CHAPTER 3

METHODOLOGY

Chapter three is divided into three sections. The first section outlines the scope of the study and the rationale for the same; The second section, explains the settings which provide an overview of the population and geographical zones covered; the third section describes the research designs as applicable for different phases of the study, has been mentioned along with the rationale for adopting the same. The first part of the third section describes the method for identifying social learning - active and passive- methods and their tools, which could be possibly influencing behaviour, specifically ESCB in children. The second part of the third section describes the research design for identification of various social cognitive factors influencing ESCB. And the third part of section third explains the method of designing intervention that has an impact on attitude towards ESCB and ESCB.
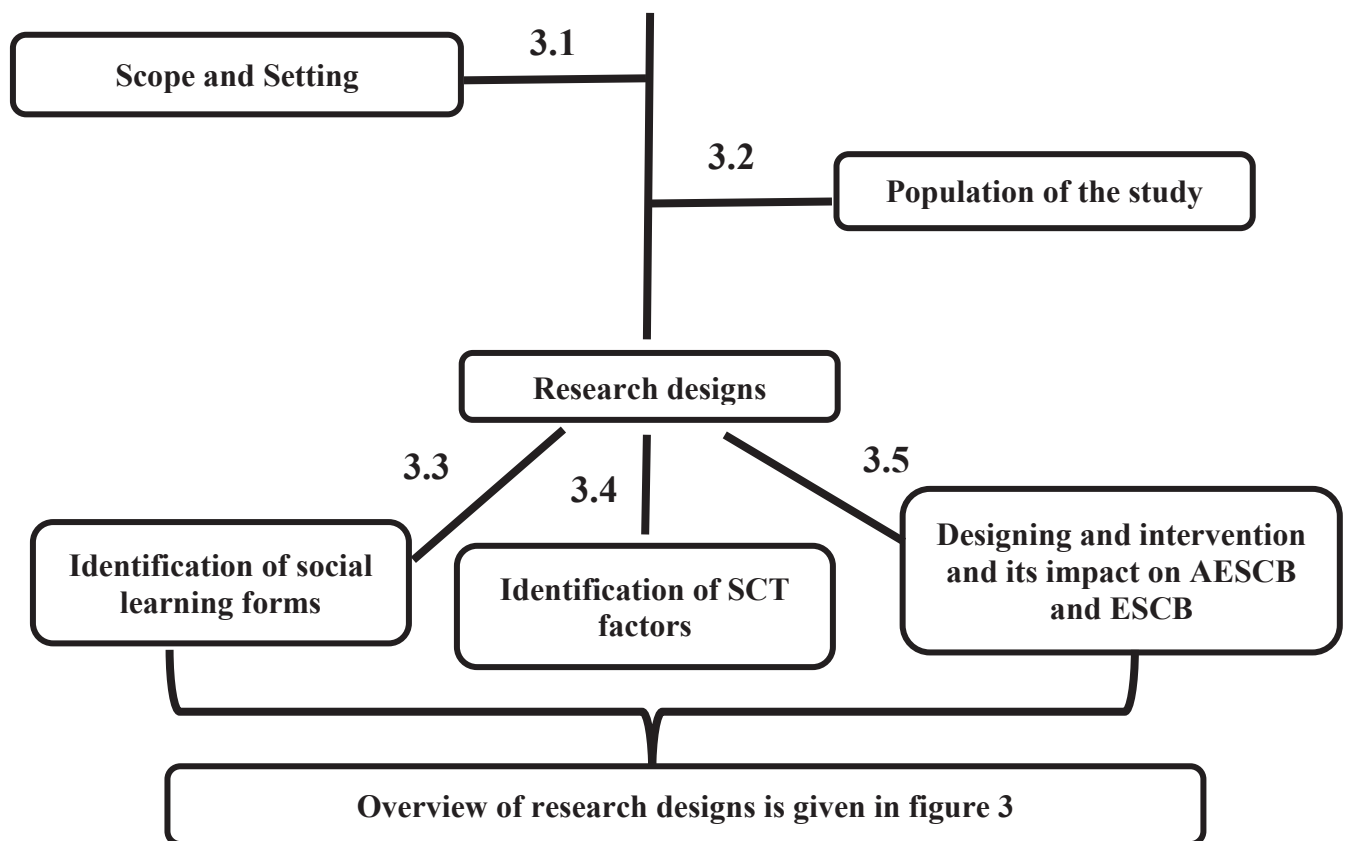

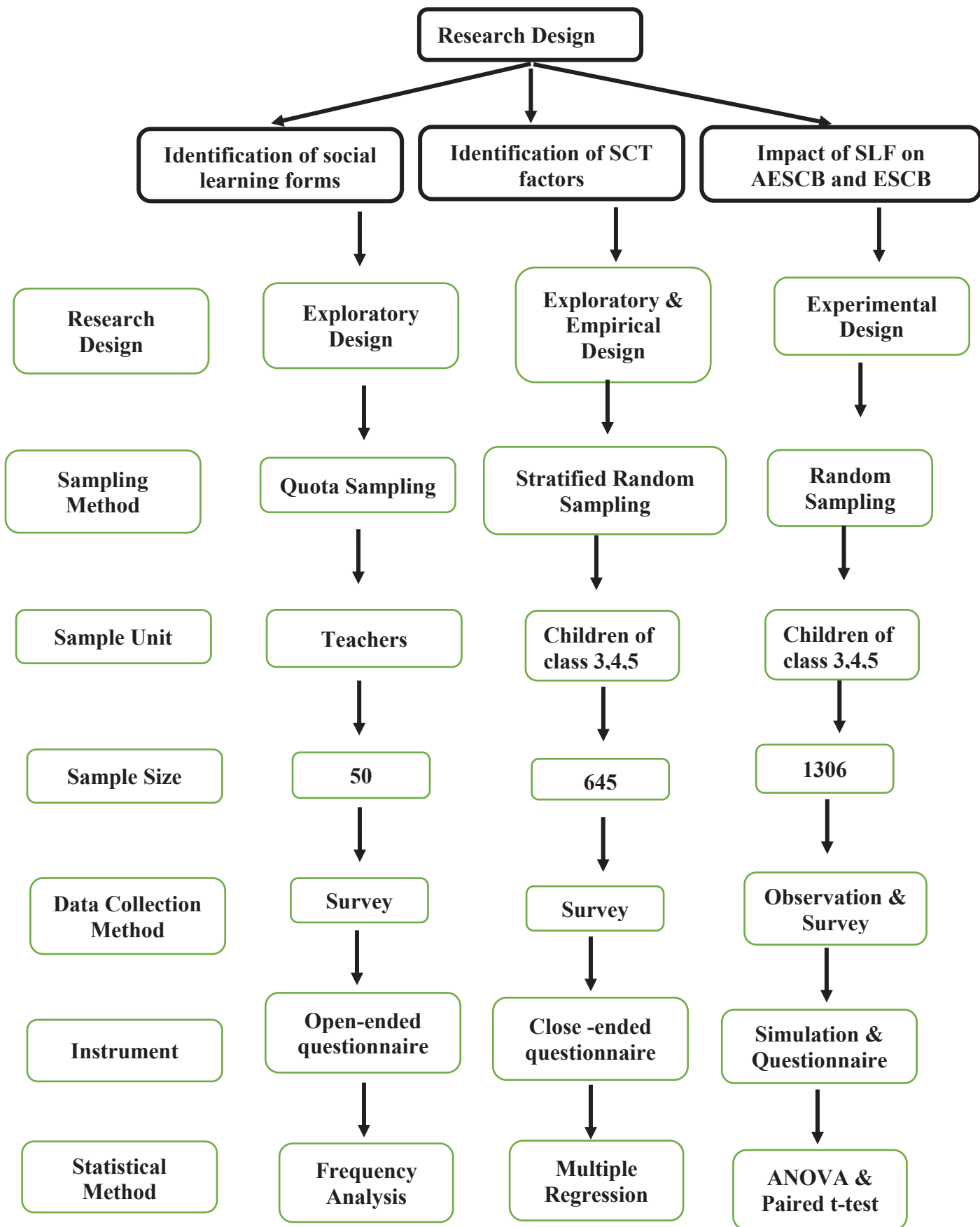**Figure 8: A schematic representation of chapter 3**

	Identification of social learning forms	Identification of SCT factors	Impact of SLF on AESCB and ESCB
Research Design	Exploratory Design	Exploratory & Empirical Design	Experimental Design
Sampling Method	Quota Sampling	Stratified Random Sampling	Random Sampling
Sample Unit	Teachers	Children of class 3,4,5	Children of class 3,4,5
Sample Size	50	645	1306
Data Collection Method	Survey	Survey	Observation & Survey
Instrument	Open-ended questionnaire	Close-ended questionnaire	Simulation & Questionnaire
Statistical Method	Frequency Analysis	Multiple Regression	ANOVA & Paired t-test

Figure 9: Overview of research designs

3.1 Scope & Setting

While several studies have pointed out that children exercise influence on family purchase decisions (Shoham, 2005; Kaur & Singh, 2006; Ramzy, Ogden, Ogden & Zakaria, 2012; Kumar, 2013), yet studies differ in the products that they have considered and therefore there was a need to identify which of these (or few other) products would be relevant in Indian context and the context of ESCB involving children. This would lead to defining the scope of the study concerning products. Accordingly, an investigation for this purpose was conducted where, first, all research studies where similar context (which sought to address understanding different issues or concepts where children were exerting influence on the purchase, use and dispose-off stages of consumption) were found and studied to identify an exhaustive list of all products. These studies are summarized in Table 6.

Table 6: Research Studies Identifying List of Products

S.No	Author	Population	Product Category
1	Chavda, Haley & Dunn (2005)	Adolescents (11-16 Years of Age) And Parents	Household Products, Toiletries, Entertainment, Adolescent's Clothes, Parents' Clothes, Large Purchases, Food Products and Technology
2	Martensen & Gronholdt (2008)	Parents of Children (5-13 Years Old)	Cars, Vacations, Toothpaste, Soft Drinks, Juice, Cereals, Vitamin Pills, Shampoo, TV, Cars, Computer Equipment
3	Guneri, Yurt & Kaplan (2008)	Children (7-18 Years Old)	Milk, Home Appliances and Dining Outside, Child's Shoe and Children's Cellular Phone
4	Isin & Alkibay (2010)	Mothers of Children (5-6 Years Old)	Audio System, Refrigerator, Furniture, Car, Bread, Meat, Fruit, and Vegetable)
5	Ramzy et al. (2012)	Parents of Children (4-18 Years Old)	TV, Furniture, Soft Drink, Breakfast Cereals, Toy
6	Kumar (2013)	Children (8-12-Year-Old) And Their Parents	Refrigerator, TV, Home Theatre, Bicycle, Ice Creams, Juice, CDs, Video Games
7	Shoham (2005)	Parents of US And Israeli	Toys, Clothing, Children's Magazines, Children's Dress Clothes, Children's Records/CDs, Car and Living Room Furniture.
8	Aghdaie & Renani (2013)	Parents of Children Age 3 To 11	Toys and Dolls
9	Shergill, Sekhon & Zhao(2013)	Parents of Children Age 3 To 19	PC, Groceries, Furniture, Toothpaste, Car, Child's Record/CD, PC, Toothpaste, Dress, Bicycle, And Magazine

Review of the studies mentioned in table 6 revealed that children wield a lot of influence in family consumption decisions for products aimed at children and in particular cases products for family consumption too. A list of 32 unique products was finally identified after removing

overlaps and from the list obtained from the literature review. The same is summarized in Table 7. Further, an exploratory study was conducted to identify product categories suitable to the context of the current study.

Table 7: List of 32 products from literature review where children's influence major decision

Used by child			Used by family		
Toys	**Clothing related**	**School supplies**	**Food**	**Other**	**Services**
Video games	Children Clothes	CDs/DVDs	Fruit and Vegetable	Perfume/cologne	Family Dinner
Bicycle	Shoes		Dairy Products	Furniture for child's room	Spare time activity
Friendship bands	Socks		Bottled water	Parents clothes	Movie
Dolls			Non-veg food	Toilet paper	
Electronic Games			Fruit juices		
Stuffed Animals			Breakfast cereal for the family		
			Snacks, Bread		
			Non-carbonated drinks		
			Candy, Chocolate		
			Chewing gum		
			Ice cream, chips		
			Dried fruits		

For this, the list of 32 products (in Table 7) was circulated amongst 12 Indian experts consisting of parents, researchers in marketing areas and shopkeepers. The respondents were asked to do three things:

1. Identify products that were not applicable/popular in Indian conditions (not famous meant that they were not bought frequently). This was expected to aid in the smooth conduct of responses as respondents would be able to identify with situations related to familiar products.

2. To add new products/product categories where they felt Indian children exercised their influence on consumption decisions.

To identify if there were any products in the given list where Indian children did not exert influence on purchase decisions.

As a result of this exercise, 23 more products such as water bottle, pencils, pens, construction toys, puzzles, etc. given in Table 8 were added to the existing list which extended it further to 53 products (Table 9). Products such as pictured books, gift cards, water bottles, pencil box, puzzles, etc. given in Table 8 were added to existing list because shopkeepers stated that as these products do not involve many risks while purchasing, Therefore, parents allow children to influence their purchase decision regarding these commodities.

Table 8: Products added to existing list where children influence major decision

Used by child		Used by family
Toys	**School supplies**	**Food**
Puzzles	Pictured books, Gift cards, Book cover	Drinks (Glucose, tang)
Balloons	Pen & Pencil	Jam
Batteries	colored pencils, colored papers	Ketchup
Construction toys	Eraser, Sharpeners, Ruler	
Creative toys	Stickers	
	Water bottle, Pencil box, Lunch box	
	Bag, Clipboard	

Whereas non-veg food and toilet paper were removed from the list given in Table 7 because experts feel it not applicable in the Indian context. As the toilet papers are not very commonly used in the house holds. Similarly, non-veg is also not food that is very often cooked by Indian families in their homes. Therefore, children do not have any influence on the purchase of these two products.

Hence all the 53 products which have been considered by experts to have influence of children in consumption decision is given in Table 9

The list of 53 specific products was subsequently examined thoroughly by researcher and few experts to look at the possibility of clubbing them under fewer product categories. This was done to make the study more manageable. Many previous research studies (Chavda, Haley & Dunn, 2005; Shoham, 2005; Guneri, Yurt & Kaplan, 2008; Isin & Alkibay, 2011) have also attempted to work at the categorical level. Thus, another list of 10 product categories (Table 10) was drawn up.

Table 9: List of 53 products from literature review where children influence major decision

Used by child			Used by family		
Toys	**Clothing related**	**School supplies**	**Food**	**Other**	**Services**
Video games	Children Clothes	CDs/DVDs	Fruit and Vegetable	Perfume/cologne	Family Dinner
Bicycle	Shoes	Pictured books	Dairy Products	Furniture for child's room	Spare time activity
Friendship bands	Socks	Pen & Pencil	Bottled water	Parents clothes	Movie
Dolls		Coloured pencils	Bread		
Electronic Games		Eraser	Fruit juices		
Stuffed Animals		Stickers	Breakfast cereal for the family		
Puzzles		Water bottle,	Snacks		
Balloons		Bag	Non-carbonated drinks		
Batteries		Gift cards,	Candy		
Construction toys		Book cover	Chewing gum		
Creative toys		Coloured papers	Ice cream, chips		
		Pencil box,	dried fruits		
		Lunch box	Chocolate		
		Clipboard	Drinks(Glucose)		
		Sharpeners	Jam		
		Ruler	Ketchup		

Additionally, it was realized that since later parts of the study would consider investigation into impact of active and passive learning tools on different stages of sustainable consumption behaviour of children, namely, purchase, use or dispose-off, that it was important to seek and clarify for which of the stages of consumption, would children show influence on consumption decisions. For example, while children might have a say on which dress they purchase, they might not be involved in dispose-off decisions.

Table 10: List of 10 products categories where children influence consumption decisions

Categories	Example
1)Snacks and spreads	Bread, Biscuits, Jams, Ketchup, Popcorns
2)Toys & Games	Dolls, Stuffed animals, Cars, Construction Toys, Video Games,
3)Confectionary	Chips, Candies, Chocolates, Ice creams, Pastries
4) Drinks	Fruit Juices, Noncarbonated, Glucose, Tang
5) Child Apparel	Clothes, Shoes, Socks
6) Stationary	Pencil Box, Lunch Box, Bag, Pictured Books, Pen, Pencil, Eraser, Clipboard, Book cover
7) Services	Family dinner, Spare time activity, Movie
8) Fresh foods	Fruits and Vegetables, Dairy products
9) Children Furniture	Study Table, Chair
10) Parents Apparel	Clothes, Shoes

Thus, the next task was to know about the extent of children's influence on different stages of environmentally sustainable consumption decisions for already identified product categories. The study was designed to be conducted with a structured yet slightly modified questionnaire from literature (Guneri, Yurt & Kaplan, 2008), briefly described below. The sample units were identified using quota sampling, a non-probability sampling method. An attempt was made to keep sample representative of the population-based on criteria derived from the literature (Churchill,1991) that have been shown to affect results in similar cases. The criteria were: annual household income of parents, child's gender, the age of children (here primary school age determined by the class in which child was studying {it ranged from class I to class V}).

3.2. A brief on the study population:

The study population was from Bhiwadi (it is the representative census town of Alwar district from Rajasthan, India). Bhiwadi was chosen for 3 reasons: 1) the nature of population here is urban which is what the study scope is; 2) this study attempts to test the formulated hypothesis and not to generalize the results; and 3) Bhiwadi being an industrial hub for multiple industries like steel, furnace, electronics, engineering, textiles, pharmaceuticals, printing cable, rolling mills, food processing, herbal care units, etc. gives enough opportunity to include respondents from various income slabs to make sample a balanced one.

In line with other studies that attempted to understand the extent of influence children have on consumption decisions - 14 family units (each unit consisting of three members, namely, mother, father, and child) was taken, making the total sample units to 42, for the pre-test. Later, 40 family units were taken for the main study. Earlier research states that there exist

differences in perception of parents and children about the influence of children in environmental sustainable consumption (purchase, use, and dispose of) decision of children. Therefore, researchers (Caruana & Vassallo, 2003) have suggested that responses from three family members be included in a holistic overview. This also coincides with the concept of using triangulation as a method for better assessment. A summarized breakdown of the 40 family sample units showing relevant demographic characteristics is given in table 11.

As mentioned above, standard questionnaire available from literature to measure the influence of children at various stages of ESCB rather than simple consumption behaviour as used in original scale was taken from Guneri, Yurt & Kaplan (2008) and Martensen & Gronholdt (2008) with slight modifications.

Table 11: Breakdown of the sample* by demographic factors.

	Children		Parents	
Characteristics	**N**	**%**	**N**	**%**
Gender				
Female	17	42.5	40	50
Male	23	57.5	40	50
Annual Income				
Up to Rs 2,00,000			6	15
Rs 2,00,001 to Rs 2,50,000			8	20
Rs 2,50,001 to Rs 5,00,000			13	32.5
Rs 5,00,001 to Rs 10,00,000			8	20
Above Rs 10,00,000			5	12.5
Employment Status				
Working			49	61.25
Not working			31	38.75
Education level(parents)				
Senior Secondary (Class 12th)			16	20
Post-matric Diploma			9	11.25
Bachelor degree			29	36.25
Post-Graduate degree			26	32.5
Ph.D			0	0
Education Level (children's)				
Class I	7	17.5		
Class II	9	22.5		
Class III	8	20		
Class IV	8	20		
Class V	8	20		
*total sampling units were 120 from 40 families.				

The questionnaire had two parts: 1st part captured demographic factors, namely education level of parents, annual household income of parents, parents' employment status, child's gender, age of children; while the 2nd part (30 items which were assessed on a 5-point Likert scale (Annexure 1a & 1b) asked about how child's influence was perceived to exist for 3 stages of consumption for all 10 product categories identified above.

The modified questionnaire was pretested in 15 family units (and based on the pre-test, following improvements to the questionnaire were made:

1. Previously only one example was given for each product category after pre-test few more examples were added for each product category.

2. Meaning of disposing of regarding reducing, reusing and recycling was more explicitly explained to each

3.2.1 Statistical test

The data was entered later into excel sheet for analysis in which appropriate and consistent coding scheme was followed to avoid any errors. The frequency of demographic factors was measured to represent the equal distribution of an individual in quota sampling. The items measuring the child's influence in both (parent and child) questionnaire was scored as 5 when the decision was 100% taken by child and 1 when the decision was 100% by their parents. Means of each statement measuring the children's influence on consumption decision-making process for ten products and then the average was calculated across the mean value of all the three respondents (father, mother, and child) for each separate decision of consumption process. Similarly, means of each statement measuring the children's influence on each consumption decision-making process for ten products and the average was calculated from the mean value of all the consumption decision stages by three respondents. Children's influence was found to be highest for those products that are related to the children directly, namely, toys, confectionery, and stationary.

Another activity that had to be undertaken to define the scope of the work was identifying appropriate instances of behaviour, specifically ESCB, which could be presented as situations or as part of simulated environments to implement research designs for objectives. To start with, an exhaustive literature review helped enumerate specific ESCB that have been studied by earlier researchers (Kaiser, Ranney, Hartig & Bowler,1999; Laroche, Bergeron & Barbaro, 2001; Barr & Gilg, 2006; Oguz & Kavas, 2010; Asmuni, Khalili & Zain, 2012). A list of 21 behaviours was thus identified, and they are listed below across the three stages of

consumption: The last column of Table 12 shows slight modifications that were made to identify behaviours to suit it for an understanding of typical respondents of this study.

Environmentally sustainable consumption related behaviour used in this study were: purchase of toys in less packaging, donating toys after use, recycling toys by giving it to Kabaddi Wala after breakage, purchase of confectionery items such as cold drinks in tetra pack or glass bottles rather than plastic bottles, reuse of cold drink plastic or glass bottle as container for storage, recycle bottles by giving it to Kabaddi Wala., purchasing paper made up recycle paper, writing both sides of paper, recycle paper by giving it to Kabaddi Wala, purchasing refillable pen.

The next section of this chapter gives a brief overview of "research design" (RD) as enumerated by Churchill (1991) and describes all relevant aspects of RD for each of the objectives and important sub- tasks taken for achieving the study's main objectives.

Table 12: List of Environmental behaviour identified from literature

	ESCB	Modifications
I	**PURCHASE**	
1	refillable pen	
2	used book	
3	recycle book	
4	reusable bottles	
5	reusable cloths	
6	reusable lunch box	
II	**USE**	
7	both side of the paper	
8	dustbin	
9	shared stationary items	Share stationery item with their friends
10	shared old clothes	
11	shared book	Share books with their friends
12	making new items from old clothes	
13	new project from old papers	
14	use the old box	
15	old news paper	Use old newspaper for packaging
16	use cloth bag in place of plastic polyethylene	
III	**DISPOSE OF**	
17	old book	Giving old books to Kabaddi Wala[1]
18	old clothes	Donate old clothes
19	plastic bottles	Giving plastic bottles to Kabaddi Wala
20	planting in old bottles	
21	dispose of glass bottles	

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[1] KabadiWala is a person who purchase and sell un-used items.

3.3 Research design for identifying active and passive methods affecting ESCB

According to Churchill (1991) research design is defined as a blueprint for conducting research. It lays down the foundation of the research and ensures that research is carried out effectively and efficiently. It mainly involves six components: a) define the information needed, b) design the exploratory, descriptive, and/or causal phases of research, c) specify the measurement and scaling procedures, d) construct and pretest a questionnaire, e) determine the sampling process and sample size, f) develop a plan of data analysis. Each of these components for each objective of the study will be discussed in detail in the subsequent sections.

To identify active and passive tools that are expected to be instrumental in bringing about ESC attitude and behaviour, a mixed research design – a combination of exploratory and empirical designs - was used. While many non-Indian context research studies (Kitzerow, 1990; Kyriacou, 1992; McCarthy & Anderson, 2000; Omelicheva & Avdeyeva, 2008; Michel, Cater & Varela, 2009) have identified and worked with AL and PL tools for teaching at school or higher education, very few Indian research studies have investigated ESCB and none have looked into social learning tools for ESCB for children. Thus, the only source for a list of tools was from existing non-Indian research literature. It was attempted to identify tools that were either being used in practice or had the potential to be used (based on teachers' perceptions) for teaching ESC attitude and behaviour to primary school children; three methods were used described below in sub-sections.

3.3.1. Exhaustive review of literature

As mentioned above, a comprehensive review of the literature using basic level content analysis was undertaken, primarily using keyword search. The chief focus was on AL and PL tools used in education and as far as possible to make sure no ESCB related studies were missed. As a result, 15 research studies and two books were noted and they have been summarized in Table 13.

For identification of a unique final list of AL and PL methods as given in Table 13 following procedure was used as stated by the author (Koul,2009).

Step1: Specify Needed Data (Use of keywords and database search)

Online journal database named Jstor, Emerald, Taylor and Francis and Wiley online were made searched by using keywords "Active learning tools among students, Passive Learning tools among students, teaching tools for students, teaching techniques for students."

Table 13: Research studies focusing AL and PL tools

S.No	Author name	Students studied	AL tools	PL tools
1	Mckeachie (1987)	University	Discussion	Lecture
2	Kyriacou (1992)	Secondary Schools	Practical Work, Computer Assisted Learning, Role Play, Group Discussion, Problem Solving, Project	Lecture
3	Ebert (1997)	Undergraduate Students	Individual Or Group Quiz, Concept Map, Peer Teaching, Team Writing And Speaking Activities, Simulation, Discussion And Debate	Lecture
4	Hake (1998)	Students		Lecture
5	McCarthy & Anderson (2000)	Secondary School	Role Playing And Collaborative Activities	Lecture
6	McClanahan & McClanahan(2002)	University Students	Mini Lecture/Learning Activity/ Debrief	Lecture
7	Cahyadi (2004)	Undergraduate Students	Peer Instruction, Demonstration	Lecture
8	Omelicheva & Avdeyeva(2008)	Undergraduate Students	Debate	Lecture
9	Michel, Cater & Varela (2009)	Undergraduate Business Students	Projects And Quiz	Lecture
10	Hackathorn et al. (2010)	Undergraduate Students	Demonstration, Discussion	Lecture
11	Zayapragassarazan & Kumar (2012)		Concept maps, collaborative writing, brainstorming, case studies, Role playing, Drama, Simulation	-
12	Bachelor, Vaughan & Wall (2012)	Grade 7 And Grade 9,10,11,12	Jigsaw, Presentations, Stand And Share, True False Sort, Question And Answer Match, Written Dialects	Lecture
13	Kristiawan (2013)	Grade 8	Cooperative Learning	-
14	Marušić & Slisko (2014)	Senior High School	Experimenting And Discussion, Reading-Presentation-Question	-
15	Prayekti (2016)	Class 9	Problem-Based Learning	Lecture
16	Wilder & Berry (2016)	High School	Computer-Based Learning	Lecture
17	Muhammad, Bala & Ladu (2016)	Secondary School	Demonstration	Lecture

Books focusing AL and PL Tools				
S.No	Author name	Students studied	AL tools	PL tools
18	Karten (2011)	Grade 5 students	40 active tools were identified	
19	Light (1999)	Primary and secondary school students	Computer based learning	

For selecting papers three criteria were set 1) paper should have considered students as their sample, 2) title of the paper should have mentioned about the active tool or passive tool 3) paper published between 1991 to 2013 were considered. There were 70 papers identified. After downloading 70 papers, abstracts of these papers were scanned, and papers mentioning about active tools or passive tools were identified. In all, 17 research articles and two books were included in the study. Papers were segregated based on whether they are describing active tools or about the passive tools. Both type of research papers whether conceptual or empirical were considered for the study.

Step 2: Map out Plans for tabulation by Filling in categories of active and passive tools

Analysis of definition of various active and passive tools was carried out where the definition of various types of tools was compared to remove the overlaps. We listed types of tools (AL and PL) in terms of which the tools were coded. The list of 101 active tools and six passive tools was obtained after refining the longer list from literature.

3.3.2. Exhaustive search of schools' environmental studies textbooks

As a second source of information on AL and PL tools, a thorough search of schools' environmental studies textbooks of class I to V for both government and private schools was done. Here too, a complete enumeration of all AL and PL tools in all chapters of the textbooks was made, and a parallel classification activity was undertaken (tools mentioned were classified into AL or PL by investigating into how the characteristics of a tool coincided with AL or PL characteristics). Few issues are being noted here regarding findings during this process of scanning for tools: initial search to gather environmental studies textbooks from government and private schools revealed 2 facts: 1) there were no textbooks for class the I and II for government schools and the class I in private schools; 2) teachers referred to a pre-decided and given framework in place of textbooks. Thus, data collection boiled down to interviewing teachers as was formally taken under the 3rd source of information about tools and is described

in 3rd point below. This process was based on a thorough scanning of textbooks to identify AL and PL tools showed both types of tools had been suggested for use (chapter end exercises and within chapter activities).

Finally list of 101 active tools comprises : submitting question, brainstorming, drama, case studies, think-pair-share, debates, peer teaching, role-playing, simulation, readiness assessment test, immediate feedback, assessment technique, interactive demonstration, class discussion, one minute papers, research summary or abstracts, concept map, clarification pauses, quiz/test question, puzzles/paradoxes, active- review sessions, panel discussion, muddiest (or clearest),point, daily(or weekly), journal assignment, article reading quiz, waiting time, student summary, of another student's answer, the fishbowl, finger signals, the pre-theoretic, intuitions quiz, note comparison/sharing, work at the board, games, jigsaw ,group/individual projects ,or applied projects, writing and speaking tasks, fieldwork, assignments, computer-aided instruction , icebreakers and openers', presentations, speakers, visual based instruction, online discussion forum, internships, lab work, worksheets, work experience, diaries, reports, art spiral, back-to-back, caf (consider all factors),card ranking, carousel, clustering, collage, conscience alley, consequence wheel, constructing walls, creative matrix, dartboard evaluation, diamond ranking, dot voting, each one teach one, fact or opinion, fishbone, strategy, fist-to-five, five questions, freeze frame, giant steps, graffiti board, hassle lines, hot air balloon, hot seating, jeopardy, kwl (know – want to know – learned),memory game, mind maps, mind movies, mysteries, no easy answers board, odd one out, opinion finders, people bingo, PMI (plus – minus – interesting), post-it collection, priority pyramid, revolving circle, snowballing, swot (strengths, weaknesses, opportunities, threats), taboo, traffic lights, two stars and a wish, mock negotiation, questions followed by visual media(films, videotapes, demonstration, tv),group problem-solving, experiential learning, problem-solving exercises, cooperative learning , collaborative problem-solving.

Along with passive learning tools: lecture, visual media, classroom presentation for students, computerized learning assignments, guest speaker, reading textbooks.

Interviewing of the teacher was required for determining tools that could be effective in teaching ESCB. Since the number of active tools was too large to be implemented for exploratory investigation, clustering them into categories was necessary to make the study more manageable. Classificatory schemes club AL tools by their characteristics (Bonwell & Eison, 1991; Faust & Paulson, 1998; Michel, Cater & Varela, 2009; Wingfield & Black, 2005; MacVaugh & Norton, 2011) one of the oldest being Bonwell's (1991) which has been referred to by multiple other researchers (Wingfield & Black, 2005; Michel, Cater & Varela 2009). It

indeed has a very comprehensive coverage and enumerates 11 categories of AL tools where first five categories (pausing lecture[2], test, and quizzes[3], demonstration[4], feedback lecture[5]/ guided lecture and responsive lecture[6]) were further put under a broader classification "modified lecture", question and discussion, writing in class[7], problem-solving[8], computer-based learning[9], cooperative learning[10]. Here, all 11 categories were taken for the finer level of study to map AL tools identified. The mapping output is shown in figure 10. This classificatory scheme was used for developing a questionnaire for an in-depth interview from teachers.

Readers must note that Bonwell & Eison (1991) provided classificatory scheme only for AL tools. The PL tools obtained from the literature were checked for overlaps, and a distinct list of following tools was used: lecture, visual instruction (posters, films, videotapes, TV), classroom presentation, computerized learning assignments, guest speakers, reading textbooks.
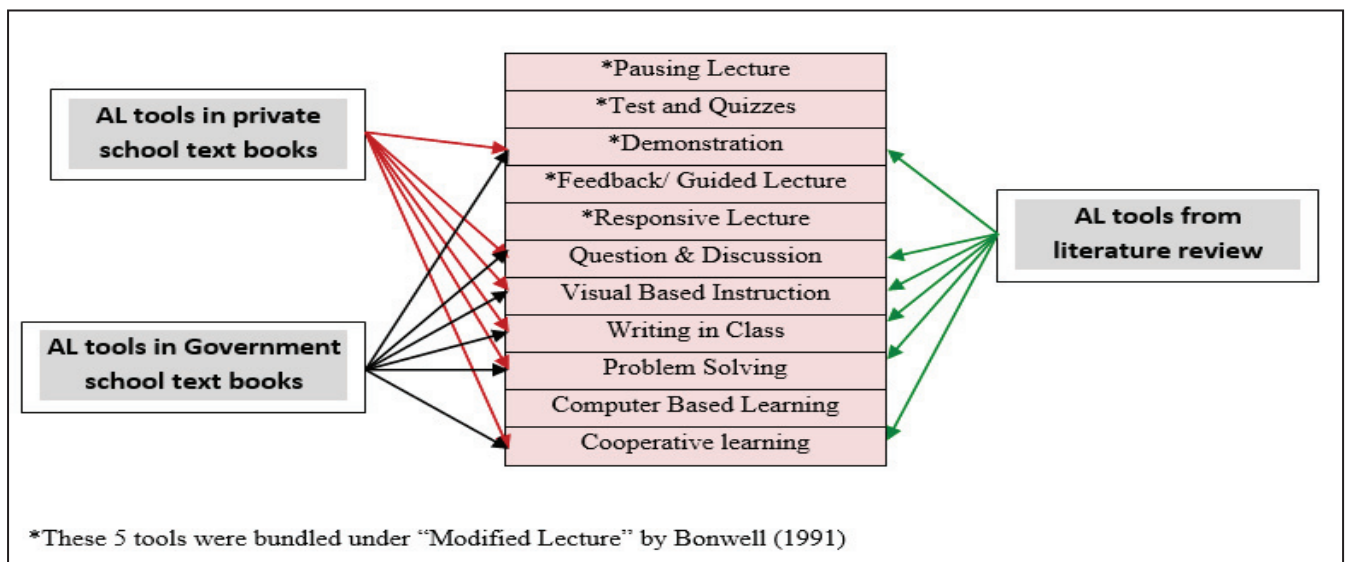
Figure 10: Mapping of AL and PL methods on Bonwell's 1991 classification

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[2] Modifying a lecture to enhance student's learning by pausing at least three times to allow discussions among students an at the end of each lecture students were given three minutes to write down everything they could remember from the lecture

[3] Students were asked to take an examination immediately after the lecture

[4] It is a method in which the teacher is the principal actor while the learners watch with the intention to act later (Ekeyi,2013).

[5] It consists of two mini lecture of 20 minutes long separated by a small-group study session where students work in pairs responding to a discussion question focused on the lecture material provided by the instructor.

[6] One class period per week was devoted to answering open-ended, student-generated questions on any aspect of the course. It is developed to meet the needs of individual learner by providing feedback over material covered in the course.

[7] Having students write in class as an adjunct to other teaching strategies.

[8] It involves 4 steps: a) defining a problem, b) diagnosing possible reasons for the problem, c) searching for alternative solutions; and d) evaluating the alternatives and choosing the most appropriate solution.

[9] Instructional innovation and technology involves the use of computers, either in the classroom or in associated laboratory settings.

[10] Classroom strategies that emphasize small groups of students working together in a structured process to solve an academic task.

3.3.3. In-depth interviews of school teachers

Post-classification, which resulted in 11 categories of AL tools and 6 PL tools, the third source to generate information on AL and PL tools were designed and implemented. It was an empirical study where in-depth interviews of 50 school teachers for who taught environmental studies (or its equivalent) & other subjects (10 teachers) was done. Description about research design aspects of this study, namely, study area, target population, sample selection and size justification, questionnaire & method of approaching respondents, pre-test exercise & modifications made to questionnaire, data collection & compilation and statistical test used is provided in sub-sections and given below:

3.3.3.1. Study Area & Target Population and Sample

The study was conducted in private and government school of Bhiwadi, the representative census town of Alwar district. The sample was a mixture of different backgrounds. The samples were collected using quota sampling, a non-probability sampling method as it attempts to be representative of the population by including the same proportion of elements possessing a particular characteristic found in a population of 84 primary schools. The selection of samples for this research was based on appropriateness of the research objectives while using this method. 50 teachers teaching environmental studies (or its equivalent) from different schools both government and private were selected for the study from Bhiwadi. Hence the sample was a mixture of different schools and classes. A total of 50 teachers teaching environmental studies (or its equivalent) were interviewed from fifty schools located in the various regions of Bhiwadi. The selected schools are distinct from each other according to the classification of the national education system in the country. Teachers were interviewed at their schools. The responses by concentration are shown in Table 14.

Table 14: Sample distribution of teachers for identifying effective tools

Class	Private School	Government School
I	7	2
II	7	2
III	8	2
IV	9	3
V	7	3

3.3.3.2 Questionnaire

Questionnaire from literature for addressing the tools used for teaching was used with slight modifications to suit the experience survey approach of exploratory research. The ultimate aim of the survey is to obtain insight and attempts to tap the knowledge and expertize of those familiar with the general subject being investigated. For questionnaire development, Bonwell & Eison's (1991) classificatory scheme of tools (shown in result section in detail) was placed against 16 ESCBs from literature. It was also slightly modified to suit experience survey of exploratory approach to obtain teachers' insights, knowledge and experience regarding the use of AL and PL tools. Respondents were given freedom for discussion to develop the tentative explanation of what they shared. The questionnaire was thus only semi-structured with open-ended questions. The key question asked of respondents for each pair of 'SL tool-ESCB' was this: Based on your perception, which of the SL tools given here are appropriate for teaching (an identified) ESCB to children of your class. Respondents could choose more than one tool for the survey specific ESCB item and be asked to express reasons for their favor or disfavor for specific tools. ESCB context was regularly reminded by reading out ESCB items and giving specific examples. In government schools where one teacher engages all primary classes, they were repeatedly told to answer for only one chosen class. The questionnaire was divided into three section: The first section was having a question related to background, second and third section comprises question-related to the identification of methods that are relevant for enhancing ESCB among primary school children. The questionnaire was bilingual: in English and Hindi. In all, there were 19 questions each for identification of active and passive methods. English questionnaire was translated to Hindi and again into English by two persons each. So, that problem of vocabulary and varied interpretation can be corrected. A copy of questionnaire (Hindi and English) is given in annexure 2a and 2b respectively.

3.3.3.3. Pretest of questionnaire

According to Malhotra (2011) pretesting refers to the questionnaire on a small sample of respondents to identify and eliminate potential problems. As a general rule, the questionnaire should not be used in the field survey without adequate pre-testing. All aspects of the questionnaire are pre-tested including question content, wording, sequence, form and layout, question difficulty and instruction. As the respondents in the pretest should be similar to those, who will be included in the actual survey regarding background characteristics, familiarity with the topic. A pre-test is best done by personal interview; the researcher conducted pretest interview. As stated by author pretest sample size is small, varying from 15 to 30 respondents,

depending on the heterogeneity of the target population. Therefore 15 environmental studies instructors from class I to V were selected from both government and private school of Bhiwadi. Responses obtained from the pre-test was coded and analyzed.

Analysis of pre-test responses serves as a check on the adequacy of the result. Initially, it was found that teachers were not able to understand that they can select more than one tools for teaching particular behaviour. Also, teachers thought that they have to mark those tools which they are currently using in their schools. To solve these problems while attempting the questionnaire teachers were instructed that they can select more than one tool which they feel could be possible to teach particular behaviour. Also, these instructions were written in questionnaire too.

3.3.3.4 Data collection

Three post-graduate persons helped in conducting the interview in 50 schools located in different regions of Bhiwadi, the representative census town of Alwar district. They helped in making list of school's teachers and their contact number. According to the research design they helped in taking appointment and in recording the data. 50 teacher teaching environmental studies were interviewed using the modified questionnaire. The data was entered later into excel sheet for analysis in which appropriate and consistent coding scheme was followed to avoid any errors. The questionnaire had three sections: 1st section recorded frequency for demographic factors that were measured to represent an equal distribution of an individual in quota sampling. 2nd section recorded teacher's perceptions about and the frequency with which they felt a particular ESCB could be taught using one or more AL tools; similarly, 3rd section recorded responses for PL tools. Since each of the 50 teachers could select more that one of 11 AL tools or more than one form 5 PL tools as appropriate (16 behaviours were used) - maximum recordable frequency for each AL tool was 800[50 participants* 16 ESCBs] and 250 for PL tools. Results are discussed in detail in next chapter.

3.3.3.5. Statistical tools and techniques Used

For analyzing gathered data quantitatively, frequency tables were used. Details of results with findings have been given in "Results" chapter, and the corresponding discussion is also provided in the chapter on "Discussion."

Results showed that the top choices of teachers from both school's government and private matched correctly. They showed high preference for using pausing lecture, visual based instruction and demonstration among active methods to teach sustainable consumption

behaviour. Among passive methods, lecture and visual methods (poster) were their top choices for the same.

3.4 Research design for identifying factors from SCT framework influencing ESCB

Out of the three types of research designs: *exploratory, descriptive and causal-* descriptive approach was adopted towards the fulfillment of the 2nd objective (identifying cognitive and environmental factors from SCT framework influencing ESCB) as it coincides with the theory verification nature of this research. The research problem was configured in two subparts: 1) identifying all relevant internal and external factors from SCT framework that were expected to influence ESCB among primary school children and 2) assess the influence of each of these factors on ESCB. Since the study was primarily concerned with determining the status of cognitive and environmental factors and their correlation to ESCB, an empirical study with the cross-sectional design was adopted (which involves the collection of information from any given sample of population elements only once). Accordingly, a single cross-sectional design where only one sample of primary school students as respondents was drawn from the target population.

To gather information for the 1st subpart as mentioned in above paragraph, an extensive review of the literature was conducted which has been extensively described in section 2.3 of chapter 2 on Literature Review. For the assessment in subpart two, an empirical approach was taken. A description of the measures adopted from scales available in the literature, questionnaire design, pre-test & pilot studies and main study's design concerning sampling aspects and data analysis activities has been provided in the next section.

3.4.1 Measures

Churchill (1991) explains measurement consists of "rules for assigning numbers to objects in such a way as to represent quantities of attributes." That is, we measure not the object, but some characteristic of it. Scaling is considered as an extension of measurement. It involves creating a continuum upon which measured objects are located. As described in the chapter on literature review, 24 number of SCT variables were identified from a thorough review of literature, namely environmental knowledge, perception of consequence, environmental responsibility, environmental value, perceived behavioural control, response efficacy, behavioural intentions, environmental sensitivity, perceived consumer effectiveness, environmental concern, environmental attitudes, environmental awareness, internal locus of control, perceived threat, perceived seriousness of environmental, environmental affect, deontology, liberalism, collectivism, political action, long term orientation, self-regulation,

outcome expectation, outcome expectancies from where finally, twelve variables, namely environmental attitude, environmental sensitivity, environmental responsibility, environmental knowledge, environmental value, environmental concern, self-efficacy, self-regulation, outcome expectation, outcome expectancies, peer influence, parental influence, environmental sustainable consumption behaviour were identified as applicable for children of the primary school age. Following is the procedure for the identification of these 13 variables (12 Independent variables and 1 Dependent Variables)

Step 1: Use of keywords and database search

Various online database mainly Science Direct on-site, Jstor, Emerald, IEEE, Taylor and Francis and Wiley online were made searched by using keywords "factors influencing ESCB, factors that affect pro-environmental behaviours, antecedents of sustainable consumption behaviour, antecedents of environmentally sustainable consumption behaviour. There were two meta-analyses done in 1987 by Hines, Hungerford & Tomera and 2007 by Bamberg, Hunecke & Blobaum which have identified various factors influencing sustainable behaviour. After 2006, in all 62 research studies were identified. Both type of research papers whether conceptual or empirical were considered for the study.

Step 2: Reading and scanning the articles

Abstract of all the papers were scanned and all the relevant papers are studying about various factors and antecedents were segregated. Out of all the research papers 24 variables were identified (environmental knowledge, perception of consequence, environmental responsibility, environmental value, perceived behavioral control, response efficacy, behavioral intentions, environmental sensitivity, perceived consumer effectiveness, environmental concern, environmental attitudes, environmental awareness, internal locus of control, perceived threat, perceived seriousness of environmental, environmental affect, deontology, liberalism, collectivism, political action, long term orientation, self-regulation, outcome expectation, outcome expectancies) influencing ESCB in various population.

Step 3: Analysis of the definitions

Analysis of the definitions of various variables that influence ESCB was next carried out. Further, the definitions of the variables were compared to remove the overlap. Also, variables that were not relevant to the population of children after discussing with an expert were dropped from the list. Experts were identified on the basis of their research

experience, and teaching experience. An email was dropped to approximately 20 experts and out of which only three have shown their interest. These three experts were Dr. J. N. Baliya, Assistant Professor at Central University of Jammu having more than 15 years of both teaching and research experience in the area of child psychology, Mrs. Sharada Sharma, Principal of government school having more than 20 years of teaching experience, Dr. Sarvesh Satija, Ph.D. in child psychology and having more than 10 years of research experience & teaching in the area of organization culture, positive psychology. Their input was taken in face to face interactions which lasted approximately 1 hour each. Finally, a list of 12 unique variables namely environmental attitude, environmental sensitivity, environmental responsibility, environmental knowledge, environmental value, environmental concern, self-efficacy, self-regulation, outcome expectation, outcome expectancies, peer influence, the parental influence was identified that influence ESCB among students.

The following passages provide definitions of the selected SCT factors and their measures. A measure consists of various items of each stage (purchase, use and dispose of). Multi-item helps to include both positive and negative items in the questionnaire which will contribute to minimizing the danger of acquiescent of response bias (Rattray & Jones, 2007). All the measures used by these influencing factors was based on a non-comparative scaling technique, namely Likert scale. Likert scale is named after its developer, Rensis Likert. The scale requires respondents to indicate the degree of agreement or disagreement with each of a series of statements about the objects. Data are treated as the interval. While literature has given that these measures be based on a 5-point Likert scale, for this study scale level was modified to 3-point scale. This was supported and recommended by experts (Dr. J.N Baliya, Assistant Professor at Central University of Jammu, Mrs. Sharada Sharma, Principal of government school) & literature that said 3 point scale is better understood by children (Mellore, 2014; Wright, 2011).

Independent Variables in cognitive category of SCT

a) Environmental Attitude

Attitudes are defined as "*a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour*" (Egaly & Chaiken, 1993). Attitudes are beliefs and feelings about an object that cause one to behave consistently toward the object (Fishbein,1974) and beliefs are information one holds about the object (Petty, 1981). Thus, as applied here, beliefs are nested within the concept of attitudes. Therefore, The, general beliefs about outcomes of environmental behaviours such as resource use and pollution are defined as

environmental attitude (Kil, Holland & Stein, 2014). Environmental attitude is described by Lee (2008) as *"individuals' value judgment of environmental protection"* and by Singh & Gupta (2013) as *"the collection of beliefs, affect and behavioural intentions a person holds regarding environmentally related activities."* Since the first definition had a common term with another SCT variable (namely, environmental concern), the latter two were given considered for next step to avoid any confusion. It must be noted here that researchers (Mostafa, 2006; Lee 2008, 2009; Wiernik, Ones & Dilchert, 2013) who have used both constructs have adequately differentiated between these two terms. Definition by Singh & Gupta (2013) explicitly puts the three components of attitude in the framework for "environmental attitude" and was therefore frozen for this study.

For assessing the environmental attitude of children, CATES- PV scale, Children's Environmental Attitude and Knowledge Scale (CHEAKS) were available. CATES-PV has a pictorial representation of items. But as the researcher (Royeen, 1985) suggests that for children graphic representation of item was not necessary and in fact was confounding. Therefore, Children's Environmental Attitude and Knowledge Scale (CHEAKS) was used in this study. This scale was developed from the structure and content of an adult scale drawn up by Maloney, Ward & Braucht (1975) to measure ecological attitudes and knowledge. CHEAKS scale comprises of 36 items measuring students attitude towards environmental issues under six domains namely animal, energy, pollution, recycling, water and general issues. Out of these six relevant items for this study was identified (e.g., I would be willing to separate trash for recycling, I would be willing to save paper by using both sides of the paper, etc.). Initially, the scale was presented in a 5-point Likert-type response format (i.e., very true, mostly true, not sure, mostly false, or very false). Researcher (Royeen, 1985; Mellore & Moore, 2014) also suggest that three response format with children work best because 5 point response format was found too confusing. Hence, In this study, three-point Likert-type response format with (1)"true," (2) "not sure" and (3) "false" has been used.

b) Environmental Concern

According to Schultz (2001), environmental concern refers to "*a wide range of indicators such as beliefs that the environment is under threat, that there are adverse consequences to environmental degradation and general concern for human-caused environmental problems.*" On similar line, an earlier study by Bang Ellinger, Hadjimarcou & Traichal (2000) and later few later studies (Lee, 2008, Aman, Harun & Hussein, 2012) have focussed on phrases like – "emotional disposition of consumers toward environment", "Degree

of emotional involvement in environmental issues" and "emotional disposition of consumers toward environment" to define 'environmental concern'. For this study, Schultz's definition has been considered. The scale used for measuring this construct has also been taken from Schultz's work (2001). Originally the scale had 12 items out of which six relevant items were selected for the study. The scale has following items with a question I am concerned about the environmental problem (e.g., pollution, garbage heap) because of the consequences for….. Me/Myself, My Health, My Life style, etc.   Originally the scale was presented in a 7-point Likert-type response format with response rate 1 (not important) to 7 (important). Researcher (Royeen, 1985; Mellore & Moore, 2014) suggest that three response formats with children work best because 5 points or 7-point response format was found too confusing. Therefore 3 points Likert schema to measure responses ranging from (1) "not important" to (3) "important" assessed the environmental concern by assessing the importance of valued objects organized around self, other people, and all living things.

c) Environmental Value

Allport (1961) put the definition of value very precisely as "….*a belief upon which a man acts by preference*". Many psychological work and theories on values are based on Schwartz's work (1992, 1994); where value has been defined as: *"a desirable trans situational goal varying in importance, which serves as a guiding principle in the life of a person or other social entity."* For example, Fraj & Martinez (2006) explained values *"as the criterion that individuals use to select and justify their actions and to value objects and others' conducts."* Since many researchers who worked in the area of 'environmental psychology' (Stern, Dietz & Guagnano, 1995; Karp, 1996; Schultz & Zelezny, 1998; Stern, 1999; Joireman, Lasane, Bennett, Richards & Solaimani, 2001; Nordlund & Garvill, 2002, 2003; Gärling, Fujii, Garling & Jakobsson, 2003) examined the influence of values on behaviour based on Schwartz's (1992,1994) concept, this study has adopted the same. Measure for this construct was taken from "Model of Ecological Values" (2MEV) developed by Milfont & Duckitt (2004). They first independently confirmed that 2MEV could tap the environmental values of children. Originally the scale is made of 16 items out of which six relevant items were considered for this study namely If someday I have free time, I would like to volunteer for recycling to help protect the environment If I would have extra money I would be open to donating to protect nature, etc. Initially the scale was in 5-point response format ranging from 1 for "strongly disagree" to 5 for "strongly agree" & midpoint 3 referring to "not sure" but as discussed researcher (Royeen, 1985; Mellore & Moore, 2014) suggest that 3 response format with

children work best therefore three-point Likert scale anchored by 1 for "disagree" to 3 for "agree" & midpoint referring to "not sure" was used here.

d) Environmental Sensitivity

While Peterson (1982) defined environmental sensitivity as "a set of affective attributes which result in an individual viewing the environment from an empathetic perspective" about the same time Chawla (1982) reviewed multiple works from literature, carefully assumed 'environmental sensitivity' is not an empathy and defined environmental sensitivity as *"a predisposition to take an interest in learning about the environment, feeling concern for it, and acting to conserve it, on the basis of formative experiences"*. Since Chawla's definition gives a broader perspective to moving beyond 'affective attributes' to 'predisposition' and it has also been successfully used by many researchers (Wang, Liu & Qi, 2014), the latter was adopted.

For measuring this construct, the ninth dimension of Multiple Intelligences Profiling Questionnaire(MIPQ III) that is based on Howard Gardner's (e.g., 1983, 1999) MI theory, where 'environmental sensitivity' is measured by a Likert scale having three items. This (9th) dimension is described in detail by Tirri & Nokelainen (2008) where these items were measured by 5 points Likert scale ranging (1) totally disagree to (5) totally agree. In this study, this construct is measured by four relevant items namely: I pay attention to my recycling habits to protect the environment, I enjoy the beauty and experiences related to nature, Protecting the nature is important to me, and I pay attention to my consumption habits to protect the environment. As discussed researcher (Royeen, 1985; Mellore & Moore, 2014) suggest that three response format with children work best therefore three-point Likert scale anchored by 1 for "disagree" to 3 for "agree" & midpoint referring to "not sure" was used here.

e) Environmental Knowledge

Wang, Liu & Qi (2014) defined environmental knowledge as "*information about the environmental concept, environmental problems, and strategies to solve those problems.*" This was found to be quite straightforward and inclusive of everything environmental knowledge can represent. For assessing environmental knowledge of children, a Children's Environmental Attitude and Knowledge Scale (CHEAKS) was used. This scale was developed from the scale developed by Maloney, Ward & Braucht (1975) to measure ecological knowledge. The scale comprises of 30 items measuring students' knowledge towards environmental issues under six domains namely animal, energy, pollution, recycling, water and general issues. These items were multiple choice question. Out of these six relevant multiple choice items for this study was identified namely: An item which cannot be recycled and used again is: a) Newspapers b)

Aluminum cans c) motor oil d) Plastic bottles. The author uses a nominal scale format with (1) for "correct" and (0) for "wrong." For example, If respondents answer the above question (c) motor oil then score of that individual was given one, but if they give any other response, then they get the score of 0. Hence an individual can score maximum score of 6 and minimum score 0. In environmental education studies which is a part of the curriculum of primary schools, students are taught various issues such as types of pollution - including air, water and soil pollution, ways to control the pollution. Additionally, they are often told how materials like plastic, metal and glass compare with each other wrt sustainability {this was emphasized by the experts too during interactions when modification to the well-known "CHEAKS scale" was discussed with them}. Only after all the experts consented to inclusion of modified or un-modified items from CHEAKS scale, they were finally used for pre-testing.

f) Environmental Responsibility

Hines, Hungerford & Tomera in 1987 defined environmental responsibility as *"individual's feelings of duty or obligation to the environment."* Simmons & Widmar (1990) defined environmental responsibility as to "include active and considered participation aimed at solving problems and resolving issues. Categories of environmentally responsible actions are persuasion, economic and consumer action, eco-management, political action and legal action". On similar lines, Hungerford & Peyton (1977), Ramsey, Hungerford & Tomera (1981), Champeau (1983), Hsu (2004) have focussed on the above categories of environmental responsibility. For this study, the definition of Simmons & Widmar (1990) was considered. A measure of this construct was adopted from Children Responsible Environmental Behaviour Scale (CREBS) developed by Erdogan & Marcinkowski (2012). Originally the scale had 23 items out of which six relevant items were selected for the study. The scale has following items: I gave old books, dress, toys, which are not used by me to other people in need, I purchased reusable pens, etc. Originally the scale was presented in a 7-point Likert-type response format with response rate 1 (never) to 7 (more than 5 times). Researcher (Royeen, 1985; Mellore, 2013) suggest that 3 response format with children work best because 5 point or 7-point response format was found too confusing. Therefore 3 points Likert scheme to measure responses ranging from (1) "Never" to (3) "4 or More" was used here.

g) Self-Efficacy

Bandura (1977) coined the term self-efficacy and defined it as *"one's belief in one's ability to succeed in specific situations or accomplish a task."* On similar lines, Pastorelli, Caprara, Barbaranelli, Rola, Rozsa & Bandura (2001) also worked on self-efficacy. A measure

of this construct was adopted from Pastorelli et al. (2001). Originally the scale had 37 items out of which six relevant items were selected for the study. The scale has following items followed with a question How well can you…: Learn about recycling of plastic bottle, Plan your purchase of the environmentally friendly product(e.g., refillable pen). Originally the scale was presented in a 5-point Likert-type response format. Researcher (Royeen, 1985; Mellore & Moore, 2014) suggest that 3 response format with children work best because 5 point or 7-point response format was found too confusing. Therefore 3 points Likert scheme to measure responses ranging from (1) "Cannot do at all" to (3) "Certainly can do" was used here.

h) Self-Regulation

Albert Bandura (1986) in his Social Cognitive Theory explained Self-Regulation. In 1991, Bandura demonstrated that self-regulation of an individual operates through a) monitoring one's behaviour, determinants of that behaviour and effect of that behaviour, b) judging own behaviour concerning personal standards and environmental condition, c) through affective self-reaction. On similar lines, Branscum & Sharma (2011) worked on self-regulation. For this study, a measure of the construct was adopted from Branscum & Sharma (2011). Originally the scale has six items out of which all the items were selected for the study. The scale has following items followed with a question: How often in the past weeks did you …: Remind yourself to purchase refillable pens than a simple pen, Plan to purchase a product with less packaging. Originally the scale was presented in a 5-point Likert-type response format from (1) "Never" to (5) "Always." Researcher (Royeen, 1985; Mellore & Moore, 2014) suggest that 3 response format with children work best because 5 point or 7-point response format was found too confusing. Therefore 3 points Likert schema to measure responses ranging from (1) "Never" to (3) "Always" with a midpoint (3) "Sometimes."

i) Outcome Expectation

Definition of outcome expectation was given by Bandura (1986, 1997). Based on SCT he explained it as "*the outcome that one expects from their action.*" On a similar line, Sharma & Petosa (2012) defined outcome expectation as "the anticipated outcome benefits perceived by the individuals from learning problem-solving skills. Branscum & Sharma (2011) worked on lines of Sharma, Wagner & Wilkerson (2006) and measured the construct. Originally the scale has five items out of which all the items were selected for the study. The scale has following items followed with a question: If I…. Recycle bottles and cans I will have cleaner surrounding with less garbage, Use both sides of the paper I will feel satisfied, etc. Originally

the scale was presented in a 5-point Likert-type response format from (1) "Never" to (5) "Always" with a midpoint (3) "Sometimes." Researcher (Royeen, 1985; Mellore & Moore, 2014) suggest that three response format with children work best because 5 point or 7-point response format was found too confusing. Therefore 3 points Likert scheme to measure responses ranging from (1) "Never" to (3) "Always" was used.

j) Outcome Expectancies

Outcome expectancies was another construct of SCT theory given by Bandura (1986). It was defined as *"how much the individual values outcomes of performing the task."* Measure for this variable was taken from Sharma, Wagner & Wilkerson (2006) who defined it as "the personal value placed on the listed benefits by students." On similar lines, Branscum & Sharma (2011) worked on outcome expectancies. For this study, a measure of the construct was adopted from Sharma, Wagner & Wilkerson (2006). Originally the scale has five items out of which all the items were selected for the study. The scale has following items followed with a question: How important is it to you that you…… Buy the environmentally friendly product, Have healthy environment, etc. Originally the scale was presented in a 5-point Likert-type response format from (1) "not at all important" to (5) "extremely important" with a midpoint (3) moderately important. Researcher (Royeen, 1985; Mellore & Moore, 2014) suggest that three response format with children work best because 5 point or 7-point response format was found too confusing. Therefore 3 points Likert scheme to measure responses ranging from (1) "not important" to (3) "important" was used.

Independent Variables in social category of SCT
k) Peer and Parental Influence

Salazar, Oerlemans & Van (2013) in his paper described social influence as *"change in an individual's attitude or behaviour that results from the interaction with other individuals or social group."* For assessing peer influence and parental influence of children Parent and Peer Influence (PPI) scale was used. Parent and Peer Influence (PPI) scale were developed by Wilson (2000). The scale comprises of 17 items measuring assessing peer influence and parental influence. Out of these six items for peer influence was identified namely: My friends influence my beliefs about recycling, my friends and I do not agree about sharing of toys and books, etc. Also, six relevant items for parental influence was identified namely: My parents do not influence my beliefs about the purchase of environmentally friendly products, My

parents and I have the same value system regarding sharing of toys, books with others. Initially the scale was in 7-point response format ranging from 1 for "disagree very much" to 7 for "agree very much" & midpoint 3 referring to "neither agree nor disagree" but as discussed researcher (Royeen, 1985; Mellore & Moore, 2014) suggest that 3 response format with children work best therefore three-point Likert scale anchored by 1 for "disagree" to 3 for "agree" & midpoint referring to "neutral" was used here.

Dependent Variable

a) Environmentally Sustainable Consumption Behaviour (ESCB)

Wang, Liu & Qi (2014) in his paper defined sustainable consumption as "the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations". Kaiser, Ranney, Hartig & Bowler (1999) explained environmental behaviour as the "actions which contribute towards environmental preservation and conservation." For assessing environmentally sustainable consumption behaviour few scales were developed. Maloney, Ward & Braucht (1975) developed the first measure of general ecological behaviour with 36 different behavioural items in a true/false format. The second measure of general ecological behaviour was defined by Hungerford & Volk (1990) with five subscales. Kaiser (1999) refined general ecological behaviour scale with 40 items having yes/no response format. But as all these scales were developed in adults. Another scale for measuring ESCB among students was defined by Muderrisoglu & Altanlar (2011) in his research paper and thus used for measuring ESCB in the current study also. The behavioural scale comprises of 24 items out of which 12 relevant items were extracted representing each stage of the consumption behaviour, i.e., purchase, use and dispose off. The variable was measured by asking respondent "how often have you…. (1) Bought used books, (2) Used both sides of paper to write, (3) Passed old textbooks and storybooks to others" Initially the scale was presented in a 5-point Likert-type response format (i.e., Usually, Frequently, Sometimes, Occasionally or Rarely). Researcher (Royeen, 1985; Mellore & Moore, 2014) also suggest that three response formats with children work best because 5-point response format was found too confusing. Hence, in this study, three-point response format (1) "Never," (2) "Sometimes," (3) "Always" was used in the questionnaire

3.4.2 Questionnaire

After establishing the most suitable definitions and measures for 12 independent variables and one dependent variable, a questionnaire was developed and put to pre-test and run through a pilot study. The questionnaire had a total of 82 items {environmental attitude (6 items), environmental sensitivity (4 items), environmental knowledge (6 items), environmental responsibility (6 items), environmental values (6 items), environmental concern (6 items), self-efficacy (6 items), outcome expectation (6 items), outcome expectancies (6 items), self-regulation (6 items), peer influence (6 items), parental influence (6 items), environmental sustainable consumption behaviour (12 items)}. The questionnaire was developed in two languages: first in English & then translated into Hindi. For translating in Hindi twostep process was used in which four persons (two primary school teachers and two school Principals). All four were fluent in both languages. In first step English questionnaire was given to two persons (1 Hindi primary school teacher and one school Principal) for translating it into Hindi. In the next step, Hindi questionnaire was given to remaining two persons (one English primary school teacher and one school Principal) for translating back into English questionnaire. In both these steps problems with vocabulary, the differences in interpretation were noted down and rectified with the help of three subject experts, namely, the research scholar herself, supervisor and a faculty with established understanding of child psychology and management literature.

The questionnaire was divided into two sections: the first section comprised of questions related to children's demographic information, namely, age, gender, the number of siblings, the total number of family members, mother working status. The second section comprises question-related to 13 variables. For sequencing questions, all questions were divided into four categories from very easy to very difficult depending on the one expert's perception (Dr. J.N. Baliya. Assistant professor in the department of education at the Central University of Jammu, He has ten years of research experience in working with children and has a various publication on his name) about how quickly children can answer them. The questionnaire was arranged from very easy (in the beginning) to very difficult (towards the end). A copy of questionnaires - both English and Hindi are given in the annexure 3a and 3b respectively.

3.4.2.1. Pretest of questionnaire

Pretesting of the questionnaire refers to the testing of the questionnaire on a small sample of respondents to identify and eliminate potential problems. It helps to determine how well the questionnaire works in reality. Hunt, Sparkman & Wilcox (1982) in his paper

enumerated issues in pre-testing; these problems and what was encountered along with the solutions are presented below:

a) What should specific items about the questionnaire be pretested?

The length of the questionnaire, format, sequencing, and positioning of question should be pretested. As for format, sequencing and positioning of questions have a significant effect on the responses. In all questionnaire comprises five page long having 81 questions measuring 13 variables (12 independent and one dependent). It is good to divide questionnaire into several parts and questions in each part is to be numbered. In this study, a questionnaire was split into two sections. Questions were sequenced from easy to difficult, and each question is numbered from one. As suggested by the researcher (Malhotra, 2011) vertical response columns were used for individual questions. Instructions for different questions were placed above to the questions. Reproduction of questionnaire was also checked to see if it is easy to read and answer as it should not impose strain on respondents

Respondents feel that some part of the questionnaire had the repetitive question which was making questionnaire annoying. To rectify this question was kept as such but the manner of asking was changed so as not to repeat standard part of the question. Also, related question was asked in continuation so that respondents do not feel questionnaire to be lengthy. For example: "Purchase refillable pens I will feel better and Purchase product with less packaging I will be happy" was asked as single question, i.e., purchasing products with less packaging, or refillable pens makes you feel happy

Some question required more clarification and were considered incomplete. Such questions were modified to make them complete and easily understandable. For example, "How well can you learn about recycling" was made complete by "How well can you learn about recycling of plastic bottles" Another item "My friends and I do not agree about sharing" was made complete by making it specific such as "My friends and I do not agree about sharing of toys and books"

b) What method should be used to conduct the pre-test?

For pre-testing three methods are often discussed: personal interview, telephone interview, and mall intercept. According to Malhotra (2011), a pre-test is best done by personal interview even if the actual survey is to be conducted by telephone interview or through electronic means because interviewers can observe respondents' reaction and attitudes. In this study, also personal interview was conducted so that students can be observed if they are facing

any problem while attempting questionnaire. Two commonly used procedure for pre-testing is debriefing and protocol analysis. In former, after completion of questionnaire respondents are asked to describe the meaning of each question, explain their answer and state if the encountered with any problem while answering the question. Whereas in protocol analysis respondents are asked to tell about same issues *while answering the questions.* In this research protocol analysis was followed as the interviewer was willing to observe the responses for each question and also as children may not be able to remember the difficulties that they were facing to answer the question for longer duration hence immediate feedback is the right approach for determining the problems while answering the question.

c) Who should do the pre-testing?

Malhotra (2011) states that variety of interviewer should be used to pretest the questionnaire. The project director, the student researcher who developed and adopted the questionnaire (with modifications from literature) and other key members of the research team, should conduct these interviews. This is supposed to give a good idea about the potential problems and nature of the expected data. Additionally, both experienced and new interviewers should conduct the pretest. Experienced interviewers help to perceive uneasiness, confusion, and resistance in the respondents whereas new interviewers can help the researchers identify interview related problem. For some interviewers, Hunt, Sparkman & Wilcox (1982) suggested that at least three interviewers should conduct pre-test. Following Hunt, Sparkman & Wilcox (1982) & Malhotra (2011), three interviewers were selected: student researcher herself; second, researcher's colleague from Humanities and Social Science Department of Birla Institute of Technology and Science, Pilani; third, a teacher from primary school, Bhiwadi.

d) Who should be the subjects in the pre-test?

Burger & Zaltman (1975) and other researcher (Malhotra, 2011) state that respondents in the pretest should be similar to those who will be included in the actual survey regarding background, characteristics, familiarity with the topic. In other words, respondents for the pretest and the actual survey should be drawn from the same population. Accordingly, respondents for pre-test were from class 1st, 2nd, 3rd, 4th, and 5th, and were taken from both private and government schools in Bhiwadi. During the pretest, children of all the five classes were taken as respondents and all were assisted to fill the questionnaire. It was found that children of classes 1 and 2 - of both private and government school were not able to understand the text-based questionnaire for measuring the constructs such as self-efficacy, outcome expectation, outcome expectancies and self -regulation etc. Hence this called for using

different measure than chosen scale picked from existing literature. This in turn meant development of a new type of scale for measuring these constructs. Development of a new scale was beyond the objective of our study, therefore we dropped class 1 and 2 children from our further study.

e) How large is a sample size needed for the pre-test?

Pretest sample size is small, varying from 15 to 30 respondents (Ferber & Verdoorn, 1962 (sample size 12); Boyd, Westfall & Stasch, 1977 (sample size 20) for the initial testing, depending on the heterogeneity of the target population. The sample size can increase if pre-testing involves multiple stages. Following suggestions from literature, a pre-test for the current task was conducted among 18 respondents (six for each class - 3rd, 4th, and 5th), especially as sufficient resources were available to carry out the exercise.

3.4.3 Pilot Study

A pilot study was conducted with 250 private school students and 150 government school students of class 3rd, 4th, and 5th to test the questionnaire of factors influencing ESCB (Table 15). A pilot study is considered as an essential pre-test conducted under similar conditions (Peterson, 2000). The questionnaire consists of 82 items taken from literature representing 12 independent variables and one dependent variable. Responses to these were captured on three points Likert scale. Principal component analysis was done to identify that does these items represents the same construct in primary school children also. Item reliability and composite reliability was also identified.

Table 15: Class and School wise distribution of children for pilot study

School Type	3rd class	4th class	5th class	Total
Private	84	79	87	250
Government	62	47	41	150

3.4.3.1. Reliability of questionnaire

Reliability refers to the extent to which a scale produces consistent results if repeated measurements are made (Malhotra, 2011). The reliability test was done on each construct. Item reliability and composite reliability are the measures that determined the reliability of the questionnaire. The Cronbach's alpha value determined the reliability of the questionnaire and the items of the questionnaire. The value varies from 0 to 1 and a value less than 0.6 indicates

unsatisfactory reliability. The overall Cronbach's alpha of the questionnaire is .853. The reliability measure of the questionnaire is listed in table 16. All the values are more than the evaluation criteria, i.e., 0.6

Table 16: Cronbach's alpha of all the construct of the questionnaire

S.No		Cronbach's alpha
1	**Environmental Attitude**	.628
2	**Environmental Responsibility**	.639
3	**Environmental Sensitivity**	.777
4	**Environmental Concern**	.757
5	**Environmental Value**	.676
6	**Self-Efficacy**	.774
7	**Outcome Expectancies**	.676
8	**Outcome Expectation**	.667
9	**Self-regulation**	.655
10	**Peer Influence**	.853
11	**Parental Influence**	.844
12	**Environmental Knowledge**	.642
13	**Environmentally Sustainable Consumption Behavior**	.783

3.4.3.2. Validity of the questionnaire

Factor analysis helps us to determine the construct validity of the questionnaire. It helps us to examine the empirically the interrelationship amongst the items and the construct. Detail procedure for validating the questionnaire is described below:

Factor analysis (Principal Component Analysis)

Factor analysis is a term denoted to a class of procedures used for data reduction and summarization (Malhotra, 2011). It attempts to bring intercorrelated variables together under more general, underlying variables (Hout, 1993). Factor analysis consists of following steps (Malhotra, 2011) represented in figure 11:

Step1: All the twelve independent and one dependent variable measured on an interval scale. An appropriate sample size was taken, i.e., 400 school student. As researcher states that there should be at least four times as many as an observation as there are variables. Hence the sample size was accurate. The Kaiser-Meyer-Olkin measure the sampling adequacy (KMO-test). The sample is adequate if the value of KMO is greater than 0.5. In this study, KMO value is greater than .5
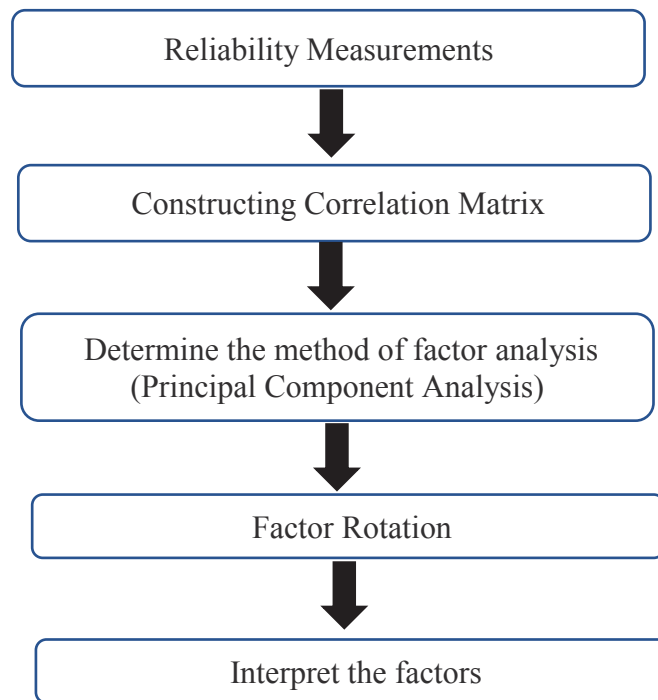
```
┌─────────────────────────────────────────┐
│        Reliability Measurements         │
└─────────────────────────────────────────┘
                    ⬇
┌─────────────────────────────────────────┐
│       Constructing Correlation Matrix    │
└─────────────────────────────────────────┘
                    ⬇
┌─────────────────────────────────────────┐
│     Determine the method of factor analysis │
│       (Principal Component Analysis)     │
└─────────────────────────────────────────┘
                    ⬇
┌─────────────────────────────────────────┐
│             Factor Rotation              │
└─────────────────────────────────────────┘
                    ⬇
┌─────────────────────────────────────────┐
│           Interpret the factors          │
└─────────────────────────────────────────┘
```

Figure 11: Principal Component Analysis Process

Step 2: Two things are important while analyzing the correlation matrix, i.e., the variables have to be intercorrelated, but they should not be the highly correlated otherwise unique contribution of variables to the factors would be difficult to determine. Intercorrelation between variables can be checked by using Bartlett's test of sphericity, which "tests the null hypothesis that the original correlation matrix is an identity matrix" This test has to be significant: when the correlation matrix is an identity matrix, there would be no relationships between the variables. In this study, Bartlett's test of sphericity was significant.

Step3: As our primary concern is to determine the minimum number of factors that will account for maximum variance in the data for use in subsequent multivariate analysis. The extraction of principal components takes place by calculating the eigenvalues of the matrix. The number of positive eigenvalues determines the number of factors/components to be extracted. In this research, Eigenvalues for the factors are, as expected in decreasing order of magnitude as we go from factor 1 to factor 13. The Eigen value for an element indicates the total variance attributed to that factor. (Details in result section 4.2). Factors with Eigen values greater than one are retained. Hence in this study, all the factors were having Eigen values greater than 1. Also as the Eigen values represent the amount of variance associated with the factor. Factors which, in total, account for about 70-80% of the variance are to be kept. In our study, all the 13 factors amount for 60.1 % variances

Step 4: Factor rotation helps us to determine the determine how the variables are correlated with factors. As we would like each variable to have nonzero or significant loadings with only a few factors. In our study varimax rotation is considered as it minimizes the number of variables with high loadings on a factor thereby enhancing the interpretability of the factors. Factor loading represents the correlation between the factors and the variables.

Step5: Identify the variables that have large loadings on the same factor. That factors are then interpreted in terms of the variable that load high on it. In this study, we can see that all 82 variables loaded on the relevant 13 factors.

Thus, from the result section 4.2.1, we can see that questionnaire is valid for all the items loaded on their related construct.

3.4.4. Sample Design, Sample Size for final study

Sampling design begins by specifying target population. Churchill (1991) described population as the aggregate of all the elements that share come the standard set of characteristics and that comprise the universe for research. The population of interest was all students of class 3rd, 4th, and 5th in private and government schools in the urban area of Bhiwadi. A list of all 84 schools (seventy-two private school and twelve government schools) primary schools in urban Bhiwadi (Alwar) was first obtained from the Block Education Office, Tijara. Schools are divided into five nodal named: Ghatal, Saidpur, Harchandpur, Santhalka and Hingla ki Dhani. Distribution of some private and government school along with some students in the schools are given in Table 17. Total population of students considered was =5782 (private school = 4655 and government school = 1127).

Table 17: Nodal wise distribution of schools

	Nodal Name	No of Schools		No of students	
		Private	Government	Private	Government
1	Ghatal	32	3	1788	252
2	Saidpur	11	2	345	103
3	Harchandpur	10	3	816	314
4	Santhalka	13	2	1455	329
5	Hingla ki dhani	6	2	251	129
	Total	**72**	**12**	**4655**	**1127**

Next step was to work on the sample. The sample is a subgroup of the elements of the population. In the present study, the sample was selected in 3 steps: first, a sampling frame was determined, then step 2 - a selection of sampling technique and finally, determining sample size. The sampling frame is a list of all those within a population who can be sampled (which essentially means a list of all elements of the population). The sampling frame was made by counting of all the students on school roles from class 3rd, 4th and 5th in private and government schools {84 schools (72 Private and 12 Government schools)} in the urban area of Bhiwadi. This list was with information obtained from Education Block office, Tijara and government website - DISE (District Information System for Education). Actual identification of the student was kept at a later stage when randomly sample units would have been identified.

Out of the two sampling techniques: probability sampling (where sampling units are selected by chance) and non-probability sampling (where sampling relies on the personal judgement of the researcher); in this research, probability sampling technique was selected due to two reasons: one, empirical nature of study and two, both population and sampling frame is precisely defined and available for the researcher. Within available probability sampling method, the stratified sampling method was used. A brief description is put here for reference: it is a two-step process in which the population is partitioned into strata. The strata should be mutually exclusive and collectively exhaustive. Every population element should be assigned to one only one stratum and no population element should be omitted. Elements from each stratum are selected randomly. An element within a stratum should be as homogenous as possible, but the elements in different strata are heterogeneous as they differ on important characteristics. It also involves a decision to use proportionate or disproportionate sampling – proportionate has been used here (relative size of each stratum in the total population was known). In this research, two levels of classification have been used: first, type of school and second, class.

3.4.4.1. Sample size determination

Sample size refers to the number of elements or units from sampling frame to be investigated in the study. Statistical studies (surveys, experiment, observational studies, etc.) are always better when they are carefully planned in many aspects, one of them being finding adequate sample size. Sample size calculation is necessary to ensure that estimates are obtained with required precision or confidence. To choose the right sample size, following formula is used as defined by Raosoft.Inc (http://www.raosoft.com/samplesize.html):

$$n = [(z^2 * p * q) + ME^2] / [ME^2 + z^2 * p * q / N]$$

Where: a) **The desired margin of error or ME (this is a measure of precision):** is the amount of error that we can tolerate. Here it is 5%.

b) **Confidence level (z-score):** It is the amount of uncertainty we can tolerate. Here it is 95% therefore z = 1.96.

c) **Response distribution (p):** 0.5

In case of private schools, population of private school students was 4655 students, with margin of error (ME) = 5% = .05, z or confidence level = 95% = 1.96 proportion or response distribution (p) = 0.5 and q= 1-p = .5

The sample size was calculated and is given below:

$$n = [(z^2 * p * q) + ME^2] / [ME^2 + z^2 * p * q / N]$$
$$n = [(1.96)^2 * .5 * .5 + .05^2] / [0.05^2 + 1.96^2 * .5 * .5 / 4655]$$
$$= [3.84 * .5 * .5 + .0025] / [0.0025 + 3.84 * .5 * .5 / 4655]$$
$$= [0.96 + .0025] / [0.0025 + 0.96/4655]$$
$$= [0.9625] / [0.0025 + .000206]$$
$$= [0.9625] / [0.002706]$$
$$= 355.69 = 356 \text{ students}$$

In case of government schools, population of government school students was 1127 students, with margin of Error (ME) = 5% = .05, z or confidence level = 95% = 1.96, proportion or response distribution (p) = 0.5, q= 1-p = .5

Sample size was calculated and is given below:

$$n = [(z^2 * p * q) + ME^2] / [ME^2 + z^2 * p * q / N]$$
$$n = [(1.96)^2 * .5 * .5 + .05^2] / [0.05^2 + 1.96^2 * .5 * .5 / 1127]$$
$$= [3.84 * .5 * .5 + .0025] / [0.0025 + 3.84 * .5 * .5 / 1127]$$
$$= [0.96 + .0025] / [0.0025 + 0.96/1127]$$
$$= [0.9625] / [0.0025 + .00085]$$
$$= [0.9625] / [0.00335]$$
$$= 287.31 = 287 \text{ students}$$

Thus, a sample size of private school and government school categories was fixed at 356 students and 287 students respectively. Taking a round figure of 362 (private school respondents) and 292 (government school respondents), surveys were conducted. two forms

received from private school category and one from the government school category were incomplete, 649 responses in total were complete. With a proportionate sampling method, class wise statistics for distribution of sample across the two types of school is provided below in Tables 18 and 19. Later table 20 was constructed to guide sampling plan.

Table 18: Class and School wise distribution of population

School Type	3rd class	4th class	5th class	Total
Private	1644	1564	1447	4655
Government	336	404	387	1127

Table 19: Percentage wise distribution of population in school and class

School Type	3rd class	4th class	5th class
Private	35.3%	33.2%	31.12
Government	29.8%	35.8%	34.3%

Table 20: Distribution of sample: school and class wise

School Type	3rd class	4th class	5th class	Total
Private	126	118	112	356
Government	87	102	98	287

A random number table was generated separately for each class of private and government school. Table was produced by calculator present at the website http://andrew.hedges.name/experiments/random/ where in the box "I want" number of required random numbers were entered for example in case of private school 3rd class 130 was entered because as only 126 students are only required but in case if the student is not present on the day when we have approached him in the school in that case that particular student was dropped and new student was selected. Such method is known as random sampling with replacement. In the box "numbers between ….. and……." number has to enter in the list from where the random number has to be selected. Hence in this study, random number of each class of both the type of schools were generated separately as given in Annexure 4 and 5

For data collection, prior permission was taken from school Principals where a short talk explained the purpose and process of involving students in particular class (which were identified in by random selection). The schedule of data collection was arranged according to both when the consent was given for (the date and time) and the optimization of travel and

another effort. Three data collectors were trained together by the research scholar over a period of three days just before the main survey and during pretest of the questionnaire. The data collectors were graduates and fluent in Hindi and Rajasthani (local dialect) languages. Two of them had previous experience in conducting similar surveys. The data collection took 20 days & data collectors and were monitored on an everyday basis. List of schools is given in Appendix 6

3.4.5. Statistical Tools and Techniques Used

For analyzing gathered data quantitatively, i.e., to see the influence of social cognitive factors on ESCB among children Multiple regression was used. Details of results with findings have been given in "Results" chapter, and the corresponding discussion is also provided in the chapter on "Discussion." Results showed that among primary school students eight factors namely parental influence, environmental sensitivity, environmental concern, self-efficacy, environmental value, peer influence, outcome expectation, self-regulation were found significant. Among private school, seven factors namely parental influence, environmental responsibility, self-efficacy, outcome expectation, peer influence, environmental value, self-regulation were found to be influential, and among government school, eight factors namely parental influence, environmental value, environmental concern, outcome expectation, peer influence, self-regulation were found to be influential. The result of the study is discussed in detail in next chapter.

3.5. Research design for identifying impact of Social Learning forms on ESCB and attitude towards ESCB

As one of the objectives of the current study is to evaluate the impact of active and passive SL forms on two variables: environmental sustainable consumption behaviour (ESCB) in children and attitude towards ESCB in the same audience. After identifying a list of active and passive methods that are perceived to be effective by teachers are quantitatively tested using the procedure described below using an experimental design (pre-post control group design). A thorough listing of active and passive learning tools cited by literature (research literature and school textbooks) and as indicated by teachers[11] (summarized in section 3.3.1, 3.3.2, 3.3.3) yielded a list of 11 active tools and five passive tools. The next task was to identify the top most effective tools - in each active and passive category as investigating the impact of

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[11] This was chiefly focussed on what teachers perceived to be an effective tool for teaching select ESCB behaviour.

each of the 16 SL tools would make the study too big regarding scope. It was therefore decided with suggestions from experts that three top-most tools in each of active and passive category would be taken.

For identifying top three most perceived effective method (in each active and passive), a histogram of frequencies was drawn. These frequencies were identified from research method described in section 3.3 and show how teachers have responded to which tools are appropriate to teach students of their class about select ESCB behaviours. Results revealed that the most perceived to be effective methods were video, demonstration and pausing lecture in the category of active tool, and book, lecture, poster in passive tools category. For each of these six tools, intervention design was the next step. The theoretical framework for powering design of interventions was Social Cognitive Theory as explained in the chapter on a review of the literature. 12 constructs comprising cognitive factors, social influence, and behaviour were kept in consideration so that all of them are appropriately incorporated (same is described in detail in following passages). Each of the six interventions was designed for a classroom-based, group setting and was designed to be conducted in four sessions of 50 minutes each. The theme of the intervention was designed to focus on promoting ESCB or environmental sustainable consumption behaviour. To measure the impact on attitude towards ESCB and ESCB itself, an experimental, pre-test-post-test design was used.

3.5.1. Intervention design

Review of literature on intervention design, lead to an important conclusion: that intervention plans are built on design factors, and later the designs must be transformed into practical and acceptable actions. Intervention design is based on a consideration which requires professional judgment. This study followed Barnett, Bell & Carey (1999) three steps for designing an intervention**: 1) defining and clarifying a problem behaviour (through waking day interview) and targeted variable, 2) designing an intervention, 3) executing the intervention**

3.5.1.1. Defining and clarifying a problem behaviour and the targeted variable,

Concerning this, the first step of the researcher identified the problem behaviour (which can be identified through waking day interview[12] and problem-solving interview[13]) (Barnett, Bell & Carey, 1999) related to ESCB and a suitable, feasible solution. For **identifying problem behaviour** the researcher interviewed 50 teachers (distribution of teachers is represented in table 21) with an open-ended questionnaire known as problem-solving interview designed by Barnett, Bell & Carey (1999). A questionnaire was adopted in context to sustainable consumption behaviour from the book written by him, and no modification was done Over all questionnaire consists of 10 open ended questions such as a) define problem behaviour, prioritize multiple problems, define the severity of problems, and so on. The questionnaire is given in detail in Annexure 7, 8. A questionnaire was pretested by nine teachers to check if they face any problem in understanding the questionnaire. The teachers were asked about the most prominent problem behaviours in children and places of occurrence concerning environmental issues. Teachers were also asked about their opinion on most feasible and possible solutions for these problems. After reviewing the responses from teachers, the researcher identified the most frequently occurring & prominent problem behaviours (sustainable consumption behaviour that was told by maximum teachers such as not using both sides of the paper, not sharing stationery items, books with others, etc.) as well as variables that should be targeted to solve the problem. Results for this part are provided in the chapter on results.

Table:21 Distribution of teachers for identifying problem behavior

School	Class			
	3	**4**	**5**	**Total**
Private	13	14	14	41
Government	3	3	3	9
Total	16	17	17	50

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[12] It provides a detailed description of behaviours within settings, It is used to help select targeted variables, planned activity and environments to support intervention

[13] It has mainly two functions: scanning problem behaviours and scanning problem behaviours and circumstances, and analysing problem situations in depth

3.5.1.2. Designing an intervention

In this second step, the educational components emphasized on the focus on 12 social cognitive constructs (under cognitive factors, behavioural factor, and environmental factors). These constructs were expected to be a significant influence in bringing about a positive impact on both dependent variables: ESCB and attitude towards ESCB and therefore the content of the intervention was developed to emphasize on these 12 constructs of SCT. It was also found that research studies for identifying and/or developing effective intervention (for eg. for changing health behaviour issues, (Leutzinger & Newman,1995; Welch & Kuhling, 2009; Porcheret, Main, Croft, McKinley, Hassell & Dziedzic, 2014) where researchers have reasoned that intervention spanning five, six or eight sessions over the same number of weeks, could lead to the positive results. This gives some indication of the gestation period of an intervention tool. From the literature review section 2.4. Five sessions were considered to be appropriate for the audience at hand. The five weeks would include pre-test and post-test phases as well. Accordingly, an exercise to relevantly pair constructs was taken up.

The table 22 shows how constructs were clubbed to be delivered in five classrooms based sessions. After doing a preliminary clubbing based on findings and logic literature, the same was shared with three experts for their feedback in a document which explained how clubbing was arrived at especially with literature support. All experts seconded the pattern, and therefore same was followed.

Table 22: SCT construct clubbed for five classroom sessions

	Variables Club Together	Reason	Reference
1	Environmental Value (EV), Environmental Concern (EC), Environmental Attitude (EA)	Researchers regard that EA includes EV and EC. EV leads to EA	Wang (2014), Schultz(1999)
2.	Environmental Sensitivity (ES), Environmental Knowledge (EK), Environmental Responsibility (ER)	ES is an important variable in EK. ES is a predisposition to take responsible environmental action. Sensitivity is associated with significant life experiences ER must include EK, ES, knowledge of issues, investigation skill and feeling of effectiveness	Wang(2014) Erdogan, (2012)

SCT specifies how following variables relate to each other. Self-efficacy (which stems from personal variables including, among others, the individual's age, gender, and socioeconomic status [SES], and from environmental variables including social support) is the prominent social cognitive determinant of consistent behaviour. Stronger efficacy beliefs lead individuals to expect to reap the benefits and avoid the difficulties associated with behaviour. Individuals with higher self-efficacy and more favorable outcome expectations will ultimately be more likely to implement the self-regulatory strategies essential to adopting and maintaining behaviour patterns. (Anderson,2007)

	Variables Club Together	Reason	Reference
3	Social Influence (Peer Influence & Parent Influence), Self-Efficacy (SE) Self-Regulation	Change in individuals attitude or behaviour that results from the interaction with other individual or social group Individual perception about the ability to bring change through his or her behaviour. Beliefs that one can successfully execute the behaviour. Within SCT, self-efficacy and out- come expectations are posited to influence behaviour directly and through the development and use of self-regulatory behaviours	Anderson (2007)
4	Outcome expectation, Outcome expectancies	Social, physical, and self-evaluative outcomes expected of behaviour are dependent on the individuals' efficacy beliefs and serve as incentives (or disincentives) for behaviour. They are the expected benefits and costs of performing a behaviour. It is the value a person places on a particular outcome.	Anderson (2007)

Content of Social Learning Tools

a) In the **first week**, children were informed about environmental problems such as pollution, Global warming, etc. and their consequences. This step was aimed at

increasing the children's awareness of environmental problems. As in this week, we have to target three constructs (Environmental Value, Environmental Concern, and Environmental attitude) that are responsible for enhancing ESCB. Interventions of this week comprise of content that could focus on worries, likes, dislikes related to environment and beliefs a person holds regarding environmental related activities. For example concern towards pollution because of excessive consumption of products such as the use of plastic bags while shopping, not sharing clothes and old toys, throwing household garbage into ponds, river, etc. were shown in the intervention. Also, what are the views of most people regarding these consumption activities were presented and how one can feel happy by adopting 3R strategy in their daily life routine

b) In the **second week**, the other three constructs that were targeted were environmental sensitivity, environmental knowledge, and environmental responsibility. Interventions of this week comprise of content that could enhance the knowledge and awareness regarding various environmental problems that are caused because of daily human activities. Also, how human is responsible for the damaging environment by their daily consumption activities. For example, purchasing more packaging products, using use and throw products in day to day life because of which there is an increase in trash everywhere. Intervention showed what is the individual responsibility regarding preservation of the environment and if not taken seriously how will it damage our earth and our future. Intervention enhances knowledge regarding 3R's which can help in reducing pollution, garbage. Various examples of 3R's were introduced in the intervention which can reduce our daily consumption.

c) In the **third week**, an intervention focused that how the influence of peers and parents could enhance ESCB. Children learn through observation (Bandura, 1986; Piaget, 1959). Therefore by observing how their parents decide their consumption activities, children also behave similarly. The intervention focused on how parents can perform various sustainable consumption activities by adopting 3 R's in their daily routine. For example: carrying cloth bags while going for shopping, purchasing products with less packaging, purchasing products in the refillable container. Intervention gave various examples which a child can perform quickly and hence can reduce a significant amount of wastage and thus participate in cleaning environment. It helped in enhancing self-efficacy of an individual. Interventions also introduced how an individual should set a

goal in their daily life routine for reducing wastage and causing less pollution. For example, child setting a goal of wrapping a gift or putting a cover on their books and notebooks with the help of the newspaper, sharing their toys and stationery items with their friends.

d) In the **fourth week,** the children were informed about the outcome of the consumption activities they are performing in their daily life. How by adopting 3R's (Reduce, Reuse and Recycle) strategies in daily routine can reduce wastage on earth. How one can value these consumption activities by adopting them in their life style. Children were encouraged to value the outcomes of these 3 R's by defining various advantages associated with them. For example purchasing less packaging products reduce trash, giving a newspaper, plastic bottles for recycling can reduce the wastage. By valuing these outcomes will help them to inculcate such behaviour in them and hence will reduce the rise of wastage on the earth.

The active and passive methods based intervention applied in the study was targeted towards ESCB: purchasing cloth bags for shopping, using both sides of the paper, throwing used paper in recycle bin. Promoting all these actions seemed possible because non-sustainable alternatives were available for these behaviours. Execution of these active and passive methods intervention took place in English & Hindi in a classroom setup.

3.5.1.3. Executing the Intervention:

For implementing the six interventions in the field, the following common components were used/carried out for each one of them:

a) Deciding on the scales for measuring the two dependent variables, namely, attitude towards ESCB and ESCB itself

b) Pre-testing 'Attitude towards ESCB' scale & ESCB scale

c) Pretesting each of the interventions with the target audience.

d) Organizing for material and setting to conduct interventions.

e) Bringing the set up for intervention and a control group and rationalizing its need

f) Actual selection of units from population to make the sample

g) Selection of sample size

h) Implementing the intervention starting with a pre-test to measure two dependent variables and finishing all five sessions for intervention over five weeks culminating with post-test for the two dependent variables.

Each of these steps/tasks have been described briefly below.

3.5.1.3.1. Measures of 'attitude towards ESCB' and ESCB

Two things need to be noted at the outset of this section. First, while the measure for ESCB was considered for objective 2, where the influence of SCT factors was investigated on ESCB, it must be noted that a self-assessment type of scale where children gave a self-assessment of their behaviour. However, for objectives 3 and four which are being tackled in this part of the report were written to investigate the "impact" of interventions on two dependent variables, namely, attitude towards ESCB and ESCB. Secondly, attitude towards ESCB was measured for the first time. Therefore an appropriate scale had to be located. A brief overview of these two scales is being given below.

a) ESCB scale

Many studies choosing to measure the impact of the intervention on behaviour have used a simulated environment concept (Hanss & Bohm, 2012), where respondents are exposed to a real life-like situation where they are instructed to get involved in a set of activities, and their behaviour is noted by observation. As Hanss & Bohm (2012) in his study instructed, individual similar steps were carried out in this study. Participants were informed about the aim of the study that we wanted to learn about daily consumption behaviour. No reference about the term sustainability, sustainable consumption, conventional consumption was revealed. Also, children were not informed that they had been observed by someone while performing the activities.

The scale used in this study is based on following studies which have used similar/same scale: Geller in 1973 conducted a study by observing each patron who purchased soft drinks was a returnable or nonreturnable bottle customer. Durdan, Reeder & Hecht (1985) in his study also observed litter thrown by each to see the effectiveness of prompt as an intervention.

In each of the two parts of the study (pre and post-test), the children were presented with three pairs of consumption behaviours, comprising one sustainable and one non-sustainable alternative for similar consumption behaviour. Three pairs of such behaviours corresponding to 3 stages of sustainable consumption behaviour were created, namely, the following three:

(i) 'Purchase' (purchase of a cloth bag for shopping vs. purchase of plastic bag for shopping {price was same for both types of bags})

(ii) Use (using another side of paper to draw vs. using/asking for another paper to make the 2nd drawing)

(iii) Dispose-off (throwing used paper into trash cans vs. throwing into recycle bins)

Participants were taken through these three situations in the same sequence as mentioned above and were required to choose between the sustainable and non-sustainable option of each consumption behaviour. In the process, the children were provided with a budget of Rs. 20/- by researchers to purchase a cloth bag for shopping, the size and price of each bag were same. The choice made by each child was observed and noted by a field investigator helping the researcher to record.

Thereafter, the children were asked to draw/ paint on one side of the paper and make a figure big enough to cover almost the entire sheet; later they were instructed to make the second drawing as big as the first one – simultaneously, it was observed and note for each child whether the child made the 2nd drawing on the same sheet of paper or asked for another sheet.

In the third situation, children were required to throw the used paper into either of the two available labeled trash cans - one was labeled as dustbin while the other was labeled as recycle bin). Observer monitored each participant and noted the participants' behaviour lie in previous two stages. An efficient coding technique was developed. In all cases, each individual was used as the level of analysis. A coding sheet evolved allowed the observer to quickly record behaviour (sustainable or conventional), name, gender. The scoring for the participants was done as follows:

(i) Purchase (purchase of a cloth bag for shopping vs. purchase of plastic bag for shopping: If an individual purchases cloth bag for shopping score "1" was given to that individual. Whereas if individual purchases plastic bag score "0" was given to that child

(ii) Use (using another side of a paper to draw vs. using/asking for another paper to make the 2nd drawing): If an individual used another side of paper to draw second drawing score "1" was given to that individual. Whereas if individual asked for another sheet for drawing score "0" was given to that child

(iii) Dispose-off (throwing used paper into trash cans vs. throwing into recycle bins): Similarly, when an individual was asked to throw used paper, an individual scored "1" if he/she has thrown it in recycle bin. Whereas if an individual has thrown it in trash can score "0" was given to that child

Hence the number of sustainable options chosen per study part (minimum zero, maximum three) was recorded for each participant and used in the data analysis. Both in the pre-test stage and post-test stage all participants participated in all the three-sustainable consumption behaviours.

b) Attitude toward ESCB scale

For assessing the environmental attitude towards ESCB of children, Children attitudes towards the Environmental scale (CATES) was used in this study. This scale was developed from the structure and content of an adult scale designed by Diamond & Musser (1999). It assesses the degree to which children's attitude is pro environmental. CATES scale comprises of 25 items measuring students attitude towards environmental issues. Out of these eight relevant items for this study was identified (e.g., use both sides of papers, recycle things, give toys to other children, etc.). When CATES scale was administered, children read a description of two different types of children, for example, some children use both sides of paper when they draw or write, but Other children use only one side of the paper when they draw or write. Children were instructed to choose which of the two groups of children described in the statement they are most like. Under each statement, two points are present for marking one for sometimes and another for always. Hence there comes 4 points where one stands for least attitude and four stands for high attitude towards environmental behaviour (Annexure 9). Both in the pre-test stage and post-test stage all participants were surveyed for recording their attitude scores.

3.5.1.3.2. Pre-testing 'Attitude towards ESCB' scale & ESCB scale

Pre-testing of "Attitude towards ESCB" scale was done on 12 school students (4 students from each class, i.e., 3rd, 4th and 5th). Initially, students were not able to understand the questionnaire as it comprises two levels of judgment 1) selection of picture and 2) after selection of picture selecting an option from always or sometimes. Therefore, before attempting a questionnaire student were instructed in the form of example about how to attempt a questionnaire. An example is: Students were asked that by using which hand they eat their food. There are two options 1) right and 2) left. After selecting an option, they were asked do they always eat with that hand or sometimes. After answering this question, they understood how to attempt a questionnaire. Similarly, for measuring ESCB observation method was used where 35 students were selected for measuring the effectiveness of video on ESCB. As our main aim was to check how students understand our instruction, so the selection of intervention was not important. The videos were used to encourage individuals in performing sustainable consumption behaviour such as the purchase of cloth bag, using both sides of the paper, disposing trash into recycle bin Students were instructed for performing each behaviour. After analyzing the results, we found that instruction about using paper was not clear and all the students used both sides of paper hence we have modified the instruction of using both sides

of the paper.

3.5.1.3.3. Pre-testing each of the intervention with the target audience.

To test the effectiveness of the active and passive methods of intervention, it was necessary to check how well the information provided in these interventions were conveyed. To this end, all the five intervention were shown to 54 children (9 children for each active and passive intervention separately) of classes III to V. They were asked specific questions at the end of each intervention.

The first part of each intervention was about environmental problems; the questions asked were aimed at finding out the degree to which they were informed and how they felt about the problems (i.e., air pollution, water pollution, plastic wastage and global warming) (stated in Annexure I (Hanss & Bohm,2012)). These questions were on a three-point Likert scale ranging from 1 = poorly informed to 3 = well informed. It was found that the participants were well informed about questions related to air pollution, water pollution and plastic but less informed about global warming

The second part of each intervention (Environmental Sensitivity, Environmental Knowledge, Environmental Responsibility) showed how human beings were the main cause of the problems mentioned above and what is their responsibility towards the environment. Participants were given ten questions (stated in Annexure I (Hanss & Bohm, 2012)) about the topic covered in intervention and asked the degree to which they agreed with the statements - a 3 point Likert scale where 1= disagree and 3= agree. Children agreed most with the statement that trees help in cleaning the air by breathing in the dirty air called CO2, and that the 3Rs helped in reducing pollution.

The third (Social Influence (Peer Influence & Parent Influence), Self-Efficacy and Self-Regulation) and fourth part (Outcome expectation and Outcome expectancies) of each intervention showed how parents and peers could enhance sustainable behaviour, also what are the outcome expectation of such behaviour. Intervention informed children about various environmentally sustainable consumption activities that help in reduction of environmental problems. This part of interventions depicted how the 3 R's help in reduction of environmental problems. At the end of the intervention, the participants were asked about whether they could do something while the current week to contribute to the cause of sustainable development so that children can have belief in their capabilities of performing such behaviour. Most frequent

answers received were: writing/drawing on both sides of the paper, planting trees, switching off lights and avoiding the use of plastic bags, sharing, and donating old clothes and toys.

3.5.1.3.4. Organizing materials and setting to conduct an intervention.

The participants of class 3rd, 4th and 5th were present in their respective classrooms for the study. Each class has a seating capacity of 40 children. The class was set up such that it served as a platform for the purchase of products by the participants, provided trash bins to dispose of waste, paper sheets for drawing along with facilities for running the intervention (video on computers[14], display of posters[15], demonstration[16], books[17], lecture). During the introduction process, the children were informed about the duration and options before them during various tasks of the study (i.e., "learning about children's preferences related to consumption"). Classes with projector were made available where the video was shown as an intervention. Children of classes where the demonstration was the part of intervention were made sit in a group of three. Each group was provided with a material of the activity that was the part of the demonstration. Each student of the class where reading a book was used as an intervention was given a separate book. Classes, where the poster was the intervention, were provided with the poster which was hanged on the wall of their classroom.

3.5.1.3.5. Set up for intervention and control group and rationalizing its need

The study comprised of 5 parts; each study part is provided in table 23. Part 1 served as the baseline measurement (pre-test). In this part, participants were first asked to purchase a shopping bag from one of the two choices: cloth bag vs. plastic bag. After that, they have been invited to draw on a paper sheet. They were then asked to throw the paper into either one of the trash cans labeled 'Dustbin' and 'Recycle Bin.' In parts 1, 2, 3 and 4, different school participants were given different active and passive method intervention (described in section 3.4.1.). Part 5 was similar to Part 1. Part 5 was designed to serve as the posttest measure of sustainable consumption behaviour. In Parts 1 and 5, all participants were measured for all categories of ESCB and attitude towards ESCB.

As this study was conducted in a classroom setting for five weeks, it controls significant

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[14] Videos were 30 minutes long. Showing various causes of environmental problems and ways to solve those problems by adopting sustainable consumption behaviour
[15] Posters were of size 130cm * 125 cm depicting various ESCB
[16] It comprises of 35 minutes long activities concern with consumption problem and ways to solve these problems.
[17] Books were of approximately 10-15 page focusing various environmental issues and ways to solve these problems.

extraneous factors that might be responsible for the post and pre-test difference aside from the experimental variable, i.e., Active and Passive method intervention.

Table 23: Overview of the procedure and number of participants

Study part	Intervention (n=635)
Part 1 (pre-test)	This was pre-test stage where all participants were taken through situation: each offering them chance to choose between sustainable vs., non-sustainable option **Intervention step 1**
Part 2	**Intervention step 2:**
Part 3	**Intervention step 3:**
Part 4	**Intervention step 4**:
Part 5 (post-test)	This was post-test stage where all participants were again taken through exactly same 3 situations as in step 1: each offering them chance to make choice between sustainable vs, non-sustainable option.

This one-group pre-test - post-test control group design study controls all the extraneous error and hence controls the internal validity of the experimental design. A brief description in this regard is given here:

- **History:** There was no specific event such as environmental day celebration, cultural activities, etc. occurred between the pre-test and post-test. Thus, events which may have contributed to change in pre-test and post-test score of experimental group would also produce the change in pre-test and post-test score of control group

- **Maturation:** There was no change in the individual's status, the respondents were more responsive to behaviour in experiment during post-test than at pre-test

- **Instrument:** There was no difference in measuring instruments used for assessing behaviours. Thus, instrumentation variation possibilities were taken care of.

- **Statistical Regression:** As according to Churchill (1991), a threat to statistical regression occurs when the test units may be extreme by happenstance or selected because of their extreme position. But in this study for selection of children were made from all the randomly selected schools were taken (and no such basis as best or worst child selection based on their ESCB tendencies was employed); therefore, occurrence of extreme test units by happenstance had little possibility.

- **Selection Bias:** Schools were randomly selected for the allocation of intervention. Also, interventions were randomly allocated to 3rd, 4th and 5th class of selected schools. All the children of 3rd, 4th and 5th class of selected schools for the experimental design

were exposed to intervention which does not lead to any selection bias.

- **Mortality:** As already discussed, the experiment was conducted in a fixed time span of 5 weeks with children and prior parent's permission was taken so there was no experimental mortality in the sense that no participant left the experiment in mid-way.

- **Testing Effect:** Threat of testing effect (also called carry-over effect) cannot be ruled out completely. Design elements given below were specially planned and implemented during the exercise: a) while recording the observation about child's behaviour, no indication (via verbal, facial expression or body language) was communicated to them to indicate if enacting/ adopting a sustainable option was more preferred or more appreciated. b) children had no access to record of their behaviour. c) During the intervention, the exact options that were used in pre-test and post-test were not explicitly considered. These were expected to bring down testing effect if any to their minimum.

3.5.1.3.6. Selection of units from population to make the sample

The population of interest was all schools in the urban area of Bhiwadi under Municipal Council of Bhiwadi. The total population of schools was 84. 12 Government school and 72 Private schools. The task of identifying sampling frame was taken first. A sampling frame is a list of potential sampling units. Sampling frame development normally involves two step 1) Selection of primary units and 2) selection of elementary sampling units within the primary units. Development of sampling frame involved is discussed below:

Step 1: List of schools from block education office, Tijara was taken as primary selection units and enumerated. After examining the board of each school total 12 government schools and 72 private schools were identified.

Step 2: Seven schools (six for active and passive intervention and one for the control group) which have all the three primary classes (class 3rd, 4th, and 5th) were identified using random sampling method.

Step 3: Students from these schools were selected as final sampling units for conducting the survey.

School Selection

Where (at which school), when and how the researcher would experiment with determining the effectiveness of active and passive method was designed next. Seven private schools (Modern Academy, Nitin Public School, Little Angels, Ravinder Public School, Prem Public school, Central Academy, Paradise Public School) and seven government school (GGSSS, Bhiwadi; GSSS, Bhiwadi; GSSS, Nangaliya; GSSS, Milakhpur; GSSS Saidpur;

GSSS, Sathalka; GSSS Alampur) were randomly selected from the list of 84 schools (Annexure 6). Out of all the schools, one school from private and one from the government took as a control group. 3rd, 4th and 5th classes of each school were randomly allocated active and passive methods. Distribution of active and passive method is given below in Table: 24

For solving when and how the experiment should be conducted, on once randomly chosen a day out of six days on which researcher would stay in that school for three periods to carry out an experiment in three classes of that school. For choosing periods day combination, a matrix was performed (Table 25) with days of weeks on the y-axis and eight periods of teaching on the x-axis. With eight periods and six days a week, a matrix with 8*6=48 cells were made. These cells were numbered from 1 to 48 starting from the first cell. Researchers visited principal of each school mentioned above and requested for three simultaneous periods in class 3rd, 4th, and 5th in any of the given days for five weeks from November 2016 to December 2016. Principals of each school showed their consented and approved to experiment for five weeks. As shown in Table 25 the particular intervention was performed in particular class of particular school.

Table 24: Allocation of intervention to particular class of school

	Private School					Government School				
	Random school (1-72)	School Name	3	4	5	Random school (1-12)	School name	3	4	5
1	21	Modern academy	4	7	5	9	GGSSS, Bhiwadi	3	4	5
2	51	Nitin Public School	6	2	2	2	GSSS, Bhiwadi	6	6	1
3	38	Little Angels	7	6	1	11	GSSS, Nangaliya	1	5	3
4	64	Ravinder Public School	2	3	3	12	GSSS, Milakhpur	2	3	2
5	23	Prem Public school	1	1	4	7	GSSS Saidpur	4	4	4
6	2	Central Academy	3	4	7	1	GSSS, Sathalka;	7	2	5
7	24	Paradise Public School	5	5	6	8	GSSS Alampur	5	1	6
Where 1 = Video, 2 = Demonstration, 3 = Pausing lecture, 4 = Reading books, 5 = Lecture, 6 = Poster, 7= Control group										

Table 25: Visit of researcher for intervention in particular class of a school

PERIOD DAY	1	2	3	4	5	6	7	8
MON	P134	P147	P155		G735	G133	G144	G155
TUE		P236	P242	P252	G741	G236	G246	G251
WED	P337	P346	P351		G756	G331	G345	G353
THU	P432	P443	P453	P745		G432	G443	G452
FRI	P531	P541	P554	P756		G534	G544	G554
SAT	P633	P644	P657	P735		G637	G642	G655

Where P134 represents 1st private school third class fourth intervention; P147 represents 1st private school fourth class seventh intervention; P155 represents 1st private school fifth class fifth intervention and so on. Similarly, for G133 represents 1st government school third class third intervention; G144 represents 1st government school fourth class fourth intervention; G155 represents 1st government school fifth class fifth intervention

Each class period was 50 minutes long. Each stage of interventions was carried out for next five weeks. Same time table for allocation of intervention to school was followed as of week one.

3.5.2. Statistical Tools and Techniques Used

For analyzing gathered data quantitatively, i.e., to see the impact of Social learning methods on ESCB and attitude towards ESCB ANOVA and paired t-test were used. Details of results with findings have been given in "Results" chapter, and the corresponding discussion is also provided in the chapter on "Discussion." Results showed that among active methods were the most effective methods for impacting both ESCB and attitude towards ESCB. Whereas among passive methods effective only in private schools.