified the researcher met the principal and obtained his/her permission to collect the data. Every school was considered with reference to the stakeholders like management, principal, teachers, students and parents. The stakeholders other than the management and the principal were randomly identified. This helped in conducting the study with ease and precision.

4.3.4 Sample size: 40 Secondary and Higher Secondary education institutes

4.3.5 Units of analysis: Data obtained from individuals like parents, students, principal, teachers and management were considered for analysis.

4.3.6 Table of sample distributions:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Number of Schools</td>
<td>40</td>
</tr>
<tr>
<td>Number of Students</td>
<td>500 from ICSE, SSC, IGCSE, HSC and ISC</td>
</tr>
<tr>
<td>Number of Parents</td>
<td>500 parents from various schools</td>
</tr>
<tr>
<td>Number of Principal</td>
<td>50</td>
</tr>
<tr>
<td>Number of Teachers</td>
<td>500 from different boards and school</td>
</tr>
</tbody>
</table>
4.4. Development of tools

There is a need to turn ideas into practice and to develop practical means by which teams within education can attain quality change. Quality apparatuses and strategies are the means for identifying and creatively solving problems. Examples of various tools for data gathering systems incorporate overviews/poll, meetings, tests, physiological evaluations, perceptions, existing record surveys and biotic examples.

An overview is a situated of inquiries for exploration members needs to reply. Studies might be managed in individual, through the mail, phone or electronically. A review could be managed to an individual or in a gathering setting. Studies are utilized to addition data about numerous people and may incorporate various/constrained decision or open-ended inquiries.

An interview is where the researcher and the participants undergo a question answer session in individual, via phone or even electronically. Throughout a meeting, inquiries are asked to get definite data from the member about the theme. The inquiries may be like those asked in a review. Researchers can modify the questions they ask to the respondent in order to get rich, full content and information, which is needed for the research. They can ask the respondent to give more examples or explanations when needed.

A test is a manifestation of a physical or mental errand for which there are right replies. A member's execution on the test is then contrasted with the right replies. Tests are utilized as a part of exploration to focus a member's bent, aptitude, learning, wellbeing, or mental status as contrasted with the all-inclusive community. Tests could be managed in individual or through a paper or electronic medium. A sample would be understudies taking a government-sanctioned test for scholarly accomplishment (e.g., SAT, MCAT, GRE).

Physiological evaluations are estimations in which a member's physical qualities are assessed, for example, circulatory strain, heart rate, or physical quality. In wellbeing related exploration, physiological appraisal may be utilized to focus the member's wellbeing status proceeding, throughout, or after the fulfillment of the study. A
sample would be more established grown-ups touching their toes to survey adaptability and scope.

**Observations** are recordings that are taken of the member without obliging cooperation. These recordings are made while members are occupied with routine practices and are utilized as a marker of what members really do as opposed to depending totally on reports toward oneself of members’ practices. The observation method helps to compare the data and check its validity. A case would be an analyst watching a progressing lesson arrangement utilized within a classroom by a state funded teacher.

**Rating scale** is a prearranged numerical qualities relegated to subjects, items or practices with the end goal of quantifying the measuring qualities. Scales are used to measure demeanor, values and benefits. They check the degree to which an individual has the aspects of relevance. It is used as a measuring instrument for scoring of items to attain required average to obtain validity and reliability of the data.

**Document review** is an instrument that helps to analyze and collect data from the various journals, diaries, previous research which makes the research more reliable as it has been endorsed a couple of times. This helps to get relevant and reliable information from the previous researches undertaken by individuals and brings to the forefront the gaps that still exist in the system.

**Measurement** is quantitative tool by which the observations are expressed numerically so that they can investigate the legitimacy of the matter. Measurement often play an important role in quantitative research as they help to attain the arithmetic frequency and the central tendency can be measured creating legitimacy and dependability of the facts gathered and collated.
4.4.1. Tool construction: Prior to construction of the tool the researcher analyzed various service quality model items, relevant literature and various tools, which had already been developed for previous researches. The researcher keeping the parameters of the TQM in mind selected the items in the rating scale. Once the items of the rating scale were finalized they were tested for reliability and validity.

It was decided to utilise the rating scale as a tool for data collection. It was decided to administer the tool to different stakeholders (students, principal, teachers, management and parents). Items for each section of stakeholders were written based on the parameters of TQM. Approximately 40-50 items were constructed for each stakeholder.

a) Rating scale for Student: The students rating scale was divided into 6 sub-sections namely institution, facilities, teacher-student relationship, student development/satisfaction, monitoring student’s progress and continuous improvement. The rating scale was given rating from 1 to 5. 1 being Strongly Disagree, 2 being Disagree, 3 being Not Sure, 4 being Agree, and 5 being Strongly Agree. The various sub sections were made to analyze what the students think about their school/college on the parameters of the infrastructure provided, the quality of teachers, their relationship with the students and the teaching imparted by them. The rating scale also had items relating to continuous guidance, counseling monitoring the progress. All these items were selected after lot of screening, analysis and approval attained from the validators.

b) Rating scale for Principal: The principal rating scale was divided into 6 sub-sections namely personal touch, relationship/expectation from/with staff and parents, institution, leadership/qualities, continuous improvement and curriculum. The rating scale was given rating from 1 to 5. 1 being Strongly Disagree, 2 being Disagree, 3 being Not Sure, 4 being Agree, and 5 being Strongly Agree. The various sub sections were made to analyze what the principal thinks about the school/college on the parameters of the management, leadership, the institution as a complete picture, relationship shared with the students, parents and teachers. The rating scale also had items
relating to continuous improvement whether it has been undertaken in the school, how much attention is given on the curriculum development and students progress. All these items were selected after lot of screening, analysis and approval attained from the validators.

c) **Rating scale for Parents:** The parents rating scale was divided into 3 sub-sections namely parent’s involvement, parents view about the institution and parent teacher association. The rating scale was given rating from 1 to 5. 1 being Strongly Disagree, 2 being Disagree, 3 being Not Sure, 4 being Agree, and 5 being Strongly Agree. The various sub sections were made to analyze what the parents think about the school/college on the parameters of transparency, facilities provided, the level of involvement allowed in the institution, how the institution helps in development of the students, the relationship shared between the teachers and parents. The rating scale also had items relating to innovation in the teaching, implementation of discipline and guidance for students. All these items were selected after lot of screening, analysis and approval attained from the validators.

d) **Rating scale for Teachers:** The teachers rating scale was divided into 6 sub-sections namely relationship, institution, expectations, continuous improvement, curriculum and non-teaching staff. The rating scale was given rating from 1 to 5. 1 being Strongly Disagree, 2 being Disagree, 3 being Not Sure, 4 being Agree, and 5 being Strongly Agree. The various sub sections were made to analyze what the teachers think about the school/college on the parameters of the relationship shared by the staff with the students as well as the institution, the facilities provided to them, the commitment level they have with the institute. The rating scale also had items relating to continuous improvement whether it has been undertaken in the school for their personal development and growth, how much attention is given on the curriculum development and whether all the staff are treated equally or with bias. All these items were selected after lot of screening, analysis and approval attained from the validators.
e) **Rating scale for Organization:** The organization rating scale was divided into 4 sub-sections namely infrastructure, institution, trustees and continuous improvement. The rating scale was given rating from 1 to 5. 1 being Strongly Disagree, 2 being Disagree, 3 being Not Sure, 4 being Agree, and 5 being Strongly Agree. The various sub sections were made to analyze what the teachers and principal think about the school/college on the parameters of the how the institution is and its planning as well as working, the infrastructural facilities provided to all stakeholders, the level of commitment and involvement from the side of the trustees in the matter of development of the institution. The rating scale also had items relating to continuous improvement whether it had commenced in the institution for the improvement and growth of all and also whether the changes are incorporated into the institution with ease. All these items were selected after lot of screening, analysis and approval attained from the validators.

This was how the items in for the rating scale were chosen and than they were sent for the validity and reliability test, which helped in finally making the tool an errorless one.

The information sheet was prepared to obtain demographic data of the sample.
4.4.2. Validity and Reliability:

**Validity** is the degree to which the test measures what it should measure. It is vital for the test to be substantial in place for the results to be faultless. So as to accomplish high legitimacy, inquiries and rating scales must be arranged so they are in concurrence with the study's point and what was chosen to be dissected is measured and nothing more, Bell (1995).

The tools were constructed and sent to 10 experts in the field of education and who were active researchers. Items, for which the agreement among experts was more than 70%, were kept as they were. Items, for which the agreement was between 50% and 70%, were modified as per the suggestions given by the experts. Items, for which the agreement was less than 50%, were scraped.

**Reliability** clarifies how estimations systems oppose against the unwanted impacts. By and large, unwavering quality of meetings and rating scales relies on upon particular status, solace perspectives, and detailing viewpoints, Bell (1995). A compelling approach to achieve high dependability in meeting and rating scale is picking proper inquiries, designating enough time to each one inquiry, and a the earth. Plus, we must attempt to dodge slips while making the device, on the grounds that these blunders can diminish the unwavering quality of inquiries in meeting. Picking correct and justifiable inquiries in data get-together stage helps in expanding dependability and prompts picking up successful data and information identified with utilization.

The tool was given to 50 respondents to assess the time requirement for completing the tool. The respondents were given freedom to ask clarifications of the terms used in the tool. This helped in ensuring the usage of simple & clear words and judging the average time taken by the respondents for filling the items in the tools. The tools were thus finalized after incorporating all the suggestions made by the experts & respondents. The scores on the tool were subjected to Chronbach alpha and reliability was established. This helped in making the tool valid & reliable.
4.5. Data collection:

Data collection is the method of gathering data in order to draw inferences for the research. For data collection rating scale and interviews were used. Rating scale is a series of items asked to individuals to attain statistically useful information about a given topic by understanding their views.

The researcher approached various schools and colleges. He took interviews of the principal keeping the rating scale items in mind and simultaneously took permission to conduct the survey with the various stakeholders. The rating scale instrument was then distributed to various stakeholders (parents, principal, teachers staff, management and students) of schools and colleges. The tools were given to approximately 700 respondents from various schools and colleges to assess and enough time was given to them to complete it. The individuals were randomly selected, from different schools and junior colleges.

Each rating scale instrument had instructions written that clearly clarified the reason for the study and the rating scale were returned as expected. In addition, the respondents were informed about the objective of completing the instrument, and were assured that the confidentiality of their responses and the data would only be utilized with the end goal of this study.

The analyst took almost 5-6 months to gather the data from everyone. Finally, after completion the rating scale was collected and the answers provided answers were recorded and analyzed.

This method of data collection was very helpful for the quantitative research as it collects extensive variety of data from countless amount of respondents. Thus it may be assured that the information obtained through the rating scales was accurate and without biasness.

The data collected was for quantitative research. Quantitative examination concentrates on gathering countless things that could be quantified. The quantitative examination gives data that could be measurable and conclusions and results might be picked up on the premise of these.

In any exploration, both qualitative and quantitative examination routines may be
connected. Indeed, qualitative and quantitative systems compliment one another in a powerful way. Along these lines, we need to utilize and dissect the results generated by both qualitative and quantitative strategies in the work of examination.

Then again, this work was quantitative research where the interviews and rating scale was collected and analyzed from various stakeholders.

4.6. Conclusion

This chapter contains the detailed procedure of research design and how data was collected for further analysis. Detailed analysis is presented in the next chapter.