DEVELOPMENT OF TOY USAGE INDEX FOR CHILDREN WITH DEVELOPMENTAL DISABILITIES

One can tell about a person by the toys & playthings that one keeps….!

Summary Report

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DEVELOPMENT OF TOY USAGE INDEX FOR CHILDREN WITH DEVELOPMENTAL DISABILITIES

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3. Implementing Institution AIISH, Mysore

4. Duration of the Project 12 months

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9. Objectives as approved in the RAC Meeting

1. To estimate a functional-utilitarian toy usability index based on reports from significant others as contemporary benchmarks for the targeted children with developmental disabilities.

10. Remarks received during mid-term review of project progress:
(Copy of the remarks from coordination section with authenticated signature to be enclosed)

Nil

11. Modifications of original objectives as approved during mid-term review, if any, while implementing the project and reasons thereof
(Copy of the remarks of mid-term review from coordination section with authenticated signature to be enclosed)

Nil

12. Research work flow in detail giving full details of experimental set up, methods adopted, data supported by necessary tables, charts, diagrams, photographs, videos and digitized documents, Appendices showing materials developed/adopted in the study, if unpublished, as and when applicable

Details enclosed in the PROJECT REPORT

13. Detailed analysis of results indicating contributions made towards enhancing the status of knowledge in the subject

Details enclosed in the PROJECT REPORT

14. Conclusions summarizing the achievements and indications of scope for future work

The contemporary scenario on availability of toys, its usage, purchase and procurement against various types of disability as well as typical children is reflected before deriving and developing baseline bench marks or tentative estimates on contemporary as toy index. Toys are argued as a matter of child rights rather than as dispensable option to appease them. The need for toys as informal, individualized, developmentally appropriate, activity-oriented, learner paced, ecologically interactive and educational interventions is highlighted for children in the country. Measures to overcome the scarcity of toys and/or mean for getting over their unaffordable costs is recommended by establishing toy testing outlets, toy safety certification agencies, toy libraries and lending corners exclusively for CWDD-a concept almost unheard but required so badly in our country.

15. Acknowledgements to funding source, participants and other supports

Source of funding, participants in the study and sanctioning authorities acknowledged in the research publications

16. S&T benefits accrued:

(i) List of research publications with complete details on title of paper, authors, year, name of journal, volume, number, pages, ISSN.

TWO (in press)

(ii) Manpower trained in the project

(a)	Research Scientists or Research	NIL
(b)	Other Technical Personnel Trained	NIL

(iii) Products developed, if any

NIL

(iv) Patents taken, if any

NIL

(v) Institutional/regional/national/international beneficiaries to be clearly indicated

NOT APPLICABLE

17. Abstract of the project for inclusion in the Annual Report/Website (300 words in the following format)

(i) Objectives:

The generic aim of this inquiry was to explore the role and relationship of toys vis-à-vis children with developmental disabilities. More specifically, it sought to develop an empirical taxonomy of toys, develop a toy index on identified parameters, and examine the knowledge, opinion or attitude about toys from parent reports as

contemporary benchmarks for the targeted population.

(ii) Design

A cross sectional exploratory survey design was employed in this study by use of open ended interview techniques, field visits, direct observation semi-structured data probed, and questionnaires for data elicitation On various aspects of choice, safety, handling, accessibility, availability or provision for toys on a sample of 267 children distributed across gender and age groups below six years drawn from varied clinical conditions and socio-demographic backgrounds. The responses were recorded verbatim before being codified, categorized, compiled, collated and analyzed. Descriptive as and inferential statistical procedures and content analysis was used.

(iii) Results

Results arrive at an empirical taxonomy on the nature, types and extent of toys, show poor awareness, ill formed opinion and not-yet crystallized attitudes of parents on matter of toys vis-à-vis children. This is amply illustrated as an impoverished toy index. The findings are presented and discussed in the light of a need to raise a host of problems and issues on this important theme including the need for expanding Toy Based Education.

(iv) Conclusions

The implications for upgrading informal, individualized, developmentally appropriate, activity-oriented, learner paced, ecologically interactive and play-based interventions for children with developmental disabilities is highlighted with appropriate tips and suggestions.

18. Copy of Ethical Committee Report, if any, to be enclosed

ENCLOSED

19. Plagiarism report to be enclosed

ENCLOSED

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Executive Summary

Toys are an integral ingredient in the lives of children. They are enabling devices. They contrast assistive devices made available for children or adults with sensory impairments. Although inter-related, distinctions are made between play, games and toys. This cross sectional exploratory study surveyed the role and relationship of toys vis-à-vis children with developmental disabilities. More specifically, it sought to delineate an empirical taxonomy of toys, examine parent/caregiver knowledge, opinions and attitudes about toys, their procurement, investment, and use of toys for children with developmental disabilities. Various notions on choice, safety, handling, accessibility, availability or provision for toys, their functional-utilitarian value were attempted to be studied as contemporary benchmarks for the targeted children in this study. A sample of 267 children distributed across gender and age groups below six years drawn from varied socio-demographic backgrounds were recruited in this investigation. Both, formal and informal open ended data elicitation tools are scheduled to be used. Exploratory interviews with significant others, field visits and observation, parent reports were employed to elicit as much or all possible information on toys vis-à-vis children with developmental disabilities. The responses were recorded verbatim before being codified,

categorized, compiled, collated and analyzed. Descriptive as well as inferential statistical procedures and content analysis was used. The findings of this study throw light into the rather poor awareness, ill formed opinion and not-yet crystallized attitudes of parents or caregivers regarding the matter of toys vis-à-vis children with developmental disabilities. This is amply illustrated in the form of an impoverished toy index measure derived from the quantitative data in children below six years across a variety of developmental disabilities. The findings are presented and discussed in the light of a need to raise a host of problems and issues on this important theme. The implications for upgrading informal, individualized, developmentally appropriate, activity-oriented, learner paced, ecologically interactive and play-based interventions for children with developmental disabilities is highlighted with appropriate tips and suggestions.

The Report

1.0 Introduction

The terms ‘sports’, ‘games’, ‘play’, or ‘toys’ are commonly dumped under the paraphernalia of extra-scholastic endeavors in children. In that sense, they are ‘additional’ or ‘secondary’ to some other presumably or more ‘primary’ educational activity that is mandated for children. This view has percolated into the curriculum planning, programming and protocols meant for even the so-called ‘special education’ of children with developmental disabilities (CWDD).

Developmental disabilities refer to a heterogeneous group of who are "at risk" to develop disabilities and also those with permanently handicapping conditions seen in children during their preschool years. A WHO report suggests 5.21 per cent of population in developing countries is disabled. This measures to a colossal 50 million persons with disabilities in our country. There is some work done and made available on what could or should be taught to CWDD. There is some work on how it should be taught to them. Unfortunately, serious research on what is deemed as ‘extra-curriculum’ activities for these children has never been in focus. On the contrary, these children actually require greater

educational inputs via individualized, informal, play-driven or functional activities instead of a rigorous, formal, classroom or curriculum based teaching (Venkatesan, 2015a; 2015b). There are some ongoing efforts in the direction of organizing events like ‘special’ arts, sports or games for CWDD. Some empirical observations have been recorded on or about play patterns, types, features or involvement in these children against their typical peers. However, research on toys and CWDD is low or almost negligible (Lieber & Beckman, 1991; Rubin & Howe, 1985).

The role of toys in the discovery of the world around, as a wonderful outlet, as means to inspire curiosity to explore, provide opportunities for social and emotional growth, or stimulate children's intellect, imagination and creativity is widely acknowledged (Tomopoulos et al. 2006; Goldstein, 1994; Kapellaka, 1992; Harley, 1990; Sutton-Smith, 1986; Shopper, 1969). While research on some aspects of toys with reference to typical children is available, play behaviors of children with developmental disabilities in the context of toy use is minimally explored (Khoshali, 2013; Venkatesan, 2012; Khoshali & Venkatesan 2007; Venkatesan, 2000; Malone & Stoneman, 1995; Mc Conkey & Martin, 1983).

2.0 Definition of the Problem

The beneficial role of toys in amelioration of children is conceded. Among the listed benefits of using toys with children are that it has recreation, educational and entertainment value, fosters social skills, sharing, ownership, sense of responsibility, spirit of cooperation and competition, teach rules in play, instills discipline, incite motivation, curiosity and encourage creativity. It is believed to have functional-utilitarian value in so far as it improves psychomotor speed, agility, power, muscular strength and coordination. It offers sensory and cognitive stimulation. Some toys encourage nurturance through the learning of domestic or household skills. Others promote scientific reasoning and exploration, number concepts and problem solving strategies, musical awareness, and pre-literacy experiences. When used judiciously, toys can also tutor safety skills (Lear, 1996; Giddings & Halverson, 1981).

Despite this long list of merits, use (or overuse!) of toys with children is also fraught with dangers, demerits and drawbacks. It can spoil the child, make them overly acquisitive, and make them feel entitled. Some children may turn disorganized with many toys littered all over and around them. Over use of some types of sedentary toys may reduce a child's physical movements and leave them

solitary, asocial, without group engagements, decreased interpersonal communication and overweight. Gadgetry driven electric or electronic toys may prevent them from playing with everyday objects or lead to make idiosyncratic usage of them (as in children with autism) and create sensory overload (Riddick, 1982; p. 149).

Toy availability, ownership and use are all different things. One is unsure whether these children are indeed made available such play materials that they are entitled. In the context of CWDD, the chances are that they might not be provided toys at all given their generally poor past behavioral record of apparently limited repertoire of responses, lack of unprompted reciprocity, condensed curiosity, diminished diversity, unappealing monotony, and failure to demand for toys. There are and can be questions even on how they are used (manner of usage), how long they are used (duration of usage), how many times it is used (frequency of usage) or whether they are used at all. Toys are sometimes kept away from children since it might be broken or because they are expensive. It is also important to understand how much money is spent on toys for a given child or how frequently. Many times toys may not be purchased at all. They might be homemade or passed on from a senior to junior generation. There are doubts whether parents themselves appreciate that toys are needed

for such children in the same lines as one reckons food, clothing, shelter and/or medical attention are primary requirements for them. If so, it would be worthwhile to explore how or to what extent such toy demands are met, how are the choices made, what are the considerations involved in their procurement and dispensing, and ultimately, how they are eventually put into use or handled by the targeted children with developmental disabilities for whom they are intended. There are also several unanswered questions related to how toys for children can be classified or which category of toys are apt for which developmental age or stage for children, just how many toys such children may actual own, how they are procured, who makes choices for their procurement, how much time the child is allowed with them, whether there are safety norms or practices that govern their making and use, how much time, effort or money is expended on toys vis-à-vis CWDD, etc.

3.0 Objectives

Going by these severally unanswered questions and combined with the scarcity of research on toys, gaming and play activities especially for CWDD in India, it was the overall generic purpose of this investigation to explore the role and relationship of toys vis-à-vis CWDD. The specific objective of this project was:

3.1 To develop and determine a Toy Utility Index based on identified parameters assessed on reports from parents, caregivers or significant others as contemporary benchmark for the targeted CWDD;

The subsidiary objectives of this project were

3.1.1 To attempt an empirical taxonomy on the nature, type and extent of toys for CWDD;

3.1.2 To examine the parent/caregiver knowledge, opinions and attitudes about toys, their procurement, investments, and use for CWDD; and,

3.1.3 To delineate the prevailing notions of parent/caregiver choices, safety, handling, accessibility, or provision for toys made for their CWDD.

4.0 Review of Literature:

Clark & Roberta (1979) describe certain successful procedures designed to promote toy play in a group of six severely/profoundly mentally retarded children (6-13 years) in a classroom setting. In another similar study,

investigators attempted to increase simple toy play in 20 profoundly mentally handicapped children (mean chronological age 14 years and mean mental age less than 1 year) by presenting them with specially designed toys, which emitted stimuli (vibration, light, or sound) when appropriately operated. They were also observed with the toys when the stimuli were unavailable. There were large individual differences. But, in general, children interacted significantly more with the experimental toys than with the control toys and engaged in significantly less stereotyped behavior when the experimental toys were available with obvious implications clinical benefits *(*Murphy, Carr & Callias, 1986).

Ivory & Mc Collum (1999) evaluated whether availability of particular types of toys influence the level of interactive play achieved by young children with disabilities in an inclusive preschool classroom. Data were collected on eight children with disabilities who were students in two public school classrooms. Two types of toys, social and isolate, were systematically varied over the course of 4 weeks. Observations indicated that cooperative play was significantly more likely when social toys were available. Although isolate play was infrequent in both conditions, cooperative play rarely occurred with isolate

toys, whereas social toys supported a more equal balance between parallel and cooperative play.

Ae-Hwa et al (2003) reviewed the findings of 13 intervention studies, published between 1975 and June 1999 that examined the effects of manipulation of toys or group composition on social behaviors of 3- to 5-year-old children with disabilities. While analyzing outcomes of each study in terms of (a) toy effect, (b) group composition effect, and (c) toy effect combined with group composition effect, the researchers concluded that positive outcomes were associated with children's playing with social toys and play groups that included children with and without disabilities. Beneficial effects of toy play in children with multiple disabilities in inclusive classroom settings have been recorded by some more studies *(*DiCarlo & Reid, 2004; DiCarlo, Reid & Stricklin, 2003). In more specific terms, between teacher selection of toys and child choice of toys, the child-choice condition resulted in more engaged time for each participant and fewer problematic behaviors (Reinharsten, Garfinkle & Woolery, 2002). Research has also focused on toy preferences in children (Thomas, 1984; Frashner, Naurss, & Brogan, 1980), toy selection by parents (Christensen & Stockdale, 1991; Peretti & Sydney, 1984; Kesner & Sunal, 1980; Allen, 1968), the need or utility of toy libraries (Brodin & Bjorck-Akerson, 1992; Jackson, Robey, Watjus & Chadwick, 1991; Johnson, 1978) and toy safety issues (Wu et

al. 2013; Taylor, Morris & Rogers, 1997; Hillery, 1994; Dawson, 1990) in the context of CWDD.

The evaluation of children's play materials has been under focus with concerns on toy safety, durability and appeal to children (Quilitch, Christophersen & Risley, 1977). Gender stereotyping appears to be frequently emerging as a crucial variable in choice or dispensing of toys, their made availability and patterns of use (Venkatesan, 2014; Martin, Eisenbud & Rose, 1995; Caldera, Huston & O'Brien, 1989; Robinson & Morris, 1986). Although not validated, provisional taxonomies of toys for children have been proposed on the basis of their form (clay, mud, paper, pulp, wooden or plastic), function (sensory, exploratory, assembly or display), purpose (competitive, cooperative, solitary, imitative, constructive or creative), gender (masculine, feminine or neuter), mechanism (tech toys, traditional toys, automated toys, sports toys, electronic toys or digital toys), etc.

Among the few studies on attitudes toward toys, a self administered questionnaire based survey on how children aged 9-14 in urban middle class China perceive someone described as owning many or few expensive toys

was undertaken. A child with lots of branded toys or new media toys was more likely to be imagined as spendthrift, selfish and envious of others. A child without many toys was considered to be more likely to be perceived as hard working, good at academics, with lots of friends and always in the company of books or excelling in sports (Chan and Hu, 2008; Chan, 2005).

There are a few studies available on play and children with special needs even in our country. Some early theoretical papers published on the topic have enunciated play as medium of instruction (Datta, Das & Talukdar, 1984; Mallya, 1979). Another arm-chair preparation recommended a list of play activities for children with intellectual disabilities (Peshawaria, Menon & Reddi, 1991).

Venkatesan (2000) elicited parent observations on play activities in their children with mental retardation. Results indicated the existence of certain forms of play at the exclusion or decreased occurrence of others. In another later study on the hour-wise engagements or daily activity log schedule of children with developmental disabilities, it was found that the greatest part of the day was reportedly spent on ‘sleeping’ (43.24%), followed by ‘feeding’ activities (10.34%), ‘playing alone’ (14.62%) and ‘watching television (9.61 %). The amount of time spent per day by each child on ‘playing with peers’ (4.12%) was

meager (Venkatesan, 2004b). Similar trends were confirmed even for children with mental retardation (Khoshali & Venkatesan, 2007).

A significant contribution in this area has been the development and validation of an 'Activity Checklist for Preschool Children with Developmental Disabilities' (ACPC-DD; Venkatesan, 2004a) and its add-on titled as 'Toy Kit for Kids with Developmental Disabilities: User Manual' (Venkatesan, 2004/2010). The 3-tier 'Toy Kits' have been exclusively designed, assembled, developed and standardized for children with developmental disabilities between 0-2 years (infant level), 2-4 years (toddler level) and 4-6 years (preschool level). A utility analysis of the assembled toy kits based on ratings of consumer judgments has received favorable feedback for some of its high end features like having a 'supporting manual', 'reinforcement value', 'entertainment attraction', 'education worth', while being fair on lower end values related to minimum cost (Venkatesan, 2012).

There has been some initial momentum in the direction of developing and standardizing 'Play Activity Checklist for Children with Mental Retardation' (PACK-MR; Khoshali & Venkatesan, 2010) as well as studying the play behaviors and activities in siblings of children with developmental disabilities

(Venkatesan & Ravindran, 2012). Although distinct from ‘toys’, activities and/or behaviors involving play in children with mental retardation has been another prominent area of research in our country. Children with mental retardation are reported as having positive play behaviors like ‘sharing their belongings or play materials’, ‘indulging in pretentious or imaginary play’, ‘showing empathy with peers’, etc. But, they appeared to show difficulties in postponement of own wishes to meet demands of game situations, not registering spontaneous protest over foul play, or breach of rules by mates in game situations, lacked the knack to maintain secrets during game situations and made limited use of toys (Khoshali & Venkatesan, 2007).

In a recent preliminary study, it was measured that the mean number of toys made available to an individual cases of CWDD is dismally low with gender differences favoring boys than girls. Qualitative analysis of respondent reports highlighted no specific pattern in choice of toy purchases, short lived use of toys, and gender typing (Venkatesan, 2014).

5.0 Importance of the project in the current context

While there are few assorted and patchy details available on ‘play’, or ‘toys’ in relation to CWDD, there is really no over arching perspective or white

paper on the subject particularly in relation to our country. The several upcoming international and national mandates based on civil rights emphasize the right of children to own personal space, to be heard, independence, privacy, freedom of thought, association or expression, etc. Article 31 of 'United Nations Convention on the Rights of the Child' particularly espouses the child's right to rest, leisure, play, and indulge in recreational activities. Therefore, ownership, use, possession and/or providing of toys especially for children with special needs are at once the need, justification, rationale, and *raison d'etre* for children as well as this investigation per se.

6.0 Method

This study employed a cross sectional randomized survey design. The key terms used in this investigation are: 'toys' and 'developmental disabilities'.

6.1 Operational Definitions:

Toys vis-à-vis CWDD can be studied in relation to 'toy availability', which must be distinguished from connected but different terms like 'toy handling', 'toy ownership', 'toy possession' 'toy accessibility', and/or 'toy sharing'. Further, aspects related to 'toy utility',

‘toy budgeting’, ‘toy time’, ‘toy life’ and ‘types, classification or taxonomy of toys’ are other related areas that could be possibly enunciated and explored in a study.

At present, there is no formal or official taxonomy of toys that is available particularly in relation to children with special needs. Few informal distinctions are made, if any, on the basis of age groups like baby toys, infant toys, toddler toys, preschool toys, adolescent or adult toys. Some classifications go by content, such as, soft, hard, stuffed, clay, paper, wooden or plastic toys. A few distinguish toys based on gender while others denounce this as sexist. Others classify toys by their purpose and functional-utilitarian value to its owner as being either sensory, educational, entertainment, personalized fetish-private or public. Operations based classification of toys has been attempted as manual, mechanized, techno-savvy, computer enabled, hand or leg-driven, etc.

The term ‘availability’ refers to ‘a quality, state or condition of being at hand or easily obtainable’. Even though, the term ‘accessible’ appears close and synonymous, in the context of children with disabilities, this may not be true. For example, a hand operated toy may be made

available to a child who is physically challenged. Still, it may not be 'accessible'. In this sense, accessibility refers to the strength and degree to which persons with disability are provided for and enabled to live independently and participate in all aspects of life (Venkatesan et al. 2012). In this context, 'handling' refers to 'the mechanical process or manner in which one touches, feels, manipulates, deals or treats an object or thing'. Another allied term, 'ownership' (or 'possession') links to 'state, fact or right to proprietorship as one's own belonging'. The term 'sharing' denotes 'the act of apportioning or allowing somebody to use something or have part of something'. This study needs to delve into all these related but distinct terms.

6.2 Participants

This project was undertaken by drawing cases of children below six years with developmental disabilities already visiting the investigating agency and/or Special Schools in the city. Typical children were recruited from neighborhood crèches, play pens, preschools, kindergartens and Montessori schools. The various categories of preschool CWDD including those with specific or global delays in developmental milestones, sensory

handicaps, cerebral palsy, learning disorders, specific speech delays, at risk cases, multiple handicaps, and/or autistic disturbances with or without associated problems like problem behaviors, seizure disorders, etc. Rural children were drawn from field visits undertaken by the project staff to areas outside the limits of Municipal Corporation and more appropriately under village Panchayats.

Through purposive sampling techniques, the dichotomy of gender vis-à-vis condition matching was the mainstay of sample recruitment in this study. The eventual sample distribution of the final study is given in Table 1. Although the variables related to type of family background (nuclear, extended and joint) was originally envisaged, the details could not be collected because many of the cases included in this sample were migratory families with temporary stay owing to treatments being given to their affected child. For area of residence, ‘rural’ is defined in this study as belonging to the countryside or citizens under village and/or municipality town administration. The term ‘urban’ is being restricted to inhabitants under corporation and/or metropolitan limits.

Table 1:
Distribution of Sample Characteristics

Variables	N	HI	DD	ESD	MD	TC	Probability
Gender							
Boys	**158**	30	49	31	23	25	Cramer's:0.188; P: 0.052; X^2: 9.408; df: 4; p: 0. 052
Girls	**109**	26	16	25	20	22	
Age Groups							
0-2 years	34	5	13	10	3	3	Cramer's: 0.225; p: 0.001; X^2: 27.075; df: 8; p: 0.001
2-4 years	81	21	8	14	23	15	
4-6 years	152	30	44	32	17	29	
Residence							
Rural	150	36	40	26	26	22	Cramer's:0.184;P: 0.059; X^2: 9.080; df: 4; p: 0.059
Urban	117	20	25	21	17	34	
SES							
Low	149	39	44	23	14	29	Cramer's: 0.348;P: 0.000; X^2: 64.661; df: 8; p: 0.00
Middle	89	15	15	31	15	13	
High	29	2	6	2	18	1	
Total	**267**	**56**	**65**	**47**	**43**	**56**	

[HI: Hearing Impairment; DD: Developmental Disabilities; ESD: Expressive Speech Delays; MD: Multiple Disabilities; TC: Typical Children]

To ascertain the socio-demographic status, an adapted, updated, revised and truncated version of the NIMH Socio-Economic Status Scale (NIMH-SES; Venkatesan, 2011) was used (Appendix #1). The original 5-tier SES was reduced to 3-tier scale by clubbing the first two and last two layers. Thus, 3-tier stratification of 'low', 'middle' and 'high' class was earmarked. However, the 4-point criteria of deciding on the SES level based on (i) pooled monthly income; (ii) highest education in the family; (iii) occupation; and, (iv) immovable-movable family properties was retained.

6.3 Tools

The following three tools were used for data collection in this study:

(i) Socio-demographic Data Sheet;

(ii) Data Elicitation Probe on Toy Usage;

(iii) Toy Attitude Summated Rating Scale

The **socio-demographic data sheet** is investigator constructed device to elicit details from respondents about themselves and/or about their CWDD. It mainly covered questions related to the child's age, gender, diagnosis, and area of residence.

Another 25-item **Data Elicitation Probe on Toys,** exclusively developed for this study, covered questions on or about toys vis-a-vis CWDD. The probe opened with a question on or about toy availability (or otherwise) for a given child, before proceeding to list them along with information on the frequency or expenditure incurred on their purchase, criteria for their selection, manner of their dispensing it to the child, etc. The statements were phrased in simple language. The responses on this tool at a nominal level of measurement were assigned numerical values of

‘zero’ or one’. All ‘don’t know’ or ‘can’t say’ options were filtered. The placement of questions was randomized although it was ensured that all of them were covered either by means of personal interview or respondents themselves ticking the preferred answers on their own. Examiners were vigilant to make behavior observations of the respondents during data collection. The tool was piloted on a sample of 30 parents before editing, rewording, rephrasing or simplifying the statements to its final form. In the pilot phase, apart from using unstructured interview techniques, the preliminary format of this tool was deliberately kept open ended and filled with cafeteria questions to allow respondents to select statements or answers best representing their view.

An exhaustive perusal of related literature revealed that although toys have been used as means to measure various psychological attributes in children, such as, their temperaments, emotional or familial issues, there are no standardized measures to investigate toy availability for these children. DeLucia (1963) reports on *‘Toy Preference Test’*, which actually measures temperament in terms of their sex role identification. The same is true with another study wherein toy preferences of elementary school children were sampled in a non-restrictive and ecologically valid manner

from their natural settings (Downs, 1983). Since none of these tools fall in the ambit of what is being attempted in this study, the open ended **Data Elicitation Probe on Toys** was exclusively developed for use in this investigation. The probes opened with a question on or about availability (or otherwise) of toys for a given child, before proceeding to list them along with information on the frequency or expenditure incurred on their purchase, criteria for their selection, manner of their dispensing to the child, etc.

An illustrative sample of the open ended probes included: Does the child own any toys which can be deemed as his/her personal belongings? If YES, how did the child get these toys? What is the cost of the toys owned by the child? Since when does the child own the toy/s? In case toys have been purchased, who or how is the decision taken to procure them? How frequently are they purchased? Which of the toys, do you think, is the favorite for your child? How does s/he engage with the favorite toy? What or which toy based activities you think is appropriate for your child? Once a toy has run through its use, how or where do you dispose them? Does the child recognize, preserve and protect his or her toys? Does the child share his/her toys? Does the child handle the toys safely? Are you aware of any toy bank or toy library in your vicinity? Are there any toys

which you will never purchase for your child? According to you, which are the most lovable toys? Which are the most hateful toys? What are the attributes you see when purchasing a toy: looks and appearance, cost or price, educational value, entertainment value, safety, brand name, durability, design, eco-friendly, value for money, quality, reinforcement value, supporting manual, time used up, packaging, functional use, learning opportunity, maintenance, washable, etc. Additional questions pertained to: Are you aware of any brand names in the toy industry? How often do you buy your child/children toys: every week, month, on special occasions, etc? How much would you be willing to spend on children's toy? Toys come in different forms, which one would you prefer? How long do you expect the child's toy to last? Which type of play does your child show interest in? How many hours in a day does your child play with toys? Typically, where do you buy your children's toys?

The third tool, a 20-item Likert type **Toy Attitude Scale,** exclusively developed for the purpose of this study, was also used, wherein respondents were expected to answer favorably or unfavorably towards the phenomenon of toys vis-à-vis children with or without disabilities. Each item is scored along a 5-point scale: Strongly disagree-Disagree-

Neutral-Agree-Strongly Agree. After pre-testing the initial draft of the questionnaire on about 10 respondents, it was also verified against the impressions of three professional colleagues in the field. Their suggested change (if any) was incorporated. Caution was exercised to avoid use of words or phrases that suggested any technical jargon, to ensure that the questions were brief or that the instructions given are adequate and easily understood. The maximum score on this tool is 100. The total score indicates the respondent's degree of agreement or disagreement with each statement. Although a few items or statements in this scale have been intentionally worded with negative valence; eventually, high scores on this instrument indicate and is interpreted as favorable attitude. During piloting, the inter-observer agreement coefficient was calculated as 0.96 and the 2-week test-retest reliability coefficient was found to be 0.92, which is interpreted as 'excellent' as per set standards (Cichetti & Sparrow, 1981; Anastasi & Urbina, 1997).

7.0 Procedure

The pilot study was an important preliminary phase in the project. It was an occasion for achieving field reconnaissance, preparation of the data collection

format, including open ended interview protocols, questionnaires and recruitment of the samples included in this study. Informed consent and strict adherence to the mandated ethical guidelines for research in the institute will be followed (Venkatesan, 2009).

The concept of index owes its origin to the fields of statistics, mathematics and economics (Ralph, O'Neill & Winston, 2015). Applied to this study, the toy index is simply denoted as the mean number of toys made available per child across age, condition, gender, and/or area of residence. The matter is not as simple as this. As mentioned earlier, it is not simply a matter of owning toys or making them available to a given child or groups of children. Toys may be made available but rarely put to use. Further, there is a question of economics. How much money is spent for its procurement? Certain branded toys are certainly very expensive for the short span of shelf life that they are likely to have. All this needs to be meaningfully and coherently combined as inclusion parameters within the toy index.

Going by this rationale, toy index is defined as an objective measurable sum total value derived against four parameters identified, explained and weighed before transforming it into a meaningful whole as overall mean and

variance for given child. The identified parameters for inclusion in the index were: ownership, availability, usage and expenditure. For example, if a child 'owned two toys' (Score: 1) 'received as gift' (Score: 0), which was 'given to calm' him (Score: 2) 'at least 3-4 times in a week' (Score: 3), the sum total toy score for that child is calculated as 6 out of 20. Thus, individual, subgroup and overall scores of toy index was calculated and tabulated across the studied socio-demographic variables. The parameters and scheme of scoring to derive the Toy Index is given in Table 2.

Table 2:
Parameters and Scoring used for Toy Index

Score	Ownership	Availability	Usage	Expenditure
0	No Toys	Not made available	Never used	Nil-Await as gifts
1	1-2 Toys	Kept in showcase	Used once a week	Ad hoc purchases
2	3-4 Toys	Given to calm child	Used twice a week	< Rs. 100 a month
3	5-6 Toys	Given on demand	Used 3-4 times a week	Rs. 101-200 a month
4	6-7 Toys	Given conditionally	Used 5 times a week	Rs. 201-300 a month
5	> 7 Toys	Access left to child	Used daily	> Rs. 301 per month

(Maximum Score: 20)

Ownership refers to the state or right of possessing the toy. Toy availability is the quality of being at hand so as to be able to obtain or use them. A child may own a toy but it may not be made available by the parent who has thought it to be prudent to keep it away from the child. Usage has to do with the

actual act of putting the toy into service. Expenditure has to do with the money spent on procurement of toys.

Data collection involved individualized interviewing of respondents. The responses were recorded verbatim before compiling them into discrete or meaningful categories during data analysis and statistical treatment. To determine the extent of agreement or disagreement between respondents on or about the availability of toys with their children, the contents of transcripts were classified and assigned by two independent raters into various types of toys based on an already available glossary of toys (Venkatesan, 2010).

The collected data by way of transcripts were subjected to category classification, coding and analysis. Consensual validation between examiners not below the rank of post graduation in clinical psychology was used to verify the data at every stage in the study. Home, school and/or field visits were undertaken to collect data wherever possible and especially for the samples of rural and typical children.

8.0 RESULTS

The findings of this study are presented sequentially and systematically under the following headings: (i) Taxonomy of toys; (ii) Parent notions on toys; (iii) Parent attitudes on toys; and, (iv) Toy Utility Index.

8.1 Taxonomy of toys

According to Toy Industry Association (TIA; http://www.toyassociation.org), there are 104 kinds of toys in the market classified under different product categories ranging from blocks, puzzles to dolls and board games. Each category has within it hundreds, even thousands of different items. One classification covers indoor toys, stuffed toys, baby toys, construction toys, dolls, cartoon toys, puzzles, board games, activity toys, picture books, outdoor toys, riding toys, etc. (Szymanski & Neuborne, 2004). The Australian 'Torren's System of Classification' (http://www.hillstoylibrary.org.au/products.htm), and another, 'WAND Toys and Games Taxonomy' (http://www.docstoc.com/docs/80136234/WAND-Toys-and-Games-Taxonomy), touted as the only official system of toy classification, has no universal appeal. The limited literature on taxonomy of toys use varied criteria based on ones assumed theoretical position. Common sense

provokes age-based classification of toys (Table 3), viz., baby toys, infant toys, preschooler toys, and so on. This classification has many limitations. Age can be only a guide to suggest which types of toys can be promoted for a given age. Other classifications are based on gender (boys, girls or unisex); content, purpose or function (sensory, expression, imagination, creativity, problem solving, construction or destruction); as home-made, customized or branded; or on location of their use (bathroom, bedroom, indoor, outdoor, playground, isolate or social). Some classifications use the schema of developmental skills, such as, sensory-motor, speech-language, play-social, pre-academics, cognitive, etc (Table 4).

Table 3:
Illustrative Age-Based Taxonomy of Toys

SNo.	***Age Group***	***Examples***
1	*Babies*	*Hand held toys, musical toys, noise makers, unbreakable mirrors, reflecting toys, sensory toys, sock and wrist rattles, contrast toys, wind chimers, etc*
2	*Infants*	*Activity toys, light weight rattles, noise makers, squeakers, rubber toys, stuffed animal toys, dolls, activity quilts and play mats, crib toys, teethers, strollers, car seat toys, cloth toys, squeeze toys, hanging toys, hand puppets moved by adults, audio-visual lullaby CDs to be played by adults, bath toys, wrist rattles, light and sound toys, texture toys, spinning toys, soft toys, etc. Essentially to reach, hold, suck, or shake, make noise with large rings, squeeze toys, vinyl board or books;*
3.	*Toddlers*	*Books, balls, household items, wood and soft toys, moving toys, pull-push toys, shape sorters, toy telephone, books, blocks, pail and shovel, stack and roll toys, filling and emptying toys, manipulating, pretending, splashing, stacking, pop-up toys, screwing-unscrewing, lock-key toys, role play toys, riding toys, masks, etc; especially to play pretend games with dolls, puppets, plastic and wood vehicles, water toys, nestling toys, large beads, plastic bowls, etc.*

4.	*Preschoolers*	*Large building blocks, push and pull toys, sorting and nesting toys, climbing gym, balls, washable crayons and paper, ride-on vehicles, picture books, play house, toy instruments, puzzles, illustrated books or CDs, train sets, skip-hop toys, construction toys, creative toys, games, viewing instruments, hearing devices, carpentry sets, blowing-sucking toys, sand-water toys, cars and trucks toys, etc*
5.	*Primary School*	*Ride on toys, balls, art supplies, percussion instruments, dress up clothes, child size household articles, construction toys, puzzles and manipulative, scribble boards, board games, model building, science and optical toys, collectibles, card and board games, etc*
6	*Adolescent or Teenager*	*Scrabble Boards, Playing Cards, Skaters, Electric Scooters, Key Boards, Hover Boards, Tripod Selfie Stick, Karaoke, Dart Boards, Virtual Reality Smartphone, Physics Experiment Sets, Chess Boards, Table Tennis Table, Kites, video drones, Rubik's Cube, Molecube, Hoopala, Soldering Kit, Portable Piano Set, Rackets, Dodge ball, etc.*
7.	*Toys for Persons with Special Needs*	*Message Boards, Water Games, Mirrors, Sand Blocks, Kaleidoscope, Clay, Cubes, Magnifying Glass, Bubble Blowers, Mouth Organ, Flute, Simple Musical Instruments, Sensory Ball, Tactile Rug, Sand Box, Sensory Pillow, Massage Balls, Mazes, Massagers, Water Beds, Hammock, Indoor Swing, Folding Mats, Button Frame, Balance Beam, Kitchen Sets, Jigsaw Puzzles, Toy Clocks, Magnets, Masks, Puppets, Dice, Card Holders, etc.*

(Source: Venkatesan, S. (2010). Toy Kit for Kids with Developmental Disabilities: User Manual. Mysore: AIISH. (Revised English Edition) ISBN: 978-81-909355-7-9, pages: 63)

The age-based taxonomy of toys was subjected to empirical validation across a sub sample of 50 cases by consensus between two independent reviewers (not below pre-doctorates in clinical psychology) in this study. The 2 raters independently classified the reported toy item/s for the same 50 cases into 5 designated categories. The inter-rater reliability exercises were carried out across 2 sessions for 25 cases which measured range between 95.74 and 94.21 across two sessions. Cohen's Kappa measure of concordance was used (O' Donoghue & Punch, 2003; Siegal & Castellan, 1988; Cohen, 1960).

Table 4:
Illustrative Taxonomy of Toys based on their Functional-Utilitarian Value

SNo.	***Functional Utilitarian Value***	***Examples***
1	*Visual*	*Mirrors, Magnifying Glass, Kaleidoscope, etc.*
2	*Auditory*	*Noise Makers, Musical Instruments, Rattles, Wind Chimers, etc*
3	*Tactile*	*Tactile Rugs, Sand Papers, Clay, Plasticine, Magnets,*
4	*Proprioception*	*Hammock, Trampolines, Massagers, Water Beds, etc.*
5	*Vestibular*	*Swings, Strollers, Balance Beam, Sensory Pillow, etc*
6	*Motor*	*Carom Board, Toy Bat and Ball, etc.*
7	*Cognition*	*Puzzles, Sorters, Building Blocks, Stackers, Cubes, etc.*
8	*Communication*	*Picture Boards, Recorders, Earphones, etc.*
9	*Socialization*	*Dice, Playing Cards, etc.*
10	*Independence*	*Toy Clocks, Button Fames, Kitchen or Carpentry Sets, etc.*
11	*Multi-sensory Experience*	*Bubble Blowers, Hand Puppets, etc.*

8.2 Parent notions on toys:

The notions that parent respondents in this study carried with regard to toys vis-à-vis their children was elicited through an investigator generated Data Elicitation Probe (Table 5). The 25-statements were to be expectedly answered as either ‘YES’ or ‘NO’. There are no ‘right’ or ‘wrong’ answers. A few key items wherein a great majority of parents answered with an emphatic ‘YES’ are:

4* Parents should adjust their expectations according to child’s ability;

6* Toys cannot change the ability of CSWN;

7*Since children are too young to choose, parents should decide while buying toys;

8*Toys do not play any important role in the child’s overall development;

9*Toys do not encourage imagination and creative thinking in children;

10*Since parents spend money on toys, they should help children learn as much in short span of time;

12*When a child makes a mistake while playing with toys, it must be corrected by parents immediately;

13*Making frequent comparisons with peers help children to play better with their own toys;

15*Using toys must be a regular habit during activities of daily life like bathing, eating, or bed time;

19*Children cannot differentiate toys of different weights and textures;

20*Toys have no role in development of senses related to vision, hearing, smell or touch;

21*If detachable dolls are provided, children might separate legs, hands and neck to examine them;

22*If toy is too advanced, kids may not know how to play, if it is too primitive, they might become easily bored; and,

25*Child oriented programs on television can be used as alternative for toys.

Table 5:
Distribution of Responses on Data Elicitation Probe on Toys

No	Response	Groups					Overall	Cramer's V	Sig.
		HI	DD	TC	MD	ESD			
	N	56	65	56	43	47	267		
1	Yes	48	61	53	36	36	234	.202	.027
	No	8	4	3	7	11	33		
2	Yes	42	53	54	31	39	219	.218	.013
	No	14	12	2	12	8	48		
3	Yes	22	13	21	12	20	88	.183	.063
	No	34	52	35	31	27	179		
4*	Yes	35	38	51	27	32	183	.259	.001
	No	21	27	5	16	15	84		
5	Yes	45	49	30	31	33	188	.204	.025
	No	11	16	26	12	14	79		
6*	Yes	48	53	11	36	39	187	.568	.000
	No	8	12	45	7	8	80		
7*	Yes	46	45	27	26	35	179	.252	.002
	No	10	20	29	17	12	88		
8*	Yes	48	57	20	35	40	200	.468	.000
	No	8	8	36	8	7	67		
9*	Yes	48	48	8	38	40	182	.606	.000
	No	8	17	48	5	7	85		
10*	Yes	44	31	41	19	33	168	.290	.000
	No	12	34	15	24	14	99		
11	Yes	44	48	33	35	34	194	.173	.092
	No	12	17	23	8	13	73		
12*	Yes	28	46	47	31	40	192	.283	.000
	No	28	19	9	12	7	75		
13*	Yes	9	30	19	16	9	83	.251	.002
	No	47	35	37	27	38	184		
14	Yes	52	57	53	38	43	243	.095	.664
	No	4	8	3	5	4	24		
15*	Yes	4	13	43	12	6	78	.559	.000
	No	52	52	13	31	41	189		
16	Yes	28	39	30	30	26	153	.130	.338
	No	28	26	26	13	21	114		

17	*Yes*	*31*	*37*	*27*	*21*	*23*	*139*	*.076*	*.817*
	No	*25*	*28*	*29*	*22*	*24*	*128*		
18	*Yes*	*42*	*45*	*47*	*28*	*38*	*200*	*.157*	*.158*
	No	*14*	*20*	*9*	*15*	*9*	*67*		
*19 **	*Yes*	*44*	*45*	*8*	*32*	*31*	*160*	*.488*	*.000*
	No	*12*	*20*	*48*	*11*	*16*	*107*		
*20 **	*Yes*	*46*	*47*	*7*	*37*	*38*	*175*	*.583*	*.000*
	No	*10*	*18*	*49*	*6*	*9*	*92*		
*21 **	*Yes*	*23*	*18*	*35*	*9*	*19*	*104*	*.291*	*.000*
	No	*33*	*47*	*21*	*34*	*28*	*163*		
*22 **	*Yes*	*11*	*25*	*31*	*6*	*10*	*83*	*.327*	*.000*
	No	*45*	*40*	*25*	*37*	*37*	*184*		
23	*Yes*	*19*	*38*	*22*	*16*	*18*	*113*	*.189*	*.049*
	No	*37*	*27*	*34*	*27*	*29*	*154*		
24	*Yes*	*45*	*41*	*35*	*27*	*33*	*181*	*.151*	*.196*
	No	*11*	*24*	*21*	*16*	*14*	*86*		
*25 **	*Yes*	*27*	*39*	*44*	*26*	*27*	*163*	*.207*	*.022*
	No	*29*	*26*	*12*	*17*	*20*	*104*		

Note: '*' indicates significant results obtained for statements mentioned above

Figure 1:

Frequency of 'yes' responses *on Data Elicitation Probe on Toys for various statements*

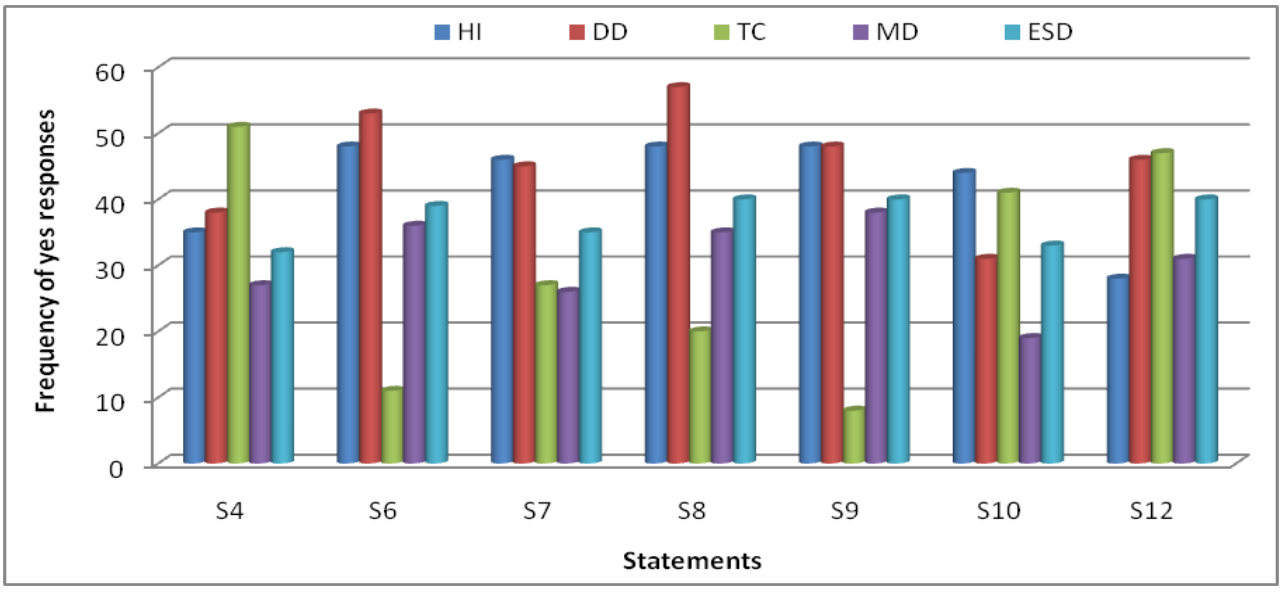
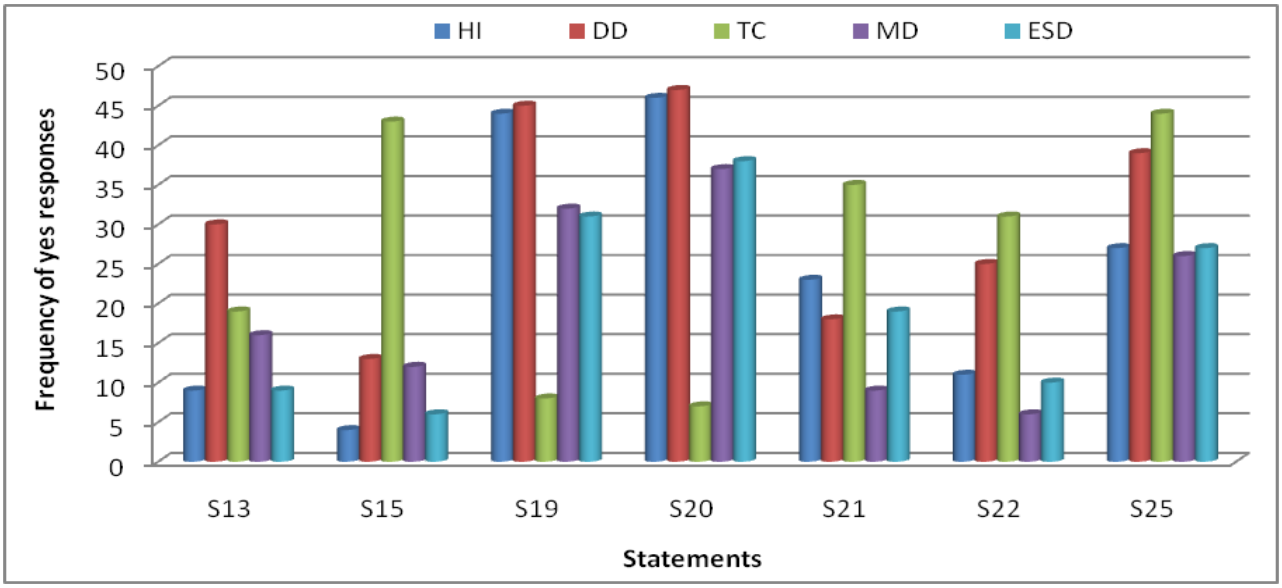


Figure 2:

Frequency of 'yes' responses *on Data Elicitation Probe on Toys for various statements*



From the foregoing, it is apparent that the parent respondents in this study view their children as passive dependent creature. Evidently, they believe that their children cannot make choices about the procurement of toys as also they need to be guided in their routine use. Having spent money on the purchase, parents expect their children to learn as much in short time. However, they have apprehensions and doubts whether toys would be of any real benefit for their children. This is more to do with their children with special needs. These children may not be aware of handling or playing with toys. If the toy was more advanced, it is reported

that the children may require guidance or other children to model their use.

8.3 Parent attitudes on toys:

The exploration on parent attitudes on toys show a uniform trend of agreement (p: >0.05) that toys are unaffordable or dispensable luxuries. Parents are aware that children love toys and that there might be different toys appropriate for different age groups. However, it is felt that giving toys to CWSN is risky or unsafe. The opinion of parents appear to be divided on whether children by two years or so can really appreciate the risks involved in their use of toys. They are unsure whether boys and girls require the same or different toys. Among the positive benefits of giving toys to children, parents agree that they help them to rehearse and play the adult roles. Although it is ‘agreed’ and ‘strongly agreed’ that toys are the best teaching instruments, they can teach unwanted violence and aggression. It makes children to live in a world of fiction and fantasy. They start mimicking and imitating the animals or characters in the toys used by them. It is felt that teaching children to read and write is a better option than to waste their time on engagement with toys. Many parents are

particularly against contemporary technology driven digital toys. The respondents are aware that if no toys are given, children tend to invent toy value out of things surrounding them. Wherein toys are to be procured most parents feel that it should be done only on specific occasions (Table

Table 6:
Distribution of Responses on Toy Attitude Scale

No	Items	Response	Groups					Overall	Cramer's V	Sig.
			HI	DD	TC	MD	ESD			
1	Toys are unaffordable luxuries for children	N	56	65	56	43	47	267	.106	.743
		SD	3	2	3	0	3	11		
		D	16	21	19	14	15	85		
		N	14	14	9	10	12	59		
		A	15	21	20	9	10	75		
		SA	8	7	5	10	7	37		
2	Children can and do grow even without toys	SD	27	38	32	23	23	143	.067	.989
		D	3	1	2	2	2	10		
		N	15	15	11	9	13	63		
		A	11	11	11	9	9	51		
		SA	27	38	32	23	23	143		
3	Giving toys to children is unsafe	SD	1	0	2	1	1	5	.105	.764
		D	4	9	2	3	3	21		
		N	4	3	2	2	3	14		
		A	36	48	43	30	34	191		
		SA	11	5	7	7	6	36		
4	Toys are the best teaching instruments	SD	3	4	4	7	3	21	.116	.515
		D	-	-	-	-	-	-		
		N	-	-	-	-	-	-		
		A	25	32	27	14	23	121		
		SA	28	29	25	22	21	125		
5	Toys teach children unwanted violence and aggression	SD	1	0	0	0	0	1	.093	.902
		D	5	7	4	4	4	24		
		N	8	11	5	5	7	36		
		A	29	39	36	24	26	154		
		SA	13	8	11	10	10	52		
6	Toys can be a source of outlet for the child's unfulfilled aggression	SD	4	4	4	3	4	19	.093	.899
		D	26	37	25	14	22	124		
		N	7	7	8	6	5	33		
		A	14	14	12	13	12	65		
		SA	5	3	7	7	4	26		

7	Toys make children to live in a world of make believe fantasy	SD	3	4	2	6	3	18	.092	.911
		D	22	26	17	13	18	96		
		N	5	4	4	4	3	20		
		A	22	28	27	18	19	114		
		SA	4	3	6	2	4	19		
8	Teaching children to read and write is better option than to waste their time playing with toys	SD	4	2	5	5	4	20	.093	.906
		D	21	21	22	16	16	96		
		N	3	3	0	3	3	12		
		A	23	34	26	17	21	121		
		SA	5	5	3	2	3	18		
9	The make-and-break toys actually teach children assembly and construction skills.	SD	2	1	2	1	2	8	.103	.792
		D	7	9	4	5	8	33		
		N	3	7	1	4	3	18		
		A	26	27	23	14	17	107		
		SA	18	21	26	19	17	101		
10	Digital toys are a bane of the modern technology driven world	SD	6	7	8	9	6	36	.115	.594
		D	14	8	9	5	9	45		
		N	14	25	11	14	13	77		
		A	21	24	28	14	18	105		
		SA	1	1	0	1	1	4		
11	The competition and rivalry that happens between children can be traced partly to the kind of aggressive toys that they are given to play with by their elders	SD	2	1	2	5	2	12	.143	.148
		D	26	41	38	20	24	149		
		N	15	13	5	10	12	55		
		A	10	3	6	5	6	30		
		SA	3	7	5	3	3	21		
12	There are different toys for different ages	SD	-	-	-	-	-	-	.096	.834
		D	2	2	0	1	2	7		
		N	1	1	0	1	1	4		
		A	37	40	41	23	31	172		
		SA	16	22	15	18	13	84		
13	All children loves and needed toys	SD	-	-	-	-	-	-	.093	.800
		D	1	0	0	0	0	1		
		N	-	-	-	-	-	-		
		A	21	25	18	17	18	99		
		SA	34	40	38	26	29	167		
14	Boys need to be given different toys than what is	SD	10	8	13	8	8	47	.074	.989
		D	2	4	1	3	2	12		
		N	21	25	24	15	19	104		

	given to girls	A	5	6	3	3	4	21		
		SA	10	8	13	8	8	47		
15	If no toys are given, children somehow learn to devise, develop or make their own toys with things around them in their surroundings	SD	2	1	2	5	2	12	.122	.464
		D	8	10	2	7	7	34		
		N	1	4	1	1	1	8		
		A	38	41	43	25	32	179		
		SA	7	9	8	5	5	34		
16	Toys allow children to role play and rehearse their later adult life	SD	2	1	2	5	2	12	.094	.891
		D	6	7	8	5	6	32		
		N	4	7	3	4	3	21		
		A	34	39	32	24	29	158		
		SA	10	11	11	5	7	44		
17	Some dolls and toys can also influence the self image, perception of body size or shape in children	SD	4	8	3	3	4	22	.102	.801
		D	34	33	32	19	26	144		
		N	9	14	13	10	9	55		
		A	7	9	6	6	6	34		
		SA	2	1	2	5	2	12		
18	Children who play with toys may start imitating or mimicking those animal or machine sounds	SD	2	1	2	5	2	12	.103	.785
		D	1	3	2	1	2	9		
		N	3	3	0	2	3	11		
		A	43	51	44	31	34	203		
		SA	7	7	8	4	6	32		
19	By the age of 2 ½ years, children have a good sense of what is safe to eat and are not likely to put small toys in their mouth	SD	-	-	-	-	-	-	.087	.911
		D	23	25	28	22	19	117		
		N	9	8	5	4	7	33		
		A	20	28	17	13	17	95		
		SA	4	4	6	4	4	22		
20	Toys should be purchased only on special occasions	SD	4	8	6	4	4	26	.094	.891
		D	8	8	8	4	6	34		
		N	4	8	4	5	4	25		
		A	36	40	38	29	32	175		
		SA	4	1	0	1	1	7		

Although the ‘Socio-Demographic Data Sheet’ (Appendix 16.1) mentions heading like respondent educational qualifications, and occupation, sibling details related to their ages and education, as well as family details covering nature, type, status and size of family, the derived data did not have sufficient numbers in order to make meaningful comparisons on those variables.

8.4 Toy Index:

The mean toy index for overall sample of children with and without developmental disabilities (N: 267) is 8.60 (SD: 4.14). Within the parameters used to determine the toy index, the mean scores on reported ownership (Mean: 1.93; SD: 0.95) and expenditure (Mean: 1.97; SD: 1.09) appears to be lower than for their availability (Mean: 2.43; SD: 1.23) and usage (Mean: 2.27; SD: 1.54). This is interpreted as children making better use of the limited toys made available to them. The number of toys owned is fewer and the expenditure incurred by parents is also less. Analysis of results on the measured toy index for various parameters against various socio-demographic variables is given in Tables 7 & 8.

Table: 7
Mean scores of Toy Index by Gender and Residence

Variables		Gender		Residence	
		Boys	**Girls**	**Rural**	**Urban**
	N	158	109	150	117
Ownership	Mean	2.06	1.73	1.83	2.06
	SD	1.03	0.8	0.93	0.98
	Test statistics	**t=2.811 ; P=.005		*t=-1.994 ; P=.047	
Availability	Mean	2.58	2.22	2.26	2.65
	SD	1.27	1.14	1.2	1.24
	Test statistics	*t=2.339 ; P=.020		**t=-2.592 ; P=.010	
Usage	Mean	2.23	2.33	2.02	2.59
	SD	1.53	1.56	1.42	1.62
	Test statistics	t=-.534 ; P=.594		**t=-3.051 ; P=.003	
Expenditure	Mean	2.23	1.61	1.77	2.24
	SD	1.09	0.99	1	1.16
	Test statistics	**t=4.747 ; P=.000		**t=-3.577 ; P=.000	
Toy Index	Mean	9.09	7.89	7.87	9.54
	SD	4.22	3.92	3.82	4.35
	Test statistics	*t=2.360;P=.019		**t=-3.325 ; P=.001	

Figure: 3

Mean scores of Toy Index by Gender

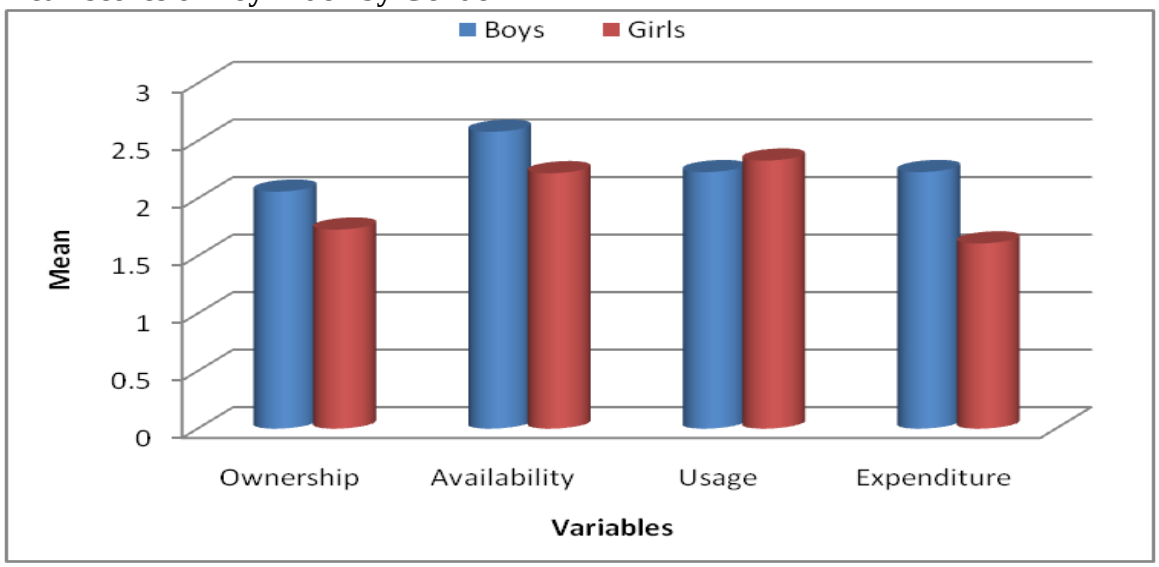
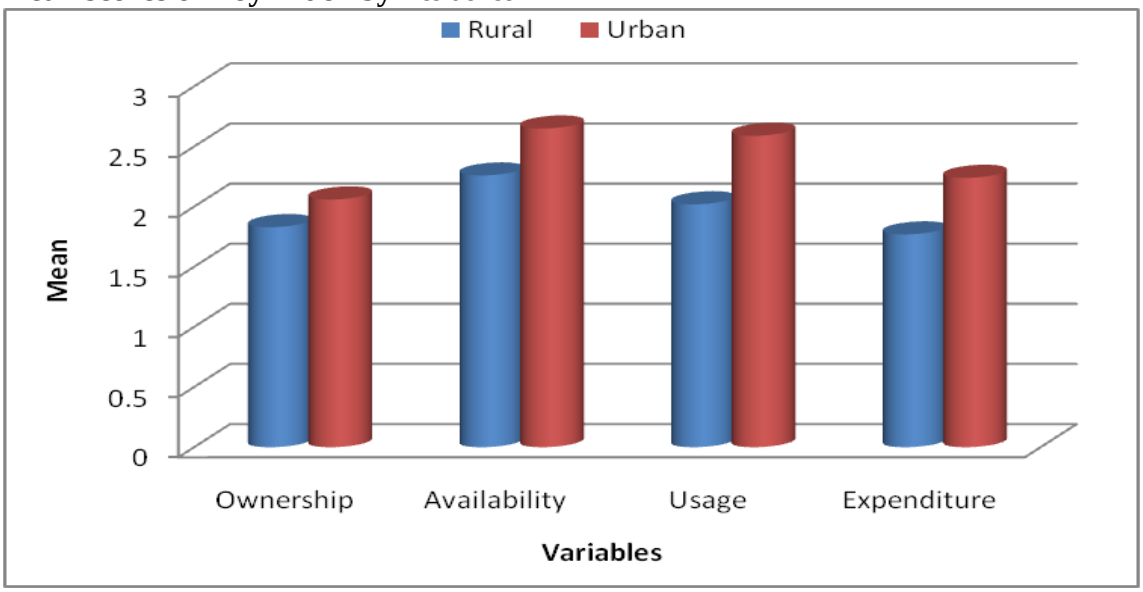


Figure: 4

Mean scores of Toy Index by Residence



On the whole, results show that boys in this sample (N: 158; Mean: 9.09; SD: 4.22) than girls (N: 109; Mean: 7.89; SD: 3.92) and children from urban (N: 117; Mean: 9.54; SD: 4.35) rather than rural areas (N: 150; Mean: 7.87; SD: 3.82) secure higher toy index (p: <0.01). More specifically, boys show greater ownership and parents appear to spend significantly more money on them compared to girls (p: < 0.05). However, there are no differences with respect to availability and usage of toys in relation to gender (p: > 0.05). In relation to area of residence, the children from urban areas consistently show high scores across all parameters of ownership, availability, usage, and expenditure contributing

to their relatively higher toy index than their rural counterparts (Figures One & Two).

In relation to their condition (Table 8), if the typical children are to be deemed as standard comparison group (N: 56; Mean: 13.16; SD: 2.70), those with expressive speech delays (N: 47; Mean: 11.60; SD: 2.26) appear to trail closest behind albeit with lower toy index. This is followed by children with hearing impairments (N: 56; Mean: 8.36; SD: 2.32) and those with developmental disabilities (N: 65; Mean: 5.71; SD: 2.47). The children with multiple disabilities appear to be the most disadvantaged (N: 43; Mean: 4.09; SD: 2.31) with the least toy index ($p: <0.001$). Scheffe's Post-hoc Analysis was additionally carried out as a posterior test to discover patterns and/or relationships, if any, between sub groups of the sample conditions. By doing so, no significant mean differences were observed between any of the sub groups ($p: >0.05$).

Table: 8.
Mean Scores of Toy Index by Condition and Age.

Variables		Condition						Age group			
		HI	**DD**	**TC**	**MD**	**ESD**	**Overall**	**0-2y**	**2-4y**	**4-6y**	**Overall**
	N	56	65	56	43	47	267	34	81	152	267
Ownership	Mean	1.73^{b}	1.43^{ab}	2.82^{c}	1.07^{a}	2.57^{c}	1.93	1.59^{a}	1.81^{ab}	2.07^{b}	1.93
	SD	0.67	0.64	0.88	0.55	0.68	0.95	0.74	0.74	1.07	0.95
	Test statistics	F=58.724;P=.001						F=4.431;P=.013			
Availability	Mean	2.23^{b}	1.77^{ab}	3.79^{d}	1.35^{a}	2.96^{c}	2.43	2.24	2.4	2.49	2.43
	SD	0.89	0.86	0.93	0.95	0.81	1.23	1.26	1.22	1.23	1.23
	Test statistics	F=62.395;P=.001						F=0.657;P=.519			
Usage	Mean	2.43^{c}	1.12^{b}	3.89^{d}	0.33^{a}	3.51^{d}	2.27	2.03	2.15	2.39	2.27
	SD	0.78	0.67	0.97	0.61	0.8	1.54	1.7	1.52	1.51	1.54
	Test statistics	F=193.001;P=.001						F=1.121;P=.328			
Expenditure	Mean	1.96^{b}	1.38^{a}	2.66^{c}	1.35^{a}	2.55^{c}	1.97	1.62	2.07	2	1.97
	SD	0.85	0.91	0.98	1.11	0.93	1.09	1.13	1.05	1.1	1.09
	Test statistics	F=22.518;P=.001						F=2.202;P=.113			
Toy Index	Mean	8.36^{c}	5.71^{b}	13.16^{e}	4.09^{a}	11.60^{d}	8.6	7.47	8.43	8.95	8.6
	SD	2.32	2.47	2.7	2.31	2.26	4.14	4.11	3.81	4.28	4.14
	Test statistics	F=127.668;P=.001						F=1.883;P=.154			

Figure 5:
Representation of Toy Index Parameters against condition

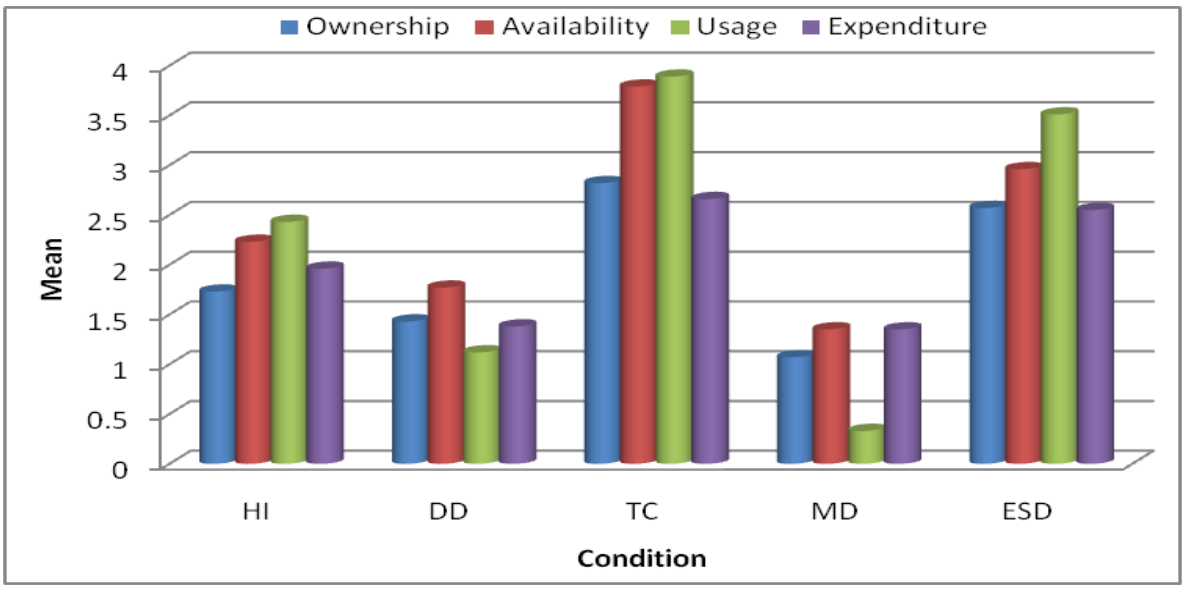
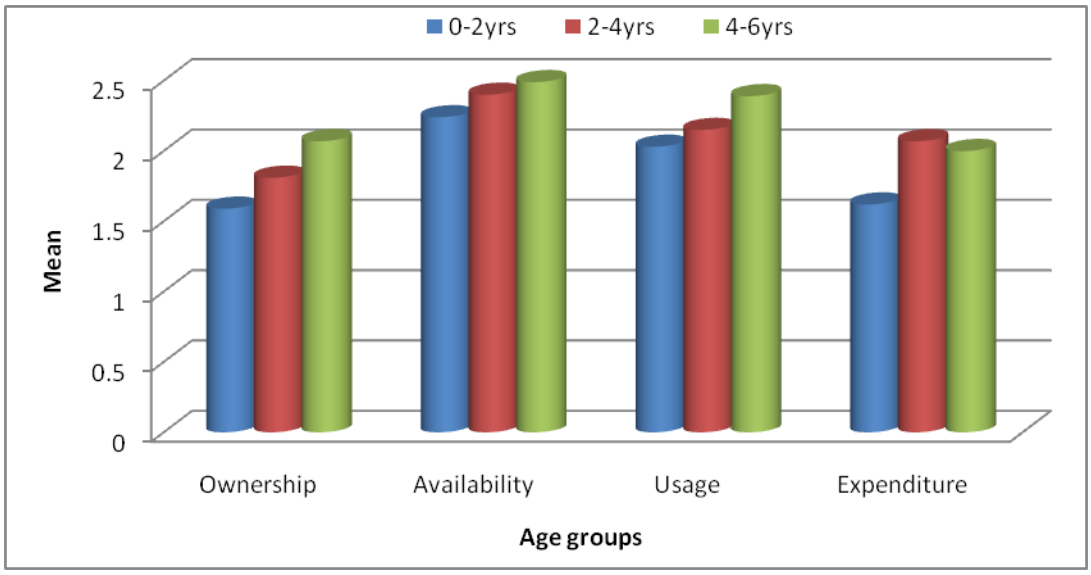


Figure 6:
Representation of Toy Index Parameters against age group



Analysis of results against age variable (Table 8) shows a linear increasing trend with younger children measuring lower toy index compared to their older peers. The children between 0-2 years (N: 34; Mean: 7.47; SD: 4.11) show the lowest mean toy index compared to those between 2-4 years (N: 81; Mean: 8.43; SD: 3.81) and 4-6 years (N: 152; Mean: 8.95; SD: 4.28). Once again, on Scheffe's Post-hoc Analysis, no significant mean differences were observed between any of the sub groups against the various parameters except in the area of toy ownership (p: >0.05).

In terms of response content, it is seen that several questions are asked but no answers were forthcoming from the respondents. ‘Who or how was the decision taken to procure toys’ or ‘How frequently they are purchased’ were rarely answered. Many parents showed low awareness on the ‘favorite’ and/or ‘most hated’ toys for your child. They confessed ignorance on age appropriateness of toys, safety norms in the use of toys, about the concept of toy bank or the possibility of having neighborhood toy lending libraries. While the procurement of a toy for their child was left to chance, they were unaware of brand names, toy-disposal, eco-friendly attributes and educational value or about maintenance of toys.

9.0 DISCUSSION

Play is not synonymous with toys (Rubin & Howe, 1985). An essential element of engaging kids constructively is the use of appropriate toys or teaching aids. Children vary in their types of play and toy preferences according to their physical and mental age levels (Venkatesan, 2010; 2004; Frashner, Nurss & Brogan, 1980). Toys need to be safe, simple, user friendly, washable, age-appropriate and above all ‘teaching-task’ oriented. They need not be expensive

to be engaging. Of course, toys entertain kids. But, they should also educate, albeit tacitly.

Research on toys vis-a-vis children with or without disabilities is admittedly irregular, inchoate and incomplete. The beneficial role of toys in amelioration of children is conceded (Lear, 1996; Riddick, 1982; Clark & Roberta, 1979; Kawin, 1934). A noteworthy development in this segment for India is development and standardization of 'Activity Checklist for Preschool Children with Developmental Disabilities' (ACPC-DD; Venkatesan, 2004) with its accompanying aide in 'Toy Kits for Infants, Toddlers and Preschoolers with Developmental Disabilities' (Venkatesan, 2010). Despite positive reviews on the 'toy kits' (Venkatesan, 2012; Karande, 2011; Srivastava, 2011), one is unsure whether the children are indeed being given play materials. In seeking to develop, determine or prepare contemporary benchmarks for targeted children, this study finds an almost impoverished overall toy index (N: 267; Mean: 8.60; SD: 4.14) against standard comparison group of typical children (N: 56; Mean: 13.6; SD: 2.70) out of maximum possible score of 20 on this measurement.

Ae-Hawa et al (2003) reviewed the findings of 13 intervention studies published between 1975 and 1999 on 3-5 year children with disabilities to conclude that positive outcome is associated with playing with *social*

*toys. Beneficial effects of toy play in children with multiple disabilities in inclusive classroom settings are recorded (*DiCarlo & Reid, 2004; DiCarlo, Reid & Stricklin, 2003). Research has also focused on toy preferences in children (Thomas, 1984; Frashner, Naurss, & Brogan, 1980), toy selection by parents (Christensen & Stockdale, 1991; Peretti & Sydney, 1984; Kesner & Sunal, 1980; Allen, 1968), the need or utility of toy libraries (Brodin & Bjorck-Akerson, 1992; Jackson, Robey, Watjus & Chadwick, 1991; Johnson, 1978) and toy safety issues (Wu et al. 2013; Taylor, Morris & Rogers, 1997; Hillery, 1994; Dawson, 1990) in the context of CWDD. It appears that parents in the Indian scene are typically unaware of these several important nuances related to toys and children.

As derived in this study, gender stereotyping appears is a crucial variable in choice or dispensing of toys, their made availability and patterns of use (Venkatesan, 2014; Martin, Eisenbud & Rose, 1995; Caldera, Huston & O'Brien, 1989; Robinson & Morris, 1986). Cherney and London (2006), for instance, found that boys spent more time on leisure activities like engagement in sports, watching television and playing computer games than girls did. Giddings and Halverson (1981) noted that children spent 20 per cent of their waking time in play, wherein boys played more with vehicles and girls spent

more time with dolls involving domestic role play and dressing up. Although common sense tells that different age groups of children are attracted by different types of toys, it is now shown that older children and/or those from urban areas show higher toy index than younger ones.

Venkatesan (2014) painted a rather dismal portrait of the CWDD as a rural girl, who is either an infant or toddler, without sufficient social exposure, or possibly, even multiply handicapped, with no toys made available for stimulation in the home settings. This implies that the best opposite polarity among such children is another hypothetical urban male child with hearing impairment staying in joint family and exposed to school, who appears to have availability for somewhat or slightly better number of toys. However, admittedly, at that time, there was still no comparative norms on toy availability in unaffected or so called non-disabled children to make meaningful comparisons or state how much toy-starved these children are in the country. Most of the toys have certain amount of educational purpose in it. They may have incorporated sounds and movement to stimulate the sensory touch of the children or bright color shape to trigger their visual perception. However, without proper guidance, CWDD will be just playing with toys without any purpose in it. At times, if not properly guided, toys may be used by children as

agents for demolition, devastation, damage and destruction. In that sense, the purpose behind each toy is lost (Hiedemann & Hewitt, 1992).

Hello Barbie, CogniToys Dino, and Amazon Echo are new generation Internet connected toys and gadgets for children. They are being marketed in the west by emphasizing their potential educational and developmental benefits as well as for their interactivity, open-ended, and dynamic content. Even as these gen-next toys have privacy and new vulnerability threats not previously experienced in the realm of toys, the notions that parent respondents in this study carried with regard to toys vis-à-vis their children were far too behind.

10.0 SUMMARY

In sum, this study shows that

10.1 The mean toy index for overall sample of children with and without developmental disabilities is 8.60 for a maximum score of 20, which is much lower than 13.6 derived for typical children;

10.2 Children appear to make better use of the limited toys made available, while the number of toys owned by them is fewer and the expenditure incurred by parents is also less;

10.3 Boys than girls and children from urban than those from rural areas secure higher toy index;

10.4 More specifically, boys show greater ownership and parents appear to spend more money on toys for them compared to girls;

10.5 In relation to their condition, against the benchmark of a standard comparison group in typical children, those with expressive speech delays appear to trail closest behind them with lower toy index, followed by children with hearing impairments, those with developmental disabilities, and eventually, the most disadvantaged are children with multiple disabilities with the least toy index; and,

10.6 There is a linear trend with younger and rural children measuring lowest toy index compared to their older peers and/or those from urban areas.

11.0 CONCLUSION

To conclude, the availability of toys, its usage, purchase and procurement against various types of disability as well as typical children is still an uncharted terrain. This study sought to focus on a neglected theme of research by deriving and developing baseline bench marks or tentative estimates on contemporary status of toys vis-à-vis CWDDs. This pioneering development of toy index across various age groups is likely to throw up bench marks that may be sooner or later linked to providing, ownership or usage of toys as a matter of child rights rather than as sheer option to appease them (Johnson, 2012). Thereby, it has opened vistas for purchase, provision and use of toys necessary for informal, individualized, developmentally appropriate, activity-oriented, learner paced, ecologically interactive and educational interventions for children in the country. The scarcity of toys and/or their deemed unaffordable costs can be mitigated to a large extent by establishing toy testing outlets, toy safety certification agencies, toy libraries and lending corners exclusively for CWDD-a concept almost unheard but required so badly in our country (Rettig, 1998; Brodin & Bjorck-Akesson, 1992; Jackson, Robey, Watjus & Chadwick, 1991; Mayfield, 1988; Stone, 1983; Ross, 1982; Johnson, 1978).

12.0 IMPLICATIONS & UTILITY

The results of this project has helped

17.1 Arrive at an empirical taxonomy on the nature, types and extent of toys for CWDD;

17.2 Derive a bench mark on the contemporary status of toys vis-à-vis the daily lives of CWDD;

17.3 Examine the perceived or reported functional-utilitarian value of toys as reported by significant others and provided for CWDD;

17.4 Elicit parent/caregiver opinions and attitudes on or about provision of toys for CWDD;

17.5 Estimate an usability index of toys provided for CWDD;

17.6 Expand on the scope of toys in the upgrading informal, individualized, developmentally appropriate, activity-oriented, learner paced, ecologically interactive and play-based interventions for CWDD;

17.7 Become the basis for evolving Toy Based Education for CWDD; and,

17.8 Dissemination of information across professionals on a rather neglected area of research on CWDD;

Even though toys cannot be substitutes for warm, loving and dependable relationships, this study has highlighted the role of toys to optimize benefits for CWDD. While doing so, it also contrasts the dismal ground reality wherein parents continue to be wary of dispensing toys to children. There is need to educate parents and enhance their toy awareness, while simultaneous efforts are also needed to make toys more appealing, affordable, available and accessible for CWDD.

It has also taught a lesson that the toys by themselves are not an important factor in child development. Rather, the playing process accompanying it is vital. If this is so, when a toy is purchased for a child, there is more to think than just the fun factor or their educational purpose. One has to think about the playing process too. Further, precautions need to be always taken to clean and disinfect the toys (Hillery, 1994), avoid purchase or use of toys for purposes that intend to harm or hurt others, such as those illustrated by toys which serve as chokers, impalers, hit-backs, deafeners, crushers, burners, and head injurers (Taylor, Morris & Rogers, 1997; Dawson, 1990). The study also throws open the possibility of providing access to CWSN to various types of toys in a low priced, constructive and facilitative manner. This is a real challenge and chance for the toy manufacturing and marketing industry in the country. It also highlights need

for making prescriptions on just how many minimum number or variety of toys each child must be necessarily given or made available so that it does not fall into range of infringement to fulfill their basic child right to own a toy.

13.0 RELATED STUDIES CARRIED OUT IN THE DEPARTMENT:

13.1 Khoshali, A.K., & Venkatesan, S. (2007). Play behaviors in children with mental retardation. *Psychological Studies*. 52(1): 90-94. ISSN 0033-2968

13.2 Khoshali, A.K., & Venkatesan, S. (2010). Development of play activity checklist for children with mental retardation. *Indian Journal of Clinical Psychology*. 37(2): 101-107. ISSN: 0303-2582

13.3 Venkatesan, S. (2000). Play activities in children with mental retardation. *Indian Journal of Clinical Psychology*. 27(1): 124-128. ISSN: 0303-2582.

13.4 Venkatesan, S. (2004/2010). *Toy Kit for Kids with Developmental Disabilities: User Manual*. Mysore: All India Institute of Speech and Hearing. (Kannada Version) ISBN: 978--81-909355-7-9; Pages 63.

13.5 Venkatesan, S. (2004). Activity log of preschool children with developmental disabilities and autism spectrum disorders. *Disability, CBR and Inclusive Development (formerly Asia Pacific Disability Rehabilitation Journal)*. 16(1): 68-76.

13.6 Venkatesan, S. (2012). Utility analysis of assembled toy kits for kids with developmental disabilities. *Journal of Disability Management and Special Education*, 2(2): 27-37. ISSN 2229-5143.

13.7 Venkatesan, S. (2014). Availability of toys for children with developmental disabilities. *Journal of Disability Management and Special Education*. 4 (1): 58-70. ISSN: 2229-5143.

13.8 Venkatesan, S., & Ravindran, N. (2012). Play behaviors and activities in siblings of children with developmental disabilities. *Journal of Indian Academy of Applied Psychology*. 38(1): 69-78. ISSN: 0019-4247.

14.0 RESEARCH PAPERS GENERATED FROM THIS PROJECT:

14.1 Venkatesan, S., & Yashodharakumar, G.Y. (2017). Toy index of children with or without developmental disabilities. *Indian Journal of Clinical Psychology*. Sent for publication. ISSN: 0303-2582.

14.2 Venkatesan, S., & Yashodharakumar, G.Y. (2017). Parent notions and attitudes on toy use by children with or without developmental disabilities. *International Journal of Indian Psychology*. Sent for publication. ISSN: 2349-3429.

15.0 REFERENCES

Ae-Hwa, K., Vaughn, S., Elbaum, B., Hughes, M. T., Sloan, C. V. M., & Sridhar, D. (2003). Effects of toys or group composition for children with disabilities: a synthesis. *Journal of Early Intervention,* 25, 189-205.

Allen, A. (1968). Criteria for selecting gifts. *Childhood Education.* 45(3), 118-121.

Anastasi, A., & Urbina, S. (1997). *Psychological Testing.* MacMillan Publishing: New York.

Brodin, J., & Bjorck-Akesson, E. (1992). Toy libraries/Lekoteks in an international perspective. *EuroRehab, 2,* 97-102

Caldera, Y. M., Huston, A. C., & O'Brien, M. (1989). Social interactions and play patterns of parents and toddlers with feminine, masculine, and neutral toys. *Child Development,* 60, 70-76.

Chan, K. (2005). Material world attitudes towards toys in China, *Young Consumers*, 6(1), 54-65.

Chan, K., & Hu, F. (2008). Attitudes towards material possessions among Chinese children. *Young Consumers*, 9(1), 49-59.

Cherney, I. D., & London, K. (2006). Gender linked differences in the toys, television shows, computer games, and outdoor activities of 5- to 13-year old children. Sex Roles, 54, 717.

Christensen, K.E., & Stockdale, D.F. (1991). Predictors of toy selection criteria of preschool children parents. *Children's Environments Quarterly*, 8(1), 25-36.

Clark, W., & Roberta, B. (1979). Improving the leisure-time behaviors of severely/profoundly mentally retarded children through toy play. *AAESPH Review*. 4(3), 237-250.

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurements, 20* (1), 37-46. http://dx.doi.org/10.1177%2F001316446002000104

Datta, D., Das, S., & Talukdar, L.K. (1984). An observation of play in a group of mentally handicapped children, *Child Psychiatry Quarterly*, *17*(3), 94-99.

Dawson, C. (1990). Choosing safe toys for children. *Consumers Research Magazine*, 73(12), 15.

DeLucia, L. A. (1963). The toy preference test: A measure of sex-role identification. *Child Development*, *34*, 107–117

DiCarlo, C. F., & Reid, D. H. (2004). Increasing pretend toy play of toddlers with disabilities in an inclusive setting. *Journal of Applied Behavior Analysis*, 37, 197–207. doi: 10.1901/jaba.2004.37-197

DiCarlo, C. F., Reid, D. H., & Stricklin, S. B. (2003). Increasing toy play among toddlers with multiple disabilities in an inclusive classroom: a more-to-less, child-directed intervention continuum. *Research in Developmental Disabilities*. 24(3), 195-209.

Downs, A. C. (1983). Letters to Santa Claus: Elementary school-age children's sex-typed toy preferences in a natural setting. *Sex Roles*. 9(2), 159-163.

Frashner, R. S., Nurss, J. R., & Brogan, D. R. (1980). Children's toy preferences revisited: Implications for early childhood education. *Child Care Quarterly*, 9, 26-31.

Giddings, M., & Halverson, C. F. (1981). Young children's use of toys in home environments. *Family Relations*, 30(1), 69-74.

Goldstein, J.H. (Ed.). (1994). *Toys and child development.* Cambridge: Cambridge University Press.

Harley, B. (1990). *Constructional toys.* United Kingdom: Shire Publications.

Hiedemann, S., & Hewitt, D. (1992). *Pathways to play: developing play skills in young children.* Baltimore, MD: Paul H Brookes.

Hillery, N. (1994). Rub a dub dub, many toys in the tub, How do we keep them clean? *Child"s Play*, 10(3), 4-5.

Ivory, J.J., & Mc Collum, A. (1999). Effects of social and isolate toys on social play in an inclusive setting. *Journal of Special Education*. 32(4), 238-242.

Jackson, S. C., Robey, L., Watjus, M., & Chadwick, E. (1991). Play for all children: The toy library solution. *Childhood Education*, 68(1), 27-31.

Johnson, E. (2012). *The children's bill of emotional rights: a guide to the needs of children.* Plymouth, UK: Jason Aronson.

Johnson, E. (1978). *The toy library—A how to handbook, Minnesota: Toys 'n Things*, Maine: Training Resource Center.

Kapellaka, U. (1992). Toy libraries: Learning through play with toys. *International Journal of Early Childhood*, 24(2), 53-56.

Karande, S. (2011). Book review: Toy kit for kids with developmental disabilities, user manual. Mysore: All India Institute of Speech and Hearing. *Indian Pediatrics*, 48(10), 830.

Kawin, E. (1934). The function of toys in relation to child development. Journal of Childhood Education, 11(3), 122-132.

Kesner, J. R., & Sunal, C. S. (1980). Choosing the right toy: A checklist. *International Journal of Early Childhood.* 12 (2), 76-80.

Khoshali, A.K., & Venkatesan, S. (2007). Play behaviors in children with mental retardation. *Psychological Studies.* 52, 1, 90-94.

Khoshali, A.K., & Venkatesan, S. (2010). Development of play activity checklist for children with mental retardation. *Indian Journal of Clinical Psychology.* 37, 2, 101-107.

Lear, R. (1996). *Play helps: Toys and activities for children with special needs*. Butterworth/Heinemann.

Lieber, J., & Beckman, P. J. (1991). The role of toys in individual and dyadic play among young children with handicaps. *Journal of Applied Developmental Psychology,* 12(2), 189-203.

Mallya, I.P. (1979). Special play sessions: A play method to help children with special needs. *Child Psychiatry Quarterly, 12*(1), 1-6.

Malone, D. M., & Stoneman, Z. (1995). Methodological issues in studying the toy play of young children with mental retardation. *Topics in Early Childhood Special Education,* 15(4), 459-487.

Martin, C.L., Eisenbud, L., & Rose, H. (1995). Children's gender based reasoning about toys. *Child Development,* 66, 1453-1471. Doi: 10.1111/j.1467-8624.1995.tb00945.x

Mayfield, M. (1988). Toy libraries in Canada: a research study. *Canadian Children,* 13(2), 1-18.

Mc Conkey, R., & Martin, H. (1983). Mothers' play with toys: a longitudinal study with Downs syndrome infants. *Child Care, Health and Development,* 9, 215-226. Doi: 10.1111/j.1365-2214.1983.tb00318.x

Murphy, G., Carr, J., & Callias, M. (1986). Increasing simple toy play in profoundly mentally handicapped children: II. Designing special toys. *Journal of Autism and Developmental Disorders.* 16(1), 45-58

O' Donoghue, T., & Punch, K. (2003). *Qualitative educational research in action: Doing and reflecting.* (pp. 78) New York: Routledge.

Peretti, P. O., & Sydney, T. M. (1984). Parental toy choice stereotyping and its effects on child toy preference and sex-role typing. *Social Behavior and Personality,* 12, 213-216.

Peshawaria, R., Menon, D. K., & Reddi, S. (1991). *Play activities for young children with special needs.* Secunderabad: National Institute for the Mentally Handicapped.

Quilitch, H. R., Christophersen, E. R., & Risley, T. R. (1977). The evaluation of children's play materials. *Journal of Applied Behavior Analysis,* 10, 501-502. Doi: 10.1901/jaba.1977.10-501

Ralph, J., O'Neill, R., & Winston, J. (2015). *A practical introduction to index numbers.* Sussex, UK: Wiley.

Reinharsten, D.B., Garfinkle, A.N., & Woolery, M. (2002). Engagement with toys in two-year-old children with autism: teacher selection versus child choice. *Research and Practice for Persons with Severe Disabilities*. 27(3), 175-187.

Rettig, M. A. (1998). Guidelines for beginning and maintaining a toy lending library. *Early Childhood Education Journal, 25*(4), 229-232.

Riddick, B. (1982). Toys and play for the handicapped child. Routledge. Pp. 149.

Robinson, C.C., & Morris, J.T. (1986). The gender stereotyped nature of Christmas toys received by 36-, 48-and 60-month-old children: A comparison between non-requested vs. requested toys. *Sex Roles,* 25, 21-32.

Ross, N. (1982). *Directory of US toy libraries*. Minnesota: Toys n' Things Press.

Rubin, K.H., & Howe, N. (1985). Toys and play behavior: An overview. *Topics in Early Childhood Special Education*, 5(3), 1-9.

Shopper, M. (1969). The use of children's literature and toys in the teaching of child development to medical students in preclinical years. *Journal of American Academy of Child Psychiatry,* 8(1), 1-15.

Siegal, S., & Castellan Jr., N.J. (1988). *Non-parametric statistics for the behavioral sciences*. (pp. 235-244). New York: McGraw Hill.

Srivastava, A. K. (2011). Book review: Toy kit for kids with developmental disabilities, user manual. Mysore: All India Institute of Speech and Hearing. *Journal of Disability Management and Special Education,* 1(1), 87-88

Stone, M. (1983). Toy libraries. *Early Childhood Education Journal*, 11(2), 19-21.

Sutton-Smith, B. (1986). *Toys as culture.* New York: Gardner Press.

Szymanski, M.M., & Neuborne, E. (2004). *Toy tips: a parents essential guide to smart toy choices.* San Francisco: Jossey-Bass.

Taylor, S.I., Morris, V.G., & Rogers, C.S. (1997). Toy safety and selection. *Early Childhood Education Journal,* 24(4), 235-238.

Thomas, B. (1984). Early toy preferences of four year old readers and nonreaders. *Child Development.* 55, 424-430.

Tomopoulos, S., Dreyer, B.P., Tamis-LeMonda, C., Flynn, V., Rovira, I., Tineo, W., & Mendelsohn, A.L. (2006). Books, toys, parent-child interactions and development of young latino children. *Ambulatory Pediatrics,* 6(2), 72-78.

Venkatesan, S. (2000). Play activities in children with mental retardation. *Indian Journal of Clinical Psychology*. 27, 1, 124-128.

Venkatesan, S. (2004a). Activity log of preschool children with developmental disabilities and autism spectrum disorders. *Asia Pacific Disability Rehabilitation Journal.* 15 (2), 58-66.

Venkatesan, S. (2004b). *Children with Developmental Disabilities: A Training Guide for Parents, Teachers & Caregivers.* New Delhi: Sage.

Venkatesan, S. (2009). *Ethical Guidelines for Bio Behavioral Research involving human subjects*. Mysore: All India Institute of Speech and Hearing.

Venkatesan, S. (2010). *Toy Kit for Kids with Developmental Disabilities: User Manual.* Mysore: All India Institute of Speech and Hearing.

Venkatesan, S. (2011). *Revised NIMH Socio Economic Status Scale-1993.* Secunderabad: National Institute for Empowerment of Persons with Intellectual Disabilities (Divyangjan: Formerly National Institute for Mentally Handicapped).

Venkatesan, S. (2012). Utility analysis of assembled toy kits for kids with developmental disabilities. *Journal of Disability Management and Special Education*, 2, 2, 27-37.

Venkatesan, S. (2014). Availability of toys for children with developmental disabilities. *Journal of Disability Management and Special Education*. 4 (1), 58-70.

Venkatesan, S. (2015a). Evaluation of teaching objectives earmarked for children with developmental disabilities. *Disabilities and Impairments,* 29(2), 85-95.

Venkatesan, S. (2015b). Revisiting goal setting for children with developmental disabilities. *Journal of Disability Management and Special Education, 5*(2), 19-27.

Venkatesan, S., & Ravindran, N. (2012). Play behaviors and activities in siblings of children with developmental disabilities. *Journal of Indian Academy of Applied Psychology*. 38(1), 69-78.

Venkatesan, S., Jayakaran, G.T., Purusotham, P., & Rafi, M. (2012). Disability access audit of public service facilities. *Journal of All India Institute of Speech and Hearing*. 31, 190-201

Wu, R.S., Chan, J.X., Chong, S.L., Ong, G.Y., & Ng, K.C. (2013). Toy safety in Singapore: where are we now? *Singapore Medical Journal*, 54(11), 639-642.

16.0 APPENDICES

The following three tools used for data collection in this study are enclosed as appendices:

16.1 Socio-Demographic Data Sheet;
10.2 Data Elicitation Probe on Toys;
10.3 Toy Attitude Scale

Appendix 16.1
Socio-Demographic Data Sheet

DEVELOPMENT OF TOY INDEX FOR CHILDREN WITH DEVELOPMENTAL DISABILITIES

I Child Details

Name:
_____

Age: _____ DOB: _____ Gender: _____

Mother Tongue: _____ CRF No.: _____

School: _____ Diagnosis: _____

II. Parent Details

Father's Name: _____

Age: _____ Occupation: _____ EQ: _____

Mother's Name: _____

Age: _____ Occupation: _____ EQ: _____

Address: _____

_____ Phone: _____

III. Sibling Details

Number of Siblings: _____ Brothers: _____ Sisters: _____

Age: _____ _____ _____

Education: _____ _____ _____

IV. Family Details

Type: Nuclear/Joint Size: _____ Status: Intact/Broken

Approximate Monthly Expenditure on

Toys: Rs. _____ Health: Rs. _____ Education: Rs. _____

DECLARATION

I am adequately oriented about the nature and scope of this project for which I am hereby willingly giving my consent to be a respondent.

Date: **SIGNATURE**

Appendix 16.2
Data Elicitation Probe on Toys

DEVELOPMENT OF TOY INDEX FOR CHILDREN WITH DEVELOPMENTAL DISABILITIES

No.	Statements	✓ /X
1	Parents should be realistic about their child's ability and achievements	
2	Toys stimulate learning in children	
3	If children are provided toys, there will be no need for parents to be with them	
4	Parents should adjust their expectations according to child's ability	
5	Children provided with toys tend to learn faster and cope with parent's expectations	

6	Toys cannot change the ability of CSWN	
7	Since children are too young to choose, parents should decide while buying toys	
8	Toys do not play any important role in the child's overall development.	
9	Toys do not encourage imagination and creative thinking in children	
10	Since parents spend money on toys, they should help children learn as much in short span of time	
11	While playing with toys, the child should be praised only after completing the game	
12	When a child makes a mistake while playing with toys, it must be corrected by parents immediately	
13	Making frequent comparisons with peers help children to play better with their own toys	
14	Tasks like taking care of one's toys or making toys for others foster helpfulness in children	
15	Using toys must be a regular habit during activities of daily life like bathing, eating, or bed time	
16	If toys are provided to children, they may become over dependent on it and refuse academic activities	
17	Giving toys may distract children and reduce their attention-concentration	
18	Young child should be given small toys, as older child should get big toys	
19	Children cannot differentiate toys of different weights and textures	
20	Toys have no role in development of senses related to vision, hearing, smell or touch	
21	If detachable dolls are provided, children might separate legs, hands and neck to examine them	
22	If toy is too advanced, kids may not know how to play, if it is too primitive, they might become easily bored	
23	Providing toys which stimulate all senses is not appropriate	
24	Lots of money has to be spent on toys to help children in normal development	
25	Child oriented programs on television can be used as alternative for toys	

Appendix 16.3
Toy Attitude Scale

DEVELOPMENT OF TOY INDEX FOR CHILDREN WITH DEVELOPMENTAL DISABILITIES

No	Statements	SD	D	N	A	SA
1	Toys are unaffordable luxuries for children					
2	Children can and do grow even without toys					
3	Giving toys to children is unsafe					
4	Toys are the best teaching instruments					
5	Toys teach children unwanted violence and aggression					
6	Toys can be a source of outlet for the child's unfulfilled					

	aggression					
7	Toys make children to live in a world of make believe fantasy					
8	Teaching children to read and write is better option than to waste their time playing with toys					
9	The make-and-break toys actually teach children assembly and construction skills					
10	Digital toys are a bane of the modern technology driven world					
11	The competition and rivalry that happens between children can be traced partly to the kind of aggressive toys that they are given to play with by their elders					
12	There are different toys for different ages					
13	All children loves and needed toys					
14	Boys need to be given different toys than what is given to girls					
15	If no toys are given, children somehow learn to devise, develop or make their own toys with things around them in their surroundings					
16	Toys allow children to role play and rehearse their later adult life					
17	Some dolls and toys can also influence the self image, perception of body size or shape in children					
18	Children who play with toys may start imitating or mimicking those animal or machine sounds					
19	By the age of 2 ½ years, children have a good sense of what is safe to eat and are not likely to put small toys in their mouth					
20	Toys should be purchased only on special occasions					

[SD: Strongly Disagree; D: Disagree; N: Neutral; A: Agree; SA: Strongly Agree]

17.0 FINAL STATEMENT OF EXPENDITURE

1. Sanction Letter and Date: SH/PL/ARF/06/2015-16 date: 03.09.2014
2. Date of commencement of project and duration: 03.11.2014
3. Date of completion of project: 15.01.2016
4. Total project cost with breakup of budget: 3,01,000/- Rs (Sanctioned/Revised, as applicable)
5. Total Expenditure Incurred (Item-wise): *2,39,726/- *(*Tentative: awaiting for final Statement of expenditure)*

6. Excess amount to be refunded to the institute: *61,274/- rs *(*Tentative: awaiting for final Statement of expenditure)*

Enclosed previous statement of expenditure

(after getting the statement of expenditure duly vetted from accounts section)
2131

Signature
Date
Name/s

Principal Investigator Co-Investigator