CHAPTER III
RESEARCH METHODOLOGY

3.1 INTRODUCTION

A research study is guided by research paradigm(s), which refers to the underlying philosophical views concerning the truth and reality of the particular research problem. A research paradigm is, therefore, a philosophical position about the world or the nature of reality and how we approach it to understand it (Maxwell, 2005). The present research, "A Study on the Curriculum Management of International Baccalaureate Primary Years Programme in India," adopted a clear and appropriate paradigm that guided every methodological decision in selecting the research design, collecting data, analyzing, interpreting, and finally reporting the findings. Based on the research purpose and objectives most suitable methodology and research design were adopted to uncover the truth and knowledge concerning the curriculum management of IB PYP schools in India. This chapter presents the methodology and research design adopted and the rationale. The following section details the research methodology, research design, population and sampling procedure, research tools, data collection, data analysis and data integration.

3.2 RESEARCH METHODOLOGY

The paradigm of pragmatism guided this study. The conceptual framework on curriculum management in PYP provided an understanding of the various interrelated concepts that need in-depth investigation from different sources through different methods to understand curriculum management in PYP comprehensively. Also, the review indicated the advantage of using both quantitative and qualitative methods. As the quantitative and qualitative methodologies are grounded in different paradigms, the pragmatic paradigm allowed the researcher to use different methods in different paradigms that emphasized shared meanings and pursued joint action (Morgan, 2007). Moreover, adopting a pragmatic paradigm allowed the researcher to develop a shared understanding of curriculum management in PYP.

This paradigm "is not committed to any philosophical stance and is pluralistic and oriented towards 'what works and practice" (Creswell & Plano Clark, 2011). Tashakkori and Teddlie (1998) suggest that pragmatists study research problems in different ways that they deem appropriate. Therefore, the main reason for adopting a pragmatic position in this study was that it allowed the researcher to have a pluralistic stance of gathering all sorts of data in order to

understand best how PYP schools contextualized IB curriculum in the Indian context and various curricula, pedagogical and leadership practices prominent in PYP schools.

The mixed methods research represents a pragmatic paradigm combining a quantitative approach with a qualitative frame (Creswell & Plano Clark, 2011). The present study aimed to study a host of interrelated and complex processes, concepts and activities related to curriculum management in PYP schools. Thus, a mixed-method approach was employed as it provided strength in examining the complexities of processes and activities within PYP schools.

Mixed methods research is a methodology that incorporates multiple methods to broaden the understanding of the research problem in an appropriate and principled manner (Bryman, 2012; Creswell, 2015; Creswell & Plano Clark, 2011), which involves collecting, analyzing, interpreting and reporting both qualitative and quantitative data. The mixed-methods research helped the researcher derive objective findings through quantitative approaches and understand the situation through indicative results through qualitative approaches. Specifically, as described in the data collection section, using both quantitative and qualitative approaches to answer the same research question produced greater certainty and broader implications in the conclusion (Maxwell, 2016; Morgan, 2014). Moreover, using both quantitative and qualitative data and sources is "a form of triangulation" that enhanced the validity and reliability of the present study (Merriam, 1988). Further, interweaving quantitative and qualitative methods facilitated the researcher to produce a complete picture and provide an opportunity to understand divergent or complementary views within the research context. The outcomes of integrating both methods are of great value as they not only enrich our understanding of curriculum management in PYP schools but also open new avenues for future inquiries.

The selection of a proper mixed-method design was crucial to address the research questions as intended by the researcher. The key considerations, justification and explanation of the research design adopted in the present study are detailed in the following section.

3.3 RESEARCH DESIGN

Three significant aspects were considered while selecting the mixed-method research design. The first was about the relative importance of quantitative and qualitative approaches for answering research questions (Plano Clark & Ivankova, 2016). The second was the level of interaction between the quantitative and qualitative data set, and the third was the timing of the quantitative and qualitative approaches; timing refers to the entire quantitative and qualitative strands, not just data collection (Creswell & Plano Clark, 2011).

The present study aimed to obtain different but complementary data on the same components of curriculum management from different sources and through different methods to best understand the research problem. The review indicated that there are not many studies in India that give a comprehensive picture of PYP curricular and pedagogical practices, it was important for the researcher to find trends, and patterns in various aspects of the PYP curriculum and pedagogy, since the quantitative approach facilitated the researcher to conduct large scale study and also allowed the researcher to explore relationships between dependent and independent variables within the educational setting, the quantitative strand was important. As it was understood in the conceptual framework, the actors (principals, PYP coordinators, teachers, and students) in the school system actively interact with the curriculum and construct meanings, resulting in various perspectives and practices on the PYP curriculum. It was important for the researcher to capture the perspectives and understanding of various actors involved in PYP implementation. Also, the in-depth investigation of various aspects of curriculum management was necessary to describe and explain how the PYP schools understood, contextualized, and practised the PYP curriculum in India. Thus, the qualitative strand was equally important in addressing the research objectives.

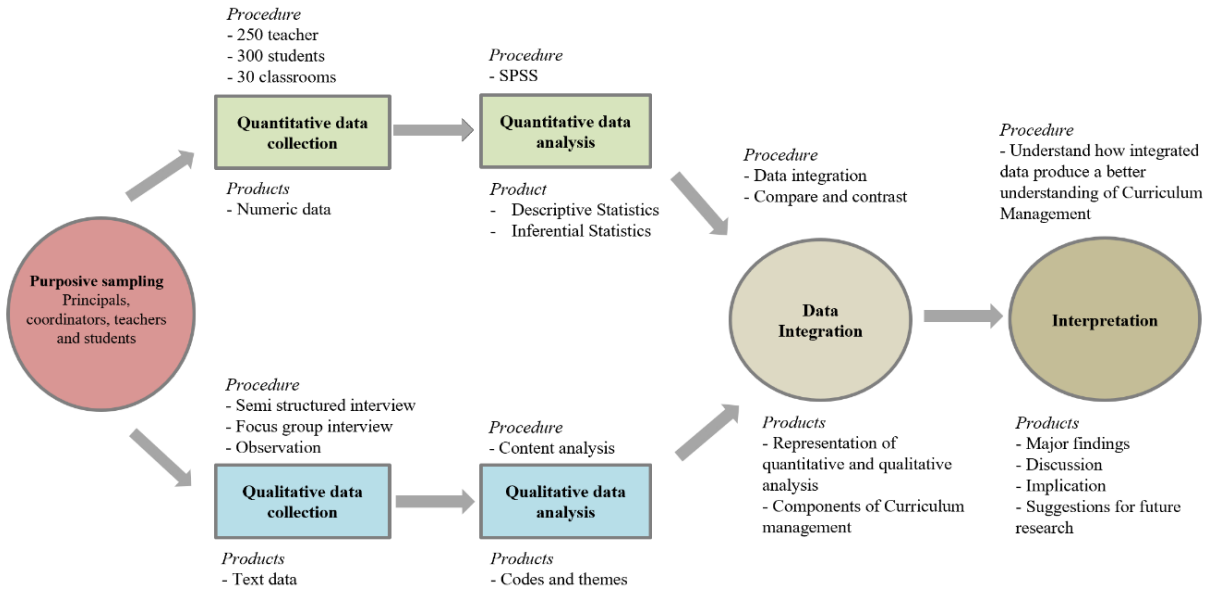
The research aimed to understand curriculum management in PYP comprehensively; thus, collecting data from various sources and approaches on the same components of curriculum management was necessary. In this sense, the researcher sought data on the same components of curriculum management through different methods (quantitative and qualitative) without the interaction between the two methods. As the two methods operated independently, the most feasible way to execute quantitative and qualitative strands was to do in parallel timelines that saved the researcher's resources and fulfilled the purpose. Based on these critical considerations for the present study, the research design that emerged from these considerations was a convergent parallel mixed-method design.

A convergent design follows pragmatism as a theoretical assumption where qualitative and quantitative methods are mixed to obtain the triangulated results in this design. Using this research design, two data sets were combined to get a complete picture of the curriculum management of IB PYP and to validate one set of findings with the other. At first, two data sets were collected using quantitative and qualitative tools simultaneously, and secondly, they were analyzed independently using quantitative and qualitative analytical approaches. The integration was done after the independent analysis of two data sets. Figure 3.0 illustrates the

convergent parallel design employed in the study. This design facilitated an in-depth understanding of curriculum management in IB PYP schools in India.

Figure 3.0

Convergent Parallel Design- Procedural Diagram (adopted from Creswell & Plano, 2011)



3.4 POPULATION AND THE SAMPLE OF THE STUDY

3.4.1 Population

The population of PYP schools in India at the time of the study was 71(IBO, 2019). The schools had varied characteristics in terms of demographics, affiliation, establishment year, and cycles of program evaluation by IBO and regions. IB schools are concentrated mainly in northern, western and southern regions of India and are typically located in metropolitan and two-tier cities. The sample was selected from the population using the purposive sampling technique.

3.4.2 Sampling procedure and sample

As discussed in previous chapters, IB PYP is an international curriculum with a rigorous curriculum and is a relatively new approach to primary education in India. Thus its adoption and implementation in the Indian context have created a new educational reality and landscape, which is the interest of current research. Since this research aimed to gain an in-depth understanding of curriculum management, it was essential to select schools with significant experience in implementing and sustaining PYP in their schools. Thus, purposive sampling was adopted with a criterion for sample selection. Teddlie and Yu (2007) explain that the purposive sample works well in a study focused on an in-depth analysis of a chosen issue,

allowing the researcher to "select the cases they can learn the most from" to answer the specific research question. It was evident from the review that the schools, practitioners, and students require a considerable amount of time and experience to internalize PYP practices. Since the study aimed to investigate the contextualization of PYP in India through an in-depth analysis of the curricular, pedagogical, and leadership practices in PYP schools, it was highly important for the researcher to choose the schools that have institutionalized and sustained PYP. Thus, a suitable criterion was identified, the criterion was that the schools should have completed two cycles of program evaluation for PYP by IBO. Program evaluation from the IBO is an extensive process to regulate the standards and quality of IB schools worldwide, this is conducted once in 5 years. This criterion served well to identify those schools which have institutionalized PYP into their system. Thus, the sample that emerged from this technique served as context to study the curriculum management processes involved in implementing PYP in India.

At the sampling time, nine schools were identified, fulfilling this criterion spread across northern, western, and southern regions of India. To have a representation of different regions, one school from each region was selected for the study forming a group of three schools. The study aimed to paint a comprehensive picture of curriculum management in IB PYP schools in India than providing a comparative perspective of how each school is doing curriculum management. Thus, the final sample/unit of analysis was the principals, coordinators, teachers, and students. Table 3.0 offers the basic demographics of the selected schools.

Table 3.0

School Demographics

Name	**Location**	**Zone**	**Year of PYP recognition**	**Number of students enrolled in PYP**	**PYP grade levels**	**Number of PYP teachers**	**Student-Teacher ratio**
School A	Hyderabad, Telangana	Southern	2008	1985	PP1-G6	110	01:25
School B	Gurgaon, Haryana	Northern	2008	842	PP1-G5	113	01:25
School C	Pune, Maharashtra	Western	2008	636	PP1-G5	112	01:25

The sample size can differ for qualitative and quantitative strands in a mixed-method design. The sample in a qualitative strand can be a subset of the quantitative strand. Creswell and Plano Clark (2018) state that having a small sample size in the qualitative strand and a larger sample size in the quantitative strand supports researchers in getting in-depth qualitative exploration and rigorous quantitative examination of the issue.

Sample for quantitative strand: The sample for the quantitative strand consisted of teachers, students and classrooms observed. Three hundred and thirty-five teachers were sent the questionnaire for the teacher sample, and two-fifty teachers responded. Among these teachers, ten homeroom teachers from each school were selected for classroom observation making a total of thirty classroom observations. For the student sample, a hundred students of grades 4 and 5 from each school were selected, totalling three hundred students.

Sample for qualitative strand: The sample for the qualitative strand consisted of principals, PYP coordinators, teachers, students and classrooms observed. Two principals, three PYP coordinators, and thirty teachers participated in the interview; thirty classes were considered for observation. It has to be noted that all teachers who participated in the interview participated in the classroom observation. The principal/coordinator recommended a list of teachers who can be interviewed and classes that can be observed. Only the teachers willing to participate in the interview and classroom observation were considered the final sample. For the student sample, the teachers selected ten students from each school, and a total of thirty students (Male-14, Female- 16) participated in the focus group interview.

Table 3.1 overviews the sample by school site and participant group for quantitative and qualitative strands.

Table 3.1

Sample for Quantitative and Qualitative Strands

School site	Quantitative Strand (sample size in numbers)			Qualitative Strand (sample size in numbers)				
	Teacher	Student	Classroom observations	Principal	PYP Coordinator	Teacher	Student	Classroom observations
School A	93	100	10	1	1	10	10	10
School B	87	100	10	-	1	10	10	10
School C	70	100	10	1	1	10	10	10
Sample Total	**250**	**300**	**30**	**2**	**3**	**30**	**30**	**30**

3.5 RESEARCH TOOLS

Research tools are essential to collect valid and credible data to address the research objectives. The researcher chose various tools inconsistent with the mixed method design to address the research objectives. Each tool was scientifically developed for collecting a particular type of data that lend itself to a particular type of analysis and interpretation for drawing a meaningful conclusion on curriculum management in PYP. The following section presents the development of research tools and a description of the tools along the lines of research design.

3.5.1 Development of Research Tools

The researcher developed a framework from which relevant tools were developed to obtain quantitative and qualitative data. This framework was created through an examination of existing tools and a literature review of the critical components under the study of curriculum management. The framework was based on IB PYP program features and previous research on curriculum development, implementation, evaluation, and pedagogical leadership. Table 3.2 presents the framework for tool development mapped to research objectives.

Table 3.2

Framework for research tool development

Research Objectives	**Components**
To study curriculum development in IB PYP schools.	Understanding PYP curriculum
	Integrating PYP elements
	Development of curricular documents
	Stakeholders involved
	Approaches for curriculum development
To study curriculum implementation in IB PYP schools.	Transdisciplinary teaching- learning
	Inquiry based teaching-learning process
	Teacher's role
	Taught curriculum
	Students' behaviour/ engagement
	Classroom environment
	Learner Profile implementation
To study curriculum evaluation in IB PYP schools.	Self study process
	Gathering data/evidence
	Involvement of stakeholders
	IB evaluation visit
	Student assessment

Research Objectives	**Components**
To study the students' perception on PYP	Perception on school
	Perception on teaching learning
	Perception on teachers
	Learning subjects
	Perception on self and Learner profile
	Classroom engagement

To study the pedagogical leadership in IB PYP schools.	Distributed leadership
	Building relation with stakeholders
	Role of principals and PYP coordinators
	Professional development and student enrichment
	Community engagement
To study the professional challenges in IB PYP schools	Challenges from external sources
	Challenges from internal sources
	Challenges related to curriculum and teaching-learning

The researcher developed five tools to collect quantitative and qualitative data from different sources.

3.5.2 Tools for Quantitative Strand

Curriculum Management Teacher Perception Scale (CMTPS): CMTPS – a five-point Likert scale ranging from Strongly agree (SA), Agree(A), Neutral(N), Disagree(D), and Strongly disagree (SD) was developed by the researcher to collect quantitative data from teachers. This tool collected teachers' perceptions of curriculum development, implementation, evaluation, pedagogical leadership and professional challenges in PYP. The tool consisted of two sections: Section A consisted of the teacher's profile- demographic and other experience details; Section B consisted of four parts: Perception on 1. Curriculum development 2. Curriculum Implementation 3. Curriculum evaluation, and 4. Pedagogical leadership of the principal. Statements related to each component under four main categories were developed to make a total of one hundred and fifty items. The tool was sent to experts in the field of education and practitioners in IB PYP schools for validation. Based on the expert suggestions, the tool was finalized, consisting of ninety-five items.

Questionnaire for students (QS): The researcher developed a questionnaire to understand the perceptions of students on PYP. This questionnaire was developed by adopting the framework used by Lester et al., 2014 for student surveys. The questionnaire used a 3-point Likert scale ranging from I agree a lot, I agree a little, and I disagree. A total of sixty items were developed related to the perception of students on school, self as a student, activities in

the classroom, teachers, learning Mathematics, English, Science and student engagement and behavior in general. The tool was expert validated, and the final tool consisted of forty-seven items. The language used in the survey was simple and comprehensive for ages ten to twelve.

Classroom Observation Schedule (COS): The researcher developed a classroom observation schedule to systematically collect information on teachers' pedagogical practices, students' behavior, IB PYP features, and classroom environment. This tool was used to collect both quantitative and qualitative data. It was developed by integrating IB PYP features and components, and techniques used in previous classroom observation research (Alford et al., 2013; Pushpanadham, 2013; Waxman & Padrón, 2004; Waxman, Hilberg, & Tharp, 2004). The tool consisted of 4 point scale (Excellent- 4, Good- 3, Satisfactory- 2 and Needs Improvement- 1) to measure the observation related teacher's role as facilitator, taught curriculum and classroom environment, and checklists to indicate student behavior, transdisciplinary theme, pedagogical approaches, assessment techniques used and type of interaction observed. The tool was expert-validated, and minor changes were made in the tool. The tool provided a basic framework for the qualitative strand to take detailed notes and document classroom episodes.

3.5.3 Tools for Qualitative Strand

Interview Schedule (IS): Three semi-structured interview schedules were developed to conduct interviews with principals, coordinators, and teachers. The interview questions allowed the researcher to explore personal thoughts and experiences in curriculum management. The schedule consisted of questions and probes from the broad framework that included vital components of curriculum development, implementation, evaluation, pedagogical leadership and professional challenges in IB PYP schools. The tool was expert-validated, and necessary changes were made based on the suggestions to arrive at the final interview schedule.

Focus Group Interview Schedule (FGI): The Focus group interview schedule was designed to elicit information regarding students' perception of PYP and their learning experiences. This guide consisted of questions and follow-up questions related to school, teachers, learning engagements, and PYP features like Learner profile, inquiry learning, and collaborative learning. This method helped the researcher to obtain not just narrative data but also observational data; for instance, the researcher could capture how students responded to questions within a group and how they behaved when others were responding.

3.5.4 Overview of Research Tools and Data Sources

This mixed-method study aimed to collect quantitative and qualitative data from different sources and corroborate the findings to aid the description and interpretation of curriculum management in IB PYP schools. Table 3.3 presents the research tools and data sources used to address each research objective.

Table 3.3

Research Tools and Data Sources

Research Objectives	**Tools for quantitative data**			**Tools for qualitative data**			**Data Sources**
	CMTPS	**QS**	**COS**	**IS**	**COS**	**FGI**	
To study curriculum development in IB PYP schools.	✓			✓			Teachers, principals, PYP coordinators
To study curriculum implementation in IB PYP schools.	✓	✓	✓	✓	✓	✓	Teachers, principals, PYP coordinators, classroom context, students
To study curriculum evaluation in IB PYP schools.	✓			✓			Teachers, principals, PYP coordinators
To study the students' perception on PYP		✓	✓		✓	✓	Teachers, principals, PYP coordinators, classroom

							context, students
To study the pedagogical leadership and professional challenges in IB PYP schools.	✓			✓			Teachers, principals, PYP coordinators

3.6 DATA COLLECTION

Consistent with mixed methods convergent parallel design, quantitative and qualitative data were collected in the same phase of data collection that produced both numeric and textual data. After securing permission from the schools, the researcher spent around a month in each school for data collection, during which quantitative and qualitative data were collected.

3.6.1 Quantitative Data Collection

Data Collection from Teachers: Quantitative data on curriculum management was collected through the perception scale- CMTPS. CMTPS was administered online using google forms during the school visit to each school. In total three hundred and thirty- five forms were sent to teachers in PYP. A total of two hundred and fifty responses were received yielding to 74.6% response rate.

Data Collection from Students: The student questionnaire was administered in person at each school. The researcher personally addressed the students to brief them about the research and distributed survey forms. The target sample was 300 students who responded to the survey. Later the forms were collected and compiled manually.

Data Collection from Classrooms: The researcher read manuals of classroom observation to train herself for practical observation. The classroom observation schedule was read thoroughly and conducted mock observations before the actual data-collection phase. Classroom observations were carried out in thirty classes. Teachers were notified of the day when observation would be in their classroom. However, care was taken that observations were made in a natural setting. Only the regular classroom instructions were observed, so classes devoted to special activities (e.g., music, sports, laboratories etc.) were avoided. Observations in each classroom were about 40-50 minutes. Each teacher and student were observed for

approximately 10-12 intervals during a 40-50 minute data collection period and at the end of each observation, the classroom observation schedule was completed by the researcher.

3.6.2 Qualitative Data Collection

Interviews: Face-to-face interviews were conducted with principals, coordinators and teachers to collect data on curriculum development, implementation, evaluation, and pedagogical leadership in PYP. A total of thirty teachers, ten from each school, three PYP coordinators, and two principals were interviewed. The principal from School B was unavailable during the school visit and thus was not included in the sample. At the beginning of the interview, participants were assured of privacy and then were briefed about the research. With participants' permission, interviews were audio-recorded and later transcribed for analysis. However, few participants denied audio recording due to school policies; in these cases, notes were taken by the researcher. Each interview was about 30-40 minutes in duration. Each teacher, principal, and PYP coordinator participated in a sit-down interview during which the questions listed in the interview schedule were asked, and follow-up and probing questions were asked to understand better the concepts discussed in the interview. Some teachers and coordinators also participated in a series of walking interviews. Walking interviews were beneficial when researchers sought to make sense of participants' everyday practices in context (Clark & Emmel, 2009).

Focus Group Interview: An average of 30-40 minute focus group interviews were conducted with participating students at each school. The focus group was conducted in English. Thirty students from grades 4 and 5 participated in the focus groups across all the schools.

Classroom Observation and Field Notes: The researcher spent almost a month in each school, during which observations were made on several aspects of PYP practices and classroom observations. The non-participant observation was conducted throughout the study. In each school ten classes were observed across different grade levels, here one class is a session of 40-45 minutes in duration. In some cases, block classes were observed to get the continuity of the teaching-learning in the classroom. In total, thirty classes were observed. The researcher tried to ensure that all the teachers who were interviewed would be observed. The researcher in the classroom observation schedule took in-depth observation notes of classroom teaching-learning, interaction, and episodes. Apart from the classroom observation, the researcher observed students' and teachers' interaction in the library, play area and recession.

During these observations, comprehensive field notes related to IB features and research questions were taken. Field notes were also maintained pertinent to many spontaneous interactions with the participants. These notes contained what Merriam (1998) referred to as observer commentary, which includes "the researcher's feelings, reactions, hunches, initial interpretations, and working hypotheses". The researcher positioned herself as an observer throughout her stay at the school site.

3.7 DATA ANALYSIS

Data analysis in mixed methods research consists of analyzing the quantitative data using quantitative methods and the qualitative data using qualitative methods separately. In mixed methods, the analysis combines both databases using approaches to integrate the qualitative and quantitative data. The researcher analyzed the data in response to the research questions. The researcher followed these generic steps for quantitative and qualitative data analysis: preparing the data, exploring the data, analyzing the data, representing the analysis, interpreting the analysis, and validating the data and interpretations of the results. These steps were guided by a convergent parallel mixed method design. The following section gives a complete account of the analysis procedures undertaken in the research.

3.7.1 Quantitative Analysis

The quantitative analysis was carried out for the data produced from the teachers' perception scale, student survey and classroom observation schedule. Statistical Program for the Social Sciences (SPSS) was used to complete the quantitative analysis. In the first step- Preparing the data, raw data was converted into a helpful form for data analysis, which included scoring the data by assigning numeric values to each response, cleaning data entry errors from the database, and creating special variables that were needed such as recoding items on instruments with inverted scores (recoding was completed using SPSS). In the next step- exploring the data, quantitative data were examined to identify preliminary understanding and broad trends emerging from the database. For the quantitative database, a descriptive analysis including mean, standard deviation, and frequency was determined to get the general trends. The researcher observed that the data was skewed during this process, and normality and constant variance were violated. Thus, non-parametric statistics were chosen to carry out the inferential analysis.

Quantitative analysis was completed using both descriptive and inferential statistics. Once the data set was complete and values were within the range, descriptive statistics for questionnaire

responses (teacher, student) and observation instruments were calculated. This included frequency counts and percentages. Analysis of the perception scale- teacher survey included both descriptive and inferential statistics. It was observed from the literature that teachers' experience and professional development affect their perception of teaching and learning. Thus it was important to examine if there were any significant differences in the perception of teachers on curriculum management in IB PYP. Hence, a non-parametric Kruskal Wallis test was performed to determine whether there was a statistically significant difference between responses on the teacher perception scale. Multiple Kruskal Wallis test values were calculated for two independent variables separately, one for teaching experience in PYP and the other for IB professional development level. Although multiple Kruskal Wallis tests were performed, the values do not claim to generalize the results to the population. However, these tests were used to highlight statistically significant differences and how they differ. Finally, the results were represented in statements and tables.

3.7.2 Qualitative Analysis

A qualitative content analysis approach was adopted to analyze the data from interviews, focus group interviews, and classroom observation. Qualitative content analysis is "a research method for subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" (Hsieh & Shannon, 2005). The coding process focused on finding categories and themes from the data, both inductive and deductive approach was utilized where codes and categories were drawn from the data, and some were predetermined codes derived from literature/ research. Also, emphasis was given to manifest and the latent content meaning of communications. The stages of qualitative data analysis utilized in the research are explained below.

Familiarization: At first, the data was prepared by transcribing text from interviews, focus groups and observations into word-processing files for analysis. The approach was to create verbatim (word-for-word) transcriptions of the data. During the transcription process, the researcher checked the transcription for accuracy and then formatted and organized the data to facilitate the later analysis steps. The transcribed data was fed into the qualitative analysis software NVivo in the required format. It was important for the researcher to familiarize with the data before filtering and sorting. This process involved reading through all the transcripts to develop a general understanding of the database. All forms of data were reviewed in this review, such as interview transcripts, observation notes, field notes, and the researcher's journal. During this process, the researcher recorded initial thoughts by writing memos

highlighting the transcripts/observation notes in NVivo. This step was important for identifying broader categories of data, such as codes and themes. The research developed a preliminary codebook, which guided the subsequent coding process. A codebook is a statement and description of the codes for a database. In this analysis, the researcher developed a codebook using the empirical data and the analytical codes that emerged from the literature review. The codebook helped primarily to organize the data, and later, new codes were added, and some codes were removed during the in-depth coding of the data.

Data Reduction: Data reduction refers to selecting, focusing, simplifying, abstracting, and transforming the data, which helps in focusing and organizing the data to draw meaningful conclusions. Only the relevant data from the original transcripts and observation notes were selected for the analysis depending on the research questions.

Coding and Data Display: Coding is the pivotal link between data collection and explaining the meaning of the data (Charmaz, 2006). A code is a researcher-generated descriptive construct that captures the primary content or essence of the data. Coding is a cyclic process where the researcher reads the transcripts thoroughly to generate and identify codes. In the present analysis, two cycles of coding were carried out. It was important for the researcher to capture the actual words/ phrases used by the participants to understand their interpretation of the PYP curriculum and various interrelated concepts; thus, in the first cycle, in-vivo coding was done. Further, the research aimed to capture various curricular, pedagogical and leadership processes and actions within the PYP school context; thus, process coding was also done in the first cycle. After the first cycle, several codes were generated related to each component of curriculum management. In the second cycle, the codes were compared, and emerging patterns were identified to reorganize the codes into categories. Categories refer to items with similar meanings or connotations. Once the categories were generated, the themes were established. A theme is an outcome of coding, categorization, or analytic reflection. Data display in the form of textual representation allowed the researcher to extrapolate from the data systematic patterns and interrelationships, this also helped the researcher come out with themes that emerged from the coding process. Themes related to curriculum development, implementation, evaluation and pedagogical leadership were generated.

Representation of Data: The representation of results involved the discussion of the evidence for the themes, including verbatim presentation, figures that depict the physical setting of the classrooms, etc. The description of the themes aimed to convince the readers that

the categories and themes emerged from the data, this involved citing specific quotes, using different data sources, or citing multiple items of evidence for the particular theme.

3.7.3 Data Integration and Interpretation

In line with the mixed method design, data was integrated after the quantitative and qualitative analysis. Integration is the point in the analysis procedure where qualitative research interfaces with quantitative research. There are two approaches for data integration: 1) By comparing the two data sets and 2) By transforming one of the data sets. In the present study, integration is intended to develop results and interpretations that expand the understanding of curriculum management in IB PYP schools. Thus, the first approach was adopted where two sets of results were compared to understand how the quantitative and qualitative results converge, diverge or expand. Further, interpretation was drawn from both quantitative and qualitative strands and across quantitative and qualitative strands. The integrated results enhanced the understanding of the research problem and provided more profound insights into how the school in India contextualizes the IB PYP curriculum.

In the present study, data and method triangulation was achieved by verifying results from multiple data sources and methods. The method triangulation was achieved by adopting a convergent parallel mixed method design. The quantitative and qualitative analysis results were triangulated by comparing, contrasting, and blending to piece together a story about curriculum management in IB PYP schools in India.

3.8 VALIDITY AND TRUSTWORTHINESS

In quantitative research, validity is mainly considered by validating the instruments/tools used for data collection. All the tools were content validated in the present study through expert review. In qualitative research, validity is considered a matter of trustworthiness the evaluator and stakeholders place into it. In qualitative research, “reality is holistic, multidimensional and ever-changing” (Merriam, 1998). Therefore, the researcher built validity into different phases of research, from research design, tool development, data collection, and data analysis to interpretation. Utmost care was taken at each step of data collection, transcription, and interpretation, in some cases the interpretations were peer-reviewed. An audit trail was maintained to show the dependability between the data and the findings. Interview data, transcripts, field notes, memos, and correlated data were reviewed, categorized, and systematically organized for research analysis. The mixed-methods approach used in the study strengthened the research as it allowed for multiple methods and data sources to arrive at the

findings. As Merriam (1988) states, using both qualitative and quantitative sources is “a form of triangulation that enhances the validity and reliability of one’s study. All these elements increased the validity and trustworthiness of the study.

3.9 LIMITATION

While the study provided a robust methodology and included numerous data points to describe the curriculum management process in IB PYP schools in India, the research has a few limitations. Even though the schools provided ample opportunities to observe the PYP in action in each school, the researcher acknowledges that the time was insufficient to understand in detail how the PYP curriculum is developed, implemented, and evaluated and how the leadership enables the whole process. Since the whole process is a continuing year-long process that not only involves classroom teaching but also various curricular activities and meetings with different stakeholders, at best, the days in the school provided a snapshot that allowed the researcher to describe the curriculum management process as it was observed during the time of the visit. Although the researcher could get access to many classrooms for observation, it was not possible to capture all the elements of PYP, such as transdisciplinary learning, inquiry learning, learner profile, and concept-based learning in each of the classes. Clarifications are given in the results section stating that only portions of PYP classrooms were observed, and the PYP elements are reflected in various phases of teaching-learning. The researcher attempted to offset these limitations through interviews to get more insight into various aspects of PYP teaching and learning; however, some teachers and schools were not open to sharing the process in detail by providing supporting documents or experiences.

In the quantitative strand, the research relied on self-reported data from IB teachers, which might not accurately reflect the actual perceptions and practices. There could be some social desirability to report a particular perception or practice, which might influence the responses. In the qualitative strand, the teachers for the interview, classroom observation, and students for focus group interview were selected by PYP coordinators and teachers respectively, thus the selection of teachers and students within the school might not reflect the population of IB teachers. Due to the small sample size and nature of the research, there is a limitation of generalizability, where the findings are specific to the sample and might not apply to a broader population, also the intent of the research was not for generalization. However, the reader can determine the generalizability of his or her unique context through a thorough review of the findings of the empirical qualitative study (Kvale & Brinkmann, 2009).

3.10 ETHICAL CONSIDERATIONS

The researcher followed ethical guidelines throughout the research activity. The key ethical considerations taken care of were voluntary participation, informed consent, confidentiality, and inclusive and exclusive criteria. When selecting the participants for the research (teachers, students, principals and coordinators), the researcher informed the participants that they were free to choose whether they wanted to participate and that they could withdraw from the study at any time without any repercussions. Before the data collection, the schools were given a permission letter from the institution of the researcher and shared the details of the research through email. Further, the researcher addressed questions from the principals/ coordinators and clarified the purpose of the study and their contribution to the study. During the field visit, teachers, students, and coordinators were given relevant information about the research, its purpose, and the duration of the study.

Eligibility criteria which consisted of inclusion and exclusion requirements were considered before data collection. In the present study, the inclusion criteria for the teacher sample was that all those with a teaching assignment, including the co-teachers and specialists like subject specialists and librarians, were included in the study. Students in grades 4 and 5 of PYP summing to a hundred in each school were included in the student sample. The exclusion criteria for students were that students in grades 1 to 3 were not included in the study. As the purpose of the study was to gain perspectives on PYP teaching-learning, it was appropriate to include students from higher/ graduating grades (4,5) as these students would have internalized the PYP way of learning and would be in a better position to share their perspectives on various aspects of PYP school.

All the participants were ensured that the data collected will be kept confidential. The researcher took care of the confidentiality of data, the digital data was safeguarded in a password-protected file system, and all the physical forms were kept in locked drawers. The participants were assured that their responses would be kept confidential and would not be shared with their school leaders or any higher authorities.

3.11 CONCLUSION

PYP employs a transdisciplinary inquiry-based learning model to develop international-mindedness among the learners. This approach to elementary and primary curriculum is relatively new in the Indian educational landscape. With the exponential growth of PYP schools in India, these schools have become a unique site for research on various aspects of

curriculum and pedagogy. The present research aims to uncover the various curricular and pedagogical practices that have successfully facilitated the schools to implement and sustain PYP in India. The fundamental purpose of this study was to understand how schools contextualize the IB PYP curriculum in the Indian context by studying the curriculum management process in the schools. To address this research question a convergent parallel mixed-method study was employed. The use of qualitative and quantitative data provided a variety of data sources to answer the research questions and to share this knowledge of curriculum management in IB PYP schools with a broader audience.