

**COMPARISON OF DECISION MAKING, PARTICIPATION AND
COMMUNICATION SKILLS DURING LIFE SKILLS IN CHILDREN WITH
HEARING IMPAIRMENT AND TYPICALLY DEVELOPING CHILDREN
OF THE AGE RANGE 5-7 YEARS**

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**A Dissertation Submitted in Part fulfilment for
the Degree of Master of Science
(Speech-Language Pathology)
University of Mysore**



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JULY 2024

CERTIFICATE

This is to certify that this dissertation entitled **“Comparison of Decision making, Participation and Communication skills during life skills in children with Hearing impairment and Typically developing children of the age range 5-7 years”** is a Bonafide work submitted in part fulfillment for the degree of Master of Science (Speech-Language Pathology) of the student Registration number P01II22S123020. This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

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DECLARATION

This is to certify that this dissertation entitled “**Comparison of Decision making, Participation and Communication skills during life skills in children with Hearing impairment and Typically developing children of the age range 5-7 years**” is the result of my own study under the guidance of Dr. Amulya P Rao, Assistant Professor of Language Pathology, Department of Speech- Language Pathology, All India Institute of Speech and Hearing, Mysore and has not been submitted earlier to any other University for award of any other Diploma or Degree.

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July 2024

Acknowledgment

Firstly I want to express my gratitude to my parents for their continuous support during all of my highs and lows.

I wish to express my gratitude to my Guide, Amulya mam. I consider myself fortunate to be your student for dissertation. Research being a new field to me your constant support and guidance had made completed my dissertation much easier. I thank you for your patience and for trusting in my abilities. Without your support and encouragement, I could not have completed my dissertation .

I would also like to thank all the validators of the study — Shobha Mam, Kumuda Mam , Prathima Mam, Anushmitha Mam, and Chandana Mam—for their valuable help and guidance for my dissertation.

I would like to render my thanks to the director of AIISH, Dr. M Pushparavathi, for permitting me to carry out this study

Special thanks to my friends Arena, lakshmi , harshinee ,urmi you guys have seen me how I was and without your support I would have not be the same for who I am now. I would always be grateful to you guys, you made my 6 years of journey in AIISH so memorable . Thank you for always being their for me.

I would like to express my heartfelt thanks to my friends Pallavi, Hemalatha, lavanya , Rashmi, Sharon ,Vishnavi , Chandana for being supportive adding more beautiful memories for my masters journey.

I would also specially thank my friends Keerthana and Raagu , You guys have always been there for me. Studying at a new college and living in a new city was challenging, but your support, encouragement, and care have made my six-year journey much easier.

I would also like to thank my batchmates " Renaissance " and my 2nd msc SLP classmates , I am so happy to share my 6 years journey in AIISH with you guys.

Special thanks to my dissertation partner, Sahaja !. you have been so supportive, throughout my masters journey. I had a best memories with you. Thank you for always being there and keep inspiring .

Finally, I would like to thank AIISH for providing me with a wonderful experience. I also feel fortunate to have spent 6 years beautiful years.

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CHAPTER I

INTRODUCTION

World Health Organisation (WHO) defines a person with hearing loss as, “who is not able to hear as well as someone with normal hearing –hearing thresholds of 20dB or better in both ear” (WHO, 2023). It is estimated that over 700 million or 1 in every 10 individuals will be having hearing loss by 2050 (WHO, 2023).

The literature reports that due to hearing loss, children exhibit various communication developmental delays. Tuohimaa et al. (2022) reported delay in the development of speech, syntax, semantics and coherence in children with hearing impairment (HI) compared to children with normal hearing. The delay in these language aspects haven shown to affect the interactions and conversations indicating deficits in pragmatics in children with HI (Vaidya, 2021). Delay in these speech and language acquisition in children with HI have in turn found to lead to other psychosocial problems or lower quality of life compared to peer groups (Haukedal et al., 2021). Research reports that the cognitive abilities in children with HI are in par with typically developing children (Gomez et al., 2014). However, the acquisition of these speech, language, and cognitive skills in children with HI majorly depends on factors like parent’s acceptance for child’s diagnosis (Gomez et al., 2014), early identification, severity of the impairment, and early intervention (ASHA, 2015). It has been reported that parent’s or caregiver’s over protection of the child with HI accompanied by poor sociability leads to delayed development of these skills (Gomez et al., 2014). All these deficits ultimately might have an impact on the child’s life skills.

According to World Health Organization (WHO, 1993), life skills are the “abilities for adaptive and positive behaviour that enable individuals to deal effectively

with the demands and challenges of everyday life” (UNICEF India, 2018 pg. 5). The components of life skills include critical thinking, decision making, problem solving, creativity, resilience, participation, negotiation, empathy and communication (UNICEF India, 2020 pg.25).

Various studies report that children with various communication disorders exhibit poor skills of these components that are required to carry out life skills. Children with Autism Spectrum Disorders have impairments in communication (both verbal and non-verbal), social interaction, participation, critical thinking, problem solving, and resilience (Mourad Ali, 2018). Similarly, in children with intellectual disability communication, critical thinking, problem solving, resilience, and participation are affected (Sunish et al., 2013). On the other hand, children with cerebral palsy without any other comorbid condition, will majorly have difficulties in communication (both verbal and non-verbal) and participation (Coleman et al., 2013). Participation in children with cerebral palsy is mainly due to weakness in oral structures and limbs (Majnemeret al., 2008). In children with HI, communication and participation are majorly affected whereas the rest are relatively preserved in par with typically developing children (Gomez et al., 2014). So, the deficits in various components of life skills in children with communication disorders can have a negative impact while carrying out a particular life skill. Hence, it becomes very important to understand the same as ultimately, it is during a life skill that the children with various communication disorders have to communicate.

There are a few assessment scales to assess the life skills majorly in adolescents as reported in the literature. One of them include an indigenous Life Skill Assessment Scale (Rajiv Gandhi National Institute of Youth and Development (RGNIYD), in English (Subasree, 2014); the same has been translated to Kannada language

(Gangadharaiah, 2020). This is a questionnaire with 100 questions tapping the dimensions of life skills like critical thinking, interpersonal relationship, empathy, self-awareness, decision-making, coping with emotion, problem solving, effective communication, creative thinking and coping with stress. A 5-point Likert scale with one being the lowest and five being the highest score has been used to indicate each dimension. In addition, to assess the life skills among students with HI, Life Skill Self-Assessment Scale for students with HI in the age range 15 to 22 years (LSSAS-SWHI) has been developed. LSSAS scale measures a total of six dimensions which include critical thinking, interpersonal relationship, empathy, self-awareness, decision-making on a four-point rating scale (Rama Krishna et al., 2016).

Another one is a western tool, Life Skill Evaluation Tool for 9-12 years (Kristina et al., 2011) which includes 30 questions related to six components of life skills namely, communication, leadership, useful/marketable skills, self-responsibility, critical thinking, and positive identity. It uses a four-point rating scale ranging from “No” to “Yes”. There are rating scales developed in specific to the core skills of life skills like social skills for the study purpose. For example, Social skills rating scale-teacher form (SSRS) (cooperation, assertion and self-control) (Mohammed Ashori, 2019). This scale is a 30- item measures with a three-point Likert scale ranging from 0 (never) to 2 (often).

Further, various studies have also focused on investigating the efficacy of life skill training for language development in both typically developing children as well as children with various communication disorders. Results of the studies have shown positive effects. Skill based learning approaches have been found to be effective in learning second language acquisition as well improve the life skills of typically developing students (Phranakhon et al., 2023). Life skill training in children with autism

has found to be effective in improving their functional communication skills (Mourad Ali, 2018). In addition, self-esteem and the communication skills have resulted in positive outcome from life skill training in students with dyscalculia (Kazemi et al., 2014). Schools implementing functional curriculum training involves improving life skills of deaf students enabling them to use functional life skills in the community effectively. The study found that life skill training promoted social skills which enhanced the relationships and interactions of students with HI (Mohammed Ashori, 2019). Studies have found that the main causes of social phobia in students with HI are social avoidance and poor life skills. A decrease in the level of social phobia in children with HI has been reported after attending the life skill training (Abbas et al., 2013).

1.1 Need for the study

The literature related to life skills have majorly aimed at investigating the efficacy of using life skill training in typically developing children as well as children with communication disorders (Phranakhon et al., 2023; Mohammed Ashori, 2019). All these studies have reported a positive effect of life skill training on the measures considered. Studies focusing on the impact of life skill training in individuals with HI have also been carried out in the recent past. However, these studies have been mainly carried out on either older children 10-12 years (Movallali et al., 2014), adolescent 8-18 years (Abbas Mahvashe et al., 2013) or in adults 18-22years (Rama Krishna et al., 2016) and not in younger children 5-7 years. In addition, the major focus of these studies has been towards improving their life skills related to school or work place or residential set-up (Ahmadian et al., 2009) and not in the other settings like home, social gathering, market etc.

Literature review also reveals that lesser focus has been provided to understand the abilities of typically developing or normal individuals in carrying out the life skills. The life-skill assessment scales currently present are for adolescent and not for children. Comparison studies across normal individuals and individuals with communication disorders with respect to life skills are also sparse. Such studies would probably shed light on how much deviant are individuals with communication disorders in dealing with life skills compared to normal individuals. This information would help speech-language pathologists (SLP) to focus on improving communication skills using life-skill training which would in turn help in generalization of the learnt skills.

Further, from the literature, it can be deduced that older children, adolescent and adults with HI have problems in coping up with life skills (Haukedal et al., 2021). In this line, there can be a high probability of younger children with HI failing to cope up with the age- appropriate life skills. This also sheds light on the fact that though there is an improvement in the speech and language skills of children with HI post speech-language intervention, they are unable to apply the learnt behaviours while carrying out life skills. This has shown to continue till their adulthood. Hence, to avoid this major concern, it becomes important for an SLP and the team to make children with HI more competent to carry out age appropriate life skills at a very young age itself.

Also, the training provided to children with HI might also have an impact on the way they think, decide, participate and communicate during a life skill though they are in par with typically developing children with respect to cognition. All the above, created the base to carry out this preliminary study in order to understand how par are young children with HI (5 to 7 years) in decision making, participating and

communicating during age appropriate life skills when compared to typically developing.

1.2 Aim

The study aims to investigate and compare decision making, participation, communication abilities during life skills in children with hearing impairment and typically developing children of age range 5 to 7 years

1.3 Objectives

1. To compare decision making abilities during life skills in children with hearing impairment and typically developing children.
2. To compare participation during life skills in children with hearing impairment and typically developing children.
3. To compare communication abilities during life skills in children with hearing impairment and typically developing children.

CHAPTER II

REVIEW OF LITERATURE

2.1 Hearing Impairment

Children with hearing impairment have been reported to have developmental delay in communication. Tuohimaa et al., (2022) reported that children with Hearing Impairment exhibits delay not only in linguistic domain (Speech, Syntax, Semantics, Coherence) but also in pragmatic domain (Inappropriate Initiation, Stereotyped Language, Use of Context, Nonverbal Communication).

A detailed pragmatic assessment in Marathi speaking children with Hearing Impairment and typically developing children using Pragmatic assessment checklist in pre-schoolers revealed that children with Hearing impairment exhibited delay in interaction, communication domain as well as context variation. Poor speech intelligibility in these children with Hearing Impairment was predicted to be one of the reasons to affect peer interaction (Vaidya, 2021). Delay in development of communication has an overall effect on the quality of life of children with Hearing Impairment compared to typically developing children. A strong co-relation was observed in comparison to social communication skills and Health related quality of life (HR-QOL), where parents of children with Hearing Impairment reported poor social communication skills as well as lower quality of life (Haukedal et al., 2021). Nevertheless, in children with Hearing Impairment the acquisition of speech, language and cognition skills are also dependent on the presence of associated comorbidities.

Over protection by parents, accompanied by poor sociability might lead to lack of independence, low self-esteem, and poor overall development (communication - either verbal or gestural, cognitive, motor, and emotional skill) in children with hearing

impairment (Gomez et al., 2014). ASHA (2015) reported the importance of early diagnosis, severity of impairment and early intervention. These factors also have a significant role in acquisition of speech, language, and overall development in children with Hearing Impairment. Therefore, all these factors consequently might have an impact on life skills of children with Hearing Impairment.

2.2 Life skills

According to WHO, (1993) life skills are defined as abilities for adaptive and positive behaviour that enables individuals to deal effectively with the demands and challenges of everyday life. Life skills encompass various components, including critical thinking, decision making, problem solving, creativity, resilience, participation, negotiation, empathy, and communication (UNICEF India, 2020 pg.25). Table 1 provides the definition of each life skill component as per UNICEF (2020).

Table 2.1

Definitions of components of life skills as given by UNICEF (2020).

Components of life skill	Definition
1. Critical thinking	Ability to appropriately/ adequately analyse information in order to come to a judgement
2. Decision making	Choosing an option/action from amongst a set of alternatives available
3. Problem solving	Ability to think through steps that lead from a given situation to a desired goal. Includes problem identification, understanding, identification of solutions
4. Creativity	Ability to generate, articulate and apply inventive & original ideas, techniques and perspectives
5. Resilience	Ability to cope with stress and calamity and returning to previous level of stasis from some form of disruption, stress or change
6. Participation	Ability to contribute actively to processes and situations, influencing decisions and activities.
7. Negotiation	Ability to come to an agreement with others using logic and persuasion
8. Empathy	Level of cognitive and affective response and involvement in another's situation that involves identifying others situation, taking perspective of that situation and sharing other's emotional state.
9. Communication	Ability to exchange information, express opinions, desires, needs and fears

Note. Retrieved from Life Skills Measurement Tool (Elementary Stage) - Young Lives India (UNICEF ,2020 pg.25) <https://unilearn.org.in/lsm-toolkit.php>

These abilities enable the person to meet the demands and overcome obstacles in daily life. The acquisition and use of life skills require a foundation of prerequisites.

Some of the prerequisites include the linguistic, physical, and cognitive abilities appropriate for age, a supportive environment of friends and parents and opportunity to experience the real situations these requirements enable the person to properly perform life skills. Inadequate socialization abilities, age-inappropriate language abilities, delayed motor skill development, and an unsupportive environment may all adversely impact life skills.

Various studies indicate that children with communication disorders often lack the essential skills required to carry out life skills. Children with Autism Spectrum Disorder exhibit difficulty not only in communication (verbal and non-verbal) but also in social communication that includes social reciprocity, nonverbal communicative behaviors utilized in social interaction, and abilities in developing, maintaining, and understanding relationships which would further impact them in carrying out appropriate critical thinking, problem solving (Mourad Ali, 2018). Due to limited cognitive capacity, children with intellectual disabilities are found to have a fewer opportunities to develop age-appropriate speech and language skills. This impacts their ability to participate in social interactions, as well as their communication, critical thinking, problem-solving, and resilience (Sunish et al., 2013). However, in children with Cerebral Palsy, a delay in communication skills has been observed in comparison to typically developing children of 24 months. Additionally, a strong association has been found where children with severe gross motor impairments and associated problems exhibit poorer communication skills compared to children with Cerebral Palsy without any comorbidities. Therefore, children with Cerebral Palsy may present with a range of communication impairments, including issues with speech, oromotor functioning, language, communicative functioning. These impairments negatively affect social participation and mother-child interaction (Coleman et al., 2013).

As previously reviewed, children with hearing impairments experience significant challenges in communication and participation, while other areas of development such as motor and cognition remain comparatively intact, similar to typically developing children (Helosia et al., 2014). The deficiencies in various aspects of life skills among children with communication disorders can negatively influence their ability to perform specific tasks. Hence, the components of life skills play a crucial role for children with communication disorders to effectively execute specific tasks.

2.3 Life skills Assessment

There have been fewer studies conducted to assess life skills in children using standardized scales and materials, which assist in gaining detailed insights into the components of life skills and their impact on carrying out specific tasks. Several scales are available to assess specific life skills in adolescents. However, these scales are designed to measure only one or a few domains of life skills rather than evaluating all life skills comprehensively. Decision outcome inventory (DOI) is a self-reporting scale on 41 negative decision outcomes. Thirty-five of these outcomes are preceded by filter questions that inquire if participants have been in a situation to experience the outcome (Parker et al., 2015).

Adult – Decision making competence (A - DMC) scale consists of seven components, Resistance to Framing, Recognizing Social Norms, Under/Overconfidence, Applying Decision Rules, Consistency in Risk Perception, Resistance to Sunk Costs, and Path Independence. These components show significant relationships with measures of socioeconomic status, cognitive ability, and decision-making styles. The scale indicates that participants who performed better on the A-DMC were less likely to report negative life events indicative of poor decision-making

(De Bruin et al., 2007). The Social Problem-Solving Inventory for Adolescents (SPSI-A) is a 5-point Likert-type scale consisting of three subscales: Automatic Process, Problem Orientation, and Problem-Solving Skills. This scale reflects both positive and negative attitudes and beliefs about the problem-solving process. The Social Skills Rating Scale-Teacher Form (SSRS-T) is administered to teachers of deaf students to assess their social skills. This 3-point Likert scale ranges from 0 (never) to 2 (often) and includes 30 items divided into three subscales: cooperation, assertion, and self-control, with 10 items each. The total score can range from 0 to 60, with higher scores indicating better social skills and lower scores indicating impairments in social skills (Mohammed Ashori, 2019). These scales examine only a few specific components of life skills, while other few scales examine majority of the components. Mat D. Duerden et al., (2012) standardized the assessment of youth development indicators to measure life skills. This assessment includes ten life skill measures, communication, altruism, decision making, responsible citizenship, teamwork, critical thinking, problem solving, leadership, self-responsibility, and self-esteem. The study provided standardized definitions for each domain, along with measurement tools that can be used to assess each domain, highlighting the importance of life skills in youth development programs. As there was no tool to assess life skills in children aged 9-12 years, Kristina et al. (2011) developed and standardized a life skill assessment tool to evaluate six skills: communication, leadership, useful/marketable skills, self-responsibility, critical thinking, and positive identity. This tool includes 30 items and uses a four-point Likert scale ranging from "NO" to "YES" for scoring.

However, these scales originate from Western contexts and may be more suitable for Western cultural backgrounds. There are only a few Indian scales available

to assess overall life skills, or scales that focus on specific domains within life skills, and most of these studies are conducted on adolescents.

M.N. Vranda (2009) developed and standardized life skills assessment tool for adolescents, this scale was initially originated in English and subsequently translated into Kannada. This scale consists of 115 items using a 5-point Likert format, evaluating life skills in ten areas: Decision Making, Problem Solving, Empathy, Self-Awareness, Interpersonal Relationship Skills, Communication Skills, Coping with Stress, Coping with Emotions, Creative Thinking, and Critical Thinking. Each item is rated from 1 (Never) to 5 (Always), resulting in a possible minimum score of 115 and a maximum score of 575. Based on these scores, subjects are categorized into low, moderate, and high life skill levels.

Further, the Life Skills Assessment Scale was designed to measure the levels of life skills among Indian adolescents. This comprehensive scale can be utilized for educational, training, diagnostic, selection, recruitment, employment, and self-development purposes. It is a multi-dimensional tool consisting of 100 items in the form of statements. Scoring is based on a five-point scale ranging from "Always true of me" to "Not at all true of me." The scale includes both positive and negative items. Interpretations are based on the raw score and mean value, categorizing individuals as Very High Scorer, High Scorer, Average Scorer, Low Scorer, or Very Low Scorer (Subasree, 2014). Compared to the scale developed by M.N. Vranda (2009), this scale is more detailed. It has been administered to adolescents aged 12-19 years, while the earlier scale was only applied to those aged 13-16 years. This scale was translated into Kannada language (Gangadharaiah, 2020) and administered to adolescents aged 13-16 years. This scale was administered and rated using the same standards as the original one. The results were consistent with those of the previous scale, indicating that life

skills capacity among adolescents is not uniform, with greater ability in Critical Thinking, Interpersonal Relationships, and Empathy, and the lowest ability in Effective Communication and Coping with Stress.

For adolescents with hearing impairment, Life Skills Self-Assessment Scale for Students with Hearing Impairment (LSSAS- SWHI) was developed. This scale focuses on six important dimensions of life skills. The scale contains 42 items and uses a four-point system (Always, Often, Rarely, and Never). The study aimed to assess the existing level of life skills among hearing-impaired individuals and was administered by the parents and teachers of these students. The results revealed that the existing level of life skills was very low (Rama Krishna et al., 2016).

2.4 Life skill training

Studies have been conducted to investigate the effect of life skills training on both typically developing children and those with communication disorders, resulting in significant improvements in life skills for both the groups. The effect of life skills training was investigated in typically developing children using a technique called the learning-centered approach. This skill-based method focused on the ten WHO-identified life skills: decision-making, problem solving, creative thinking, critical thinking, communication, interpersonal skills, self-awareness, empathy, coping with emotions, and coping with stress, by teaching a second language. A story was introduced to the children, and they were taught how to learn the content, emphasizing "learning how to know" rather than "learning what to know." This approach not only facilitated second language acquisition but also improved their overall life skills (Phranakhon et al., 2023). Children with Autism Spectrum Disorders are characterized by language deficits as well as deficits in social communication and social interaction

across multiple contexts. Life skills training based on the Response to Intervention (RTI) model was implemented to address these issues. This training program consisted of 10 sessions, each lasting 20 minutes, with three sessions conducted weekly. The life skills training resulted in a significant improvement in functional skills of all the participants in the study (Mourad Ali, 2018). Life skills training was conducted for children with dyscalculia, whose lack of anticipation ability in mathematics interferes with their educational performance and daily activities. This training aimed to improve their communication skills and self-esteem. The program consisted of eight sessions utilizing a schedule of life skills training that included social, emotional, cognitive, and self-development components. A pre- and post-therapy assessment was conducted using the Self-Esteem Scale and the Social Developmental Questionnaire to evaluate the effect of the training. The results showed an improvement in communication skills, such as increased family relations and decreased conflicts with peers and teachers. This indicates that life skills training leads to improvements in psychological status and communication skills in students with learning disorders (Kazemi et al., 2014).

Studies have shown that deficits in social behavior are a major factor leading to behavioral problems and rejection from peer groups in students with hearing impairments. To evaluate the effectiveness of life skills training on the social skills of deaf students, a study was conducted in which subjects were divided into two groups (experimental and control) at the pre-test and post-test stages. The effect of the training was assessed using the Social Skills Rating Scale-Teacher Form (SSRS-T). The study found that life skills training had a significant and positive effect on the social skills of deaf students in the experimental group who received the training, compared to those in the control group (Mohammed Ashori, 2019). Children with hearing impairment are reported to often exhibit social avoidance, poor life skills, and difficulties in gaining

others' attention, which can lead to social phobia and hinder their overall life skills development.

The effectiveness of life skills training was assessed in students with Hearing impairment, in the age range 8 to 18 years using the Social Phobia Inventory (SPIN), a 17-item self-report questionnaire that evaluates fear, avoidance, and physiological distress related to social anxiety. Each symptom's severity was rated on a scale from 0 to 4. The study revealed that life skills training effectively reduced social phobia symptoms among hearing-impaired students. This suggests that targeted interventions focusing on these life skills can significantly benefit the social and emotional well-being of children with hearing impairment (Abbas et al., 2013).

In summary, research on life skills has primarily concentrated on the efficacy of life skill training, with studies conducted on both typically developing children and children with communication disorders. Recently, research has been conducted to examine the effects of life skill training on people with hearing impairments. However, the majority of these studies have involved older children and adolescents rather than younger population (Movallali et al., 2014; Abbas Mahvash et al., 2013; Rama Krishna et al., 2016). Furthermore, the majority of these research have been conducted in work environments and educational institutions rather than in other social settings. A survey of the literature also shows that there haven't been as much emphasis on understanding how typically developing individuals can perform life skills.

In addition, there are only a few studies carried out in comparison of typically developing children and children with communication disorders, where the assessment scale available are for the adolescent population and not for children. Furthermore, research on hearing-impaired adolescents have shown that these individuals struggle to

manage life skills (Christiane et al., 2021). This suggests that children with Hearing impairment may also struggle to perform life skills that would be performed later if they weren't given intervention that also focuses on developmentally appropriate life skills. Although their cognitive abilities are on par with typically developing children, the training given to children with HI may also have an effect on how they think, make decisions, participate, and communicate during a life skill. Hence this study aims to determine how similar young children with HI (5 to 7 years old) are to typically developing children in terms of decision-making, participation, and communication during age-appropriate life skills.

CHAPTER III

METHOD

Group comparison in qualitative research was used to compare the decision making, participation and communication in children with Hearing Impairment and Typically developing children.

3.1 Participants

A total of 10 children with hearing impairment and 10 typically developing children were recruited as participants for the study. Participants were selected based on convenience and purposive sampling with age and gender matched criteria. The inclusion and exclusion criteria, for selecting participants under both the groups are as follows

3.1.1 Inclusion criteria for Hearing Impaired children

1. Children listening level should be at the auditory comprehension level (sentence level comprehension) based on listening checklist (Loaney & Richards, 2005)
2. Participants with bilateral moderately severe to profound hearing loss, diagnosed by a qualified Audiologist.
3. Participants either using hearing aid or Cochlear Implant with aided audiogram within the speech spectrum.
4. Should be native Kannada speakers.

3.1.2 Exclusion criteria for Children with Hearing Impairment

1. Presence of comorbid conditions
2. Who have been diagnosed with Unilateral hearing loss
3. Who has Mild to Moderate degree of hearing loss

3.1.3 Inclusion criteria for typically developing children

1. Children without the presence of any kind of speech, language, hearing, motor cognitive, neurological, psychological and sensory deficits. This will be ruled out by using WHO Ten Questions Disability Screening Checklist (Singhi, 2007)
2. Should be native Kannada speakers.
3. Should match according to age and gender of the communication disordered group.

3.1.4 Exclusion criteria for Typically Developing Children

Participants with a history of any delay or deviancy in the of speech, language, hearing, motor cognitive and sensory development were excluded from the study.

3.2 Ethical clearances

Study adhered to the AIISH ethical committee guidelines for Bio-behavioural Sciences for human subjects (Basavaraj & Venkatesan, 2009). All moral standards were met for participant selection and participation. Before testing, a written consent was obtained from parents of the participants after explaining the purpose of the study.

3.3 Materials

A scenario-based picture stimuli was used to study the decision making, participation and communication during a life skill. Out of the nine components listed (UNICEF India, 2020 pg.25), only three were taken for the study as these are the basic components that would help individuals to understand different situations and communicate appropriately. This in turn will help them to adapt to any situations of different settings. A total of five scenarios related to five different life skills for the age range of 5-7 years were selected from the NCERT textbooks of Environmental Science for class UKG and class 1 as there are no standardized scales developed for this age range.

The five scenarios taken in the study are

1. Home scenario
2. Road scenario
3. Hotel scenario
4. Park scenario
5. Road crossing scenario

For each life skill scenario three closed ended questions were framed. Out of the three questions, the first question was based on decision making, second on participation and the third question on communication related to that particular life skill. Content validation of these three questions for each scenario was carried out using a 4-point rating scale. The 4-point rating scale was given to three parents, primary teachers and special educators respectively and were asked to rate the questions and options for their relevance, clarity, simplicity and ambiguity. Table 2 describes the 4-point rating scale for the content validity parameters.

Table 3.1*4-point rating scale for content validation*

Parameter	Rating	Description
Relevance	1	Not relevant
	2	Item need some revision
	3	Relevant but need some minor revision
	4	Very relevant
Clarity	1	Not clear
	2	Item need some revision
	3	Clear but need some minor revision
	4	Very clear
Simplicity	1	Not simple
	2	Item need some revision
	3	Simple but need some minor revision
	4	Very simple
Ambiguity	1	Doubtful
	2	Item need some revision
	3	No doubt but need some minor revision
	4	Meaning is clear

Note. Reprinted from "Content validity and its estimation," by F. Yaghmaie, 2003,

Journal of medical education, 3(1), p. 26

For each of these validated questions three options were provided as answers. To decide on the three options to be provided for each question a total of 50-typically developing children from UKG (10), class I (20) and class II (20) were asked with open

ended questions related to decision making, participation, and communication for all the five life skill scenarios.

The responses were documented. The three most common responses were considered as the options for the respective questions in the main study. The reasons for selecting all three right options for a question was to avoid the presence of effect of rote learning about a situation in children with HI. The selected options were converted into pictures. The images were downloaded from websites with copy right concerns verified. These pictures were subjected to a 4-point rating scale to rate on familiarity, iconicity and clarity parameters by three special educators, three children of same age group and three parents (Table 3). describes the 4-point rating scale for the picture validation parameters.

Table 3.2*4-point rating scale for picture validation*

Parameter	Rating	Description
Familiarity	1	Not familiar
	2	Item need some revision
	3	Familiar but need some minor revision
	4	Very familiar
Clarity	1	Not clear
	2	Item need some revision
	3	Clear but need some minor revision
	4	Very clear
Iconicity	1	Non Iconic
	2	Item need some revision
	3	Iconic but need some minor revision
	4	Highly Iconic

In addition, these picture options were subjected to identification task by 5 typically developing children with the age range of 5 to 7 years. The five scenarios and the respective questions are provided in table 4.

Table 3.3

The five scenarios and the questions with options for each scenario

Scenarios	Home scenario	Road scenario	Park scenario	Hotel scenario	Road crossing scenario
	Mother is in the kitchen. Ram is feeling sick and unable to go to school.	Ram and shyam were cycling. Shyam fell down.	Rohith went to park with his parents. He wants to play with a group of children	Geetha and her family went for a lunch to a Hotel. she wants to eat masala dosa.	Rahul's younger brother wants to eat ice cream. The ice cream cart is on the opposite side of the road. Rahul is afraid to cross the road.
Decision making	<p>what should Ram do?</p> <p>A. Go to hospital B. Tell mother that he is sick C. Should take rest</p>	<p>what should Ram do?</p> <p>A. Put bandage B. Go to hospital C. Take him home</p>	<p>What should Rohit do?</p> <p>A. Ask the children to join them B. Just go and play C. Ask parents for permission</p>	<p>What should Geetha do?</p> <p>A. Should ask parents B. Should ask parent for money C. Should ask the waiter</p>	<p>What should Rahul do?</p> <p>A. Take help from mother B. Go on the side of the road while crossing C. Look both sides of road while crossing the road</p>

Participation	<p>If you were Ram what would you do?</p> <p>A. Go with parents to hospital B. Take medicine C. Take rest</p>	<p>If you were that Ram, what you will do?</p> <p>A. Put bandage B. Go to hospital C. Take him home</p>	<p>If you were Rohith what you would do?</p> <p>A. Ask the children to join them B. Just go and play C. Ask parents for permission</p>	<p>If you were Geetha what would you have do?</p> <p>A. Should ask parents B. Should ask parent for money C. Should ask the waiter</p>	<p>If you were that Rahul, what you would do?</p> <p>A. Take help from mother B. Go on the side of the road while crossing C. Look both sides of road while crossing the road</p>
Communication	<p>What should Ram do after going to mother? Or What should Ram do after taking medicine towards mother?</p> <p>A. Tell mother that he is sick B. Ask medicine from mother</p>	<p>What should Ram do after approaching shyam? Or What should Ram do after approaching Shyam's mother?</p> <p>A. Tell him that you will take him home B. Tell him not to cry</p>	<p>Rohith is willing to play, what he should do going near the group? Or What should Rohit do after approaching his parents?</p> <p>A. Ask the children to join them B. Ask parents for permission</p>	<p>What should Geetha do after looking at her parents? Or What should Geetha do after looking at the waiter?</p> <p>A. Should ask parents B. Should ask parent for money</p>	<p>What should Rahul do approaching his mother? Or What should Rahul do standing with his brother on the road?</p> <p>A. Ask help from mother B. Tell brother will go on the side of road to get the ice cream C. Tell brother to look both sides of road to cross</p>

	C. Tell mother that he is not feeling well	C. Tell his parents		C. Should ask the waiter	the road to get the ice cream
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Table 3.4

The five scenarios and the questions with options for each scenario

Scenarios	Home scenario	Road scenario	Park scenario	Hotel scenario	Road crossing scenario
	Mother is in the kitchen. Ram is feeling sick and unable to go to school.	Ram and shyam were cycling. Shyam fell down.	Rohith went to park with his parents. He wants to play with a group of children	Geetha and her family went for a lunch to a Hotel. she wants to eat masala dosa.	Rahul's younger brother wants to eat ice cream. The ice cream cart is on the opposite side of the road. Rahul is afraid to cross the road.
Decision making	<p>ರಾಮ್ ಈಗ ಏನು ಮಾಡಬೇಕು?</p> <p>/rāma īga jennu māḍabēku? /</p>	<p>ರಾಮ್ ಏನು ಮಾಡಬೇಕು?</p> <p>/rāhul ēnu māḍabēku?/</p>	<p>ರೋಹಿತ್ ಏನು ಮಾಡಬೇಕು?</p> <p>/ rōhit jennu māḍabēku?/</p>	<p>ಗೀತಾ ಏನು ಮಾಡಬೇಕು?</p> <p>/gītā jēnu māḍabēku?/</p> <p>A. ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು</p>	<p>ರಾಹುಲ್ ಏನು ಮಾಡಬೇಕು?</p> <p>/rāhul jennu māḍabēku ?/</p>

	<p>A. ಆಸ್ಪತ್ರೆಗೆ ಹೋಗಬೇಕು.</p> <p>/āspatrege hōgbēku/</p> <p>B. ಅಮ್ಮನಿಗೆ ಉಷಾರಿಲ್ಲ ಅಂತ ಹೇಳಬೇಕು.</p> <p>/ ammanige ufarilla anta hēlabēku /</p> <p>C. ಮಲೋಬೇಕು.</p> <p>/ malkōbēku/</p>	<p>A. ಬ್ಯಾಂಡೇಜ್ ಹಾಕಬೇಕು</p> <p>/bændedʒ hākabēku /</p> <p>B. ಆಸ್ಪತ್ರೆಗೆ ಹೋಗಬೇಕು</p> <p>/ āspatrege hōgabēku /</p> <p>C. ಮನೆಗೆ ಹೋಗಬೇಕು</p> <p>/manege hōgabēku /</p>	<p>A. ಮಕ್ಕಳನ ಕೇಳಬೇಕು</p> <p>/makaʎana kēlabēku/</p> <p>B. ಹೋಗಿ ಆಟ ಆಡಬೇಕು</p> <p>/hōgi āʎa āḍabēku/</p> <p>C. ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು</p> <p>/ appa ammana kēlabēku/</p>	<p>/appa ammana kēlabēku/</p> <p>B. ಅಪ್ಪ ಅಮ್ಮನ ಹತ್ತಿರ ದುಡ್ಡು ಕೇಳಬೇಕು</p> <p>/appa ammana haṭṭira duḍḍu kēlabēku /</p> <p>C. ಹೋಟೆಲ್ ಅಂಕಲನ ಕೇಳಬೇಕು</p> <p>/ hōṭel aṅkalnā kēlabēku /</p>	<p>A. ಅಮ್ಮನ ಹತ್ತಿರ ಸಹಾಯ ಕೇಳಬೇಕು</p> <p>/ ammana haṭṭira sahaṅja kēlabēku /</p> <p>B. ರಸ್ತೆಯ ಸೈಡಿನಲ್ಲಿ ಹೋಗಬೇಕು</p> <p>/rasteja siḍṇalli hōgabēku /</p> <p>C.ರಸ್ತೆಯ ಎರಡು ಕಡೆ ನೋಡಿ , ರಸ್ತೆ ದಾಟಬೇಕು</p> <p>/rasteja yaraḍukaḍe nōḍi raste dāṭabēku/</p>
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Participation	ನೀನು ರಾಮನಾಗಿದ್ದೆ ಏನು ಮಾಡುತ್ತಿದೆ?	ನೀನು ರಾಮನಾಗಿದ್ದೆ ಏನು ಮಾಡುತ್ತಿದೆ?	ನೀನು ರೋಹಿತ್ ಆಗಿದ್ದೆ ಏನು ಮಾಡಿದೆ ?	ನೀನು ಗೀತಾ ಆಗಿದ್ದೆ ಏನು ಮಾಡುತ್ತಿದೆ?	ನೀನು ರಾಹುಲ್ ಆಗಿದ್ದೆ ಏನು ಮಾಡುತ್ತಿದೆ ?
	/ nīnu rāmanāgidre ēn maḍṭide ?/	/ nīnu rāmanāgidre ēn maḍṭide ?/	/nīnu rōhit āgidre jennu māḍṭide ?/	/ nīnu gītā āgidre jennu māḍṭide ?/	/ nīnu rāhul āgidre nīnu māḍṭide ?/
	<p>A. ಅಪ್ಪ ಅಮ್ಮನ ಜೊತೆ ಆಸ್ಪತ್ರೆಗೆ ಹೋಗಬೇಕು</p>	<p>A. ಬ್ಯಾಂಡೇಜ್ ಹಾಕಬೇಕು</p>	<p>A. ಮಕ್ಕಳನ ಕೇಳಬೇ ಕು</p>	<p>A. ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು</p>	<p>A. ಅಮ್ಮನ ಹತ್ತಿರ ಸಹಾಯ ಕೇಳಬೇಕು</p>
	/appa ammana dṛote āspatrege hōgabēku/	/bāndedḷ hākabēku /	/ makaḷana kēḷabēku /	/appa ammana kēḷabēku /	/ ammana haṭṭira sahāja kēḷabēku/
	<p>B. ಔಷಧಿ ತಗೋಬೇಕು</p>	<p>B. ಆಸ್ಪತ್ರೆಗೆ ಹೋಗಬೇಕು</p>	<p>B. ಹೋಗಿ ಆಟ ಆಡಬೇಕು</p>	<p>B. ಅಪ್ಪ ಅಮ್ಮನ ಹತ್ತಿರ ದುಡ್ಡು ಕೇಳಬೇಕು</p>	<p>B. ರಸ್ತೆಯ ಸೈದಿನಲ್ಲಿ ಹೋಗಬೇಕು</p>
	/auḷadhi tagōbēku/	/ āspatrege hōgabēku/	/hōgi āṭa āḍabēku/	/appa ammana haṭṭira duḍḍu kēḷabēku /	/rasteja siḍṇinalli hōgabēku /
	<p>C. ಮಲೋಬೇಕು</p>	<p>C. ಮನೆಗೆ ಹೋಗಬೇಕು</p>	<p>C. ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು</p>	/	<p>C. ರಸ್ತೆಯ ಎರಡು ಕಡೆ ನೋಡಿ , ರಸ್ತೆ ದಾಟಬೇಕು</p>
	/ malkōbēku/	/manege hōgabēku /	/ appa ammana kēḷabēku/		

				<p>C. ಹೋಟೆಲ್ ಅಂಕಲನ ಕೇಳಬೇಕು</p> <p>/ hōṭel aṅkalnā kēḷabēku /</p>	<p>/rasteja yaraḍukaḍe nōḍi raste dāṭabēku/</p>
Communication	<p>ಅಮ್ಮನ ಹತ್ತಿರ ಹೋದ ನಂತರ ರಾಮ್ ಏನು ಮಾಡಬೇಕು ?</p> <p>/ ammana haṭṭira hōda nantara rāma ēnu māḍabēku? /</p> <p>ಅಮ್ಮನಹತ್ತಿರ ಔಷದಿತಗೊಂಡು ಹೋಗಿ ರಾಮ್ ಏನು ಮಾಡಬೇಕು?</p> <p>/ammana haṭṭira auṣadhi tagonḍu hōgi</p>	<p>ರಾಮನು ಶ್ಯಾಮ್ ಹತ್ತಿರ ಹೋಗಿ ಏನು ಮಾಡಬೇಕು ?</p> <p>/rāmanu śyām hattira hōgi jenu māḍabēku?/</p> <p>ರಾಮನು ಶ್ಯಾಮನ ಅಮ್ಮನಿಗೆ ಹೋಗಿ ಏನು ಹೇಳಬೇಕು?</p>	<p>ರೋಹಿತ್ ಮಕ್ಕಳ ಹತ್ತಿರ ಹೋಗಿ ಏನು ಮಾಡಬೇಕು ?</p> <p>/ rōhit magaḷa hatra hōgi yennu māḍbēku ? /</p> <p>ರೋಹಿತ್ ಅಪ್ಪ ಅಮ್ಮನ ಹತ್ತಿರ</p>	<p>ಗೀತಾ ಅಪ್ಪ ಅಮ್ಮನ ನೋಡಿ ಏನ್ನು ಮಾಡಬೇಕು?</p> <p>/ gītā appa ammana nōḍi jennu māḍbēku ? /</p> <p>ಗೀತಾ ಹೋಟೆಲ್ ಅಂಕಲನ ಏನು ಮಾಡಬೇಕು?</p> <p>/gītā hōṭel aṅkalnā nōḍi jennu? /</p>	<p>ಅಮ್ಮನ ಹತ್ತಿರ ಹೋಗಿ ರಾಹುಲ್ ಏನು ಮಾಡಬೇಕು ?</p> <p>/ ammana hattira hōgi rāhul jennu māḍbēku ? /</p> <p>ತಮ್ಮನ ಹತ್ತಿರ ಹೋಗಿ ರಾಹುಲ್ ಏನ್ ಮಾಡಬೇಕು?</p> <p>/tammana hattira hōgi rāhul jennu māḍbēku ?/</p>

	<p>rām yēnu māḍabēku?/</p> <p>A. ಅಮ್ಮನಿಗೆ ಉಷಾರಿಲ್ಲ ಅಂತ ಹೇಳಬೇಕು /ammanige uḥarilla anta hēḷabēku/</p> <p>B. ಔಷಧಿ ಕೇಳಬೇಕು /auḥadhi kēḷabēku /</p> <p>C. ಅಮ್ಮನಿಗೆ ಆಸ್ಪತ್ರೆಗೆ ಹೋಗೋಣ ಅಂತ ಹೇಳಬೇಕು /ammmanige āspatrege hoḡona anta hēonage /</p>	<p>/rāmanu ḥjāmana ammanige hōgi jenu hēḷabēku ?/</p> <p>A. ಮನೆಗೆ ಹೋಗೋಣ ಅಂತ ಹೇಳಬೇಕು /manege hōḡōṇa anta hēḷabēku /</p> <p>B. ಅಳಬೇಡ ಅಂತ ಹೇಳಬೇಕು /aḷabēḍa anta hēḷabēku/</p> <p>C. ಅವನ ಅಮ್ಮನಿಗೆ ಹೋಗಿ ಹೇಳಬೇಕು /avana ammanige hōgi hēḷabēku /</p>	<p>ಹೋಗಿ ಏನು ಮಾಡಬೇಕು?</p> <p>rōhit appa ammana haṭṭira hōgi jenu māḍabēku</p> <p>A. ಮಕ್ಕಳನ ಕೇಳಬೇಕು /makalana kēḷabēku /</p> <p>B. ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು /appa ammana kēḷabēku/</p>	<p>A. ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು /appa ammana kēḷabēku /</p> <p>B. ಅಪ್ಪ ಅಮ್ಮನ ಹತ್ತಿರ ದುಡ್ಡು ಕೇಳಬೇಕು /appa ammana haṭṭira duḍḍu kēḷabēku /</p> <p>C. ಹೋಟೆಲ್ ಅಂಕಲನ ಕೇಳಬೇಕು / hōṭel aṅkalnā kēḷabēku /</p>	<p>A. ಅಮ್ಮನ ಹತ್ತಿರ ಸಹಾಯ ಕೇಳಬೇಕು / ammana haṭṭira saḥāja kēḷabēku/</p> <p>B. ತಮ್ಮನಿಗೆ ರಸ್ತೆಯ ಸೈಡಿನಲ್ಲಿ ಹೋಗಬೇಕು ಎಂದು ಹೇಳಬೇಕು /ṭammanige rasteja siḍḍinalli hōgabēku jandu hēḷabēku /</p> <p>C. ತಮ್ಮನಿಗೆ ರಸ್ತೆಯ ಎರಡು ಕಡೆ ನೋಡಿ ,</p>
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					<p>ರಸ್ತೆ ದಾಟಬೇಕು ಎಂದು ಹೇಳಬೇಕು</p>
					<p>/ ʀam:anige rasteja jaraɖukaɖe nōɖi raste dāʈabēku jandu hēʈabēku/</p>

3.4 Procedure

3.4.1 Study design

Group comparison in qualitative research was used in the study. This is because the study involves comparison of two different groups with equal number of participants in each group. Also, participants in the two groups are matched for age and gender.

3.4.2 Study Process

Participants were made to sit comfortably in a quiet ambient room. Overall instructions were provided to the child, in which questions and the options for each scenario were explained using both verbal and non-verbal instructions. Also, modelled with an example task in order to make them familiarize with the procedure. The child was instructed to respond to the question by pointing to the most appropriate answer as per the child. The same procedure was carried out for each question under each life skill scenario. Then a trial task was provided to test the child and later the actual task was initiated. The responses of each participant were be documented. The participants were not be given any kind of feedback during the task as that might lead to bias.

3.4.3 Data Analysis

Data were analysed qualitatively where percentage of participants from both the groups choosing a particular option was calculated. Then, comparison of percentage of participants choosing an option within and across the group was carried out, depicted graphically and discussed.

CHAPTER IV

RESULTS

The results of the present study that compares decision making, participation and communication skills between children with Hearing impairment and typically developing children is reported here. Qualitative analysis using graphical representation has been carried out to explain the results for each scenario.

4.1 Home scenario

Table 4.1 represents questions related to decision-making component of the home scenario. The three options for the question have also been mentioned in the table.

Table 4.1

Decision making

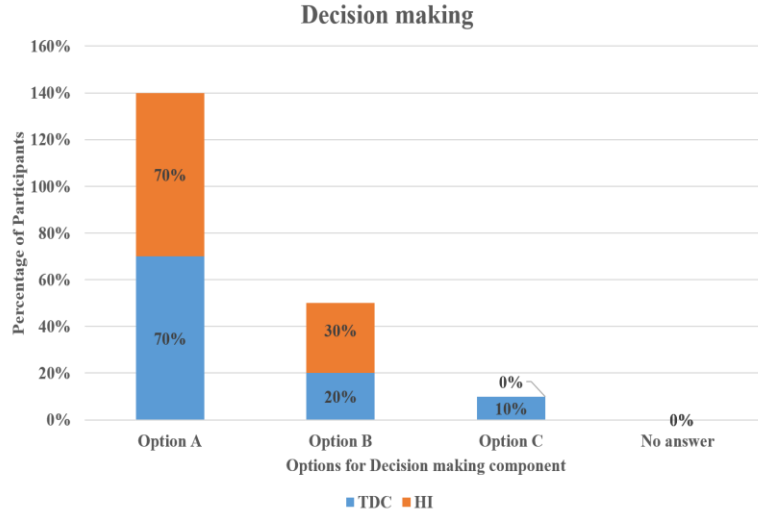
Question and options for Decision making component of home scenario

Home scenario-Decision making			
	Option A	Option B	Option C
ರಾಮ್ ಈಗ ಏನು ಮಾಡಬೇಕು?	ಆಸ್ಪತ್ರೆಗೆ ಹೋಗಬೇಕು	ಅಮ್ಮನಿಗೆ ಉಪಾರಿಲ್ಲ ಅಂತ ಹೇಳಬೇಕು	ಮಲಗಬೇಕು
/rāma īga jennu māḍabēku? /	/āspatrege hōgbēku/	/ammanige uḥarilla anta hēlabēku/	/ malkōbēku/
what should Ram do?	Go to hospital	Tell mother that he is sick	Should take rest

Children in both the groups predominantly (70%) selected option A “Go to Hospital”. In addition, it can also be observed that children with HI have not chosen option C “Should take rest”. The same can be observed in the Figure 1.

Figure 1

Percentage of Participants Selecting Different Options for the question on decision making component in the home scenario



4.1.1 Participation

Questions and the respective three options for Participation of home scenario has been provided in Table 4.2

Table 4.2

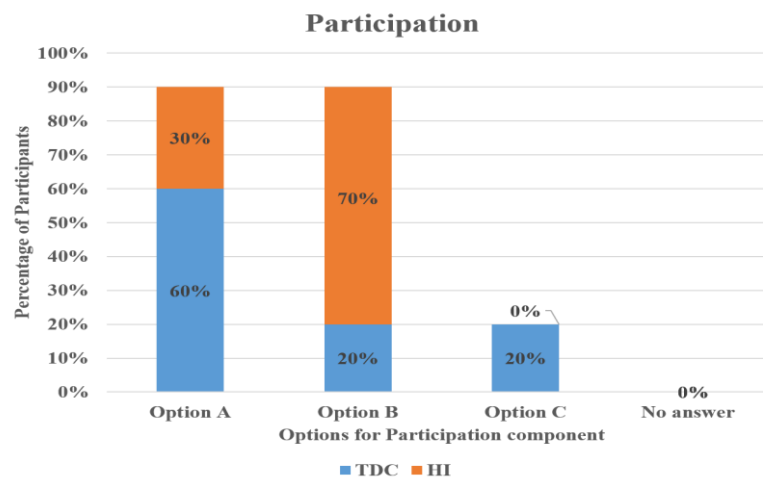
Question and options for Participation component of home scenario

Home scenario-Participation			
	Option A	Option B	Option C
ನೀನು ರಾಮನಾಗಿದ್ದೆ ಏನು ಮಾಡುತ್ತಿದೆ? /nīnu rāmanāgidge ēn maḍṭide?/	ಅಪ್ಪ ಅಮ್ಮನ ಜೊತೆ ಆಸ್ಪತ್ರೆಗೆ ಹೋಗಬೇಕು /appa ammana dzote āspatrege hōgabēku/	ಔಷಧಿ ತೆಗೆಯಬೇಕು /auṣadhī tagōbēku/	ಮಲಗಬೇಕು /malkōbēku/
If you were Ram what would you do?	Go with parents to hospital	Take medicine	Take rest

For the question under Participation component of Home Scenario, majority of typically developing children (60%) selected the option A “Go to hospital” as the answer, while 70% of children with Hearing impairment selected option B “Take medicine”. The same can be observed in the Figure 2.

Figure 2

Percentage of Participants Selecting Different Options for the question on Participation component in the home scenario



4.1.2 Communication

Table 4.3 represents the questions and the three options for the communication component related to home scenario.

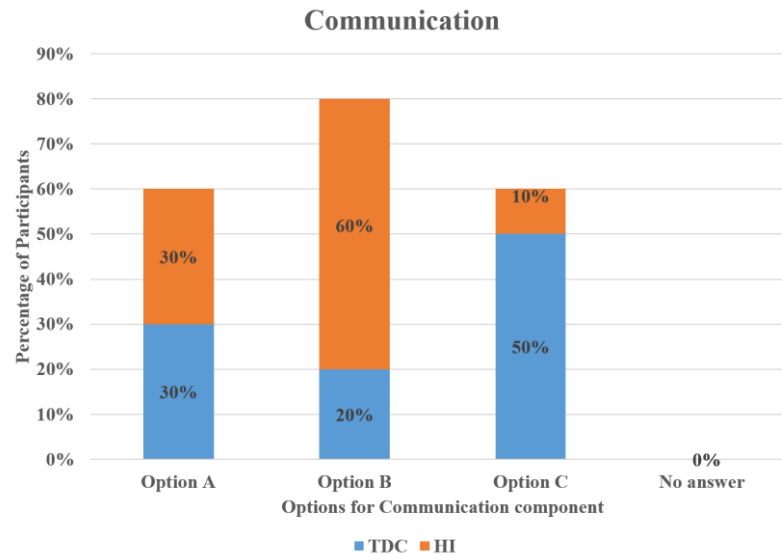
Table 4.3*Question and options for Communication component of home scenario*

Home scenario-Communication			
	Option A	Option B	Option C
ಅಮ್ಮನ ಹತ್ತಿರ ಹೋದ ನಂತರ ರಾಮ್ ಏನು ಮಾಡಬೇಕು?	ಅಮ್ಮನಿಗೆ ಉಷಾರಿಲ್ಲ ಅಂತ ಹೇಳಬೇಕು	ಔಷಧಿ ಕೇಳಬೇಕು	ಅಮ್ಮನಿಗೆ ಆಸ್ಪತ್ರೆಗೆ ಹೋಗೋಣ ಅಂತ ಹೇಳಬೇಕು
ಅಮ್ಮನ ಹತ್ತಿರ ಔಷಧಿ ತಗೊಂಡು ಹೋಗಿ ರಾಮ್ ಏನು ಮಾಡಬೇಕು?			
/ ammana haṭṭira hōda nantara rāma ēnu māḍabēku? /	/ammanige uḥarilla anta hē abēku/	/aufadhi kē abēku /	/ammanige āspatrege hoḡona anta hēonage /
/ammana haṭṭira aufadhi tagonḍu hōgi rām yēnu māḍabēku?/			
What should Ram do after going to mother?	Tell mother that he is sick	Ask for medicine	Tell mother to take to hospital.
What should Ram do after taking medicine towards mother?			

From Figure 3 it is evident that most of the Children with hearing impairment (60%) primarily selected option B “Ask for medicine” while typically developing children (50%) selected the option C, “Tell mother to take to hospital”.

Figure 3

Percentage of Participants Selecting Different Options for the question on Communication component in the home scenario



From the above results it can be inferred that majority of typically developing children were able to take the same decision for self as well as the character in the scenario. This is exhibited through the maintenance of connected and/or similar answers across the three components, decision making, participation and communication (For example, Hospital was the option selected across the three components). On the other hand, children with HI failed to apply the same decision making during participation and communication where they had to apply the decision to self unlike another character under decision making components (For example, the option “To go to hospital” was selected in the decision making component, while in case of participation and communication components majority of HI have selected and shifted the option “take medicine”. In addition, children with HI had not chosen option C “Should take rest” in both decision making as well as participation domain.

4.2 Road scenario

Table 4.4 represents the questions and options for the decision-making component of the road scenario.

Decision making

Table 4.4

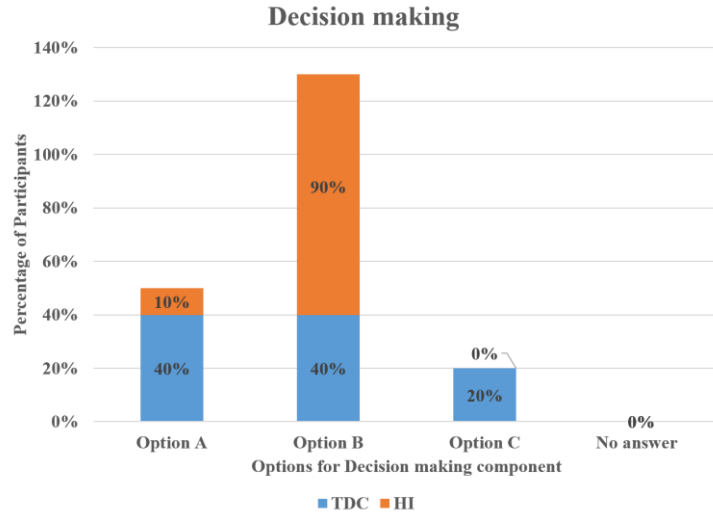
Question and options for Decision making component of road scenario

Road scenario-Decision making			
	Option A	Option B	Option C
ರಾಮ್ ಏನು ಮಾಡಬೇಕು?	ಬ್ಯಾಂಡೇಜ್ ಹಾಕಬೇಕು	ಆಸ್ಪತ್ರೆಗೆ ಹೋಗಬೇಕು	ಮನೆಗೆ ಹೋಗಬೇಕು
/ rāhul ēnu māḍabēku?/	/bændedʒ hākabēku /	/ āspatrege hōgabēku /	/manege hōgabēku /
what should Ram do?	Put bandage	Go to hospital	Take him home

For the question asked related to the decision-making of home scenario, notable distinction between the two groups in selecting the options were observed. Majority of the children with HI (90%) chose option B “Go to hospital” whereas, equal percentage of typically developing children (40%) choose option A “Put bandage” as well as option B “Go to hospital”. This can be viewed in Figure 4.

Figure 4

Percentage of Participants Selecting Different Options on decision making component for road scenario



4.2.1 Participation

The question and the options related to participation component of road scenario as provided in Table 4.5.

Table 4.5

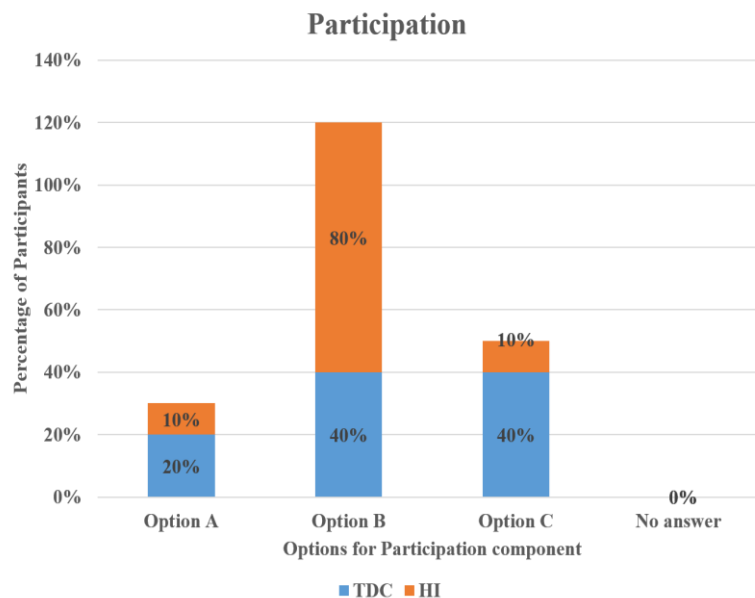
Question and options for Participation component of road scenario

Road scenario-Participation			
	Option A	Option B	Option C
ನೀನು ರಾಮನಾಗಿದ್ದೆ ಏನು ಮಾಡುತ್ತಿದೆ?	ಬ್ಯಾಂಡೇಜ್ ಹಾಕಬೇಕು	ಆಸ್ಪತ್ರೆಗೆ ಹೋಗಬೇಕು	ಮನೆಗೆ ಹೋಗಬೇಕು
/ nīnu rāmanāgidre ēn maḍṭide?/	/bændedʒ hākabēku /	/ āspatrege hōgabēku/	/manege hōgabēku /
What should Ram do?	Put bandage	Go to hospital	Take him home

Figure 5 represents the percentage of participants choosing an option for the question related to participation component of Road scenario. In this component, it has been observed that children with HI primarily chose option B, “Go to hospital” (80%), while typically developing children had an equal distribution (40%) of selections between option B, “Go to hospital” and option C “Take him home”.

Figure 5

Percentage of Participants Selecting Different Options on participation for road scenario



4.2.3 Communication

Table 4.6 represents the questions for the communication component. The three options for the question are also provided in the table.

Table 4.6

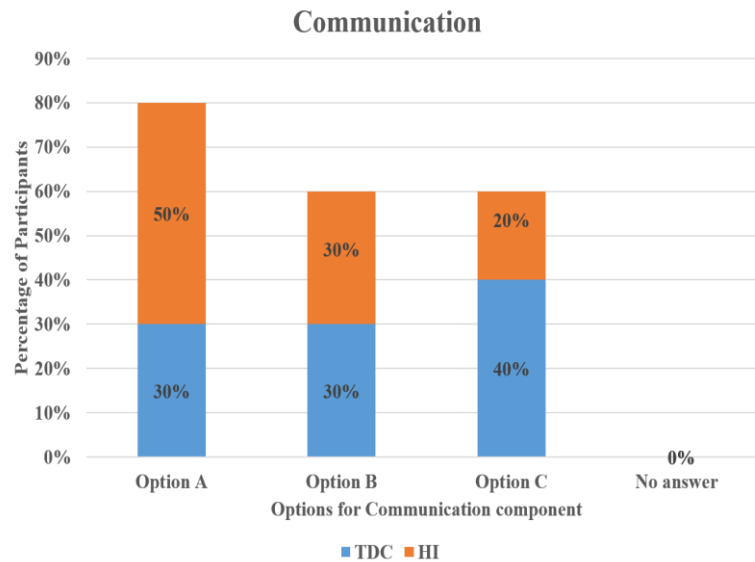
Question and options for Communication component of road scenario.

Road scenario-Communication			
	Option A	Option B	Option C
<p>ರಾಮನು ಶ್ಯಾಮ್ ಹತ್ತಿರ ಹೋಗಿ ಏನು ಮಾಡಬೇಕು? ರಾಮನು ಶ್ಯಾಮನ ಅಮ್ಮನಿಗೆ ಹೋಗಿ ಏನು ಹೇಳಬೇಕು?</p>	<p>ಮನೆಗೆ ಹೋಗೋಣ ಅಂತ ಹೇಳಬೇಕು</p>	<p>ಅಳಬೇಡ ಅಂತ ಹೇಳಬೇಕು</p>	<p>ಅವನ ಅಮ್ಮನಿಗೆ ಹೋಗಿ ಹೇಳಬೇಕು</p>
<p>/rāmanu ſyāma hattira hōgi jenu māḍabēku?/ /rāmanu ſjāmana ammanige hōgi jenu hēlabēku?/</p>	<p>/manege hōgōṇa anta hēlabēku /</p>	<p>aḷabēḍa anta hēlabēku/</p>	<p>/vana ammanige hōgi hēlabēku/</p>
<p>What should Ram do after approaching shayam? What should Ram do after approaching Shyam’s mother?</p>	<p>Tell him that you will take him home</p>	<p>Tell him not to cry</p>	<p>Go and tell his parents</p>

Even under this component there was difference in the selection of options by both the groups. Children with HI (50%) primarily selected option A “To him that you will take him home”, while typically developing children (40%) selected option C “Go and tell his parents”. The same can be observed in the Figure 6.

Figure 6

Percentage of Participants Selecting Different Options on communication for road scenario



To summarize in this scenario, typically developing children had nearly equal distribution of selection of three options across each component. On the other hand, majority of children with HI to option B under decision making as well as participation components, whereas under communication majority opted option A.

4.3 Park scenario

Table 4.7 represents the questions for the decision-making component of park scenario.

The three options for the question have also been provided in the table.

4.3.1 Decision making

Table 4.7

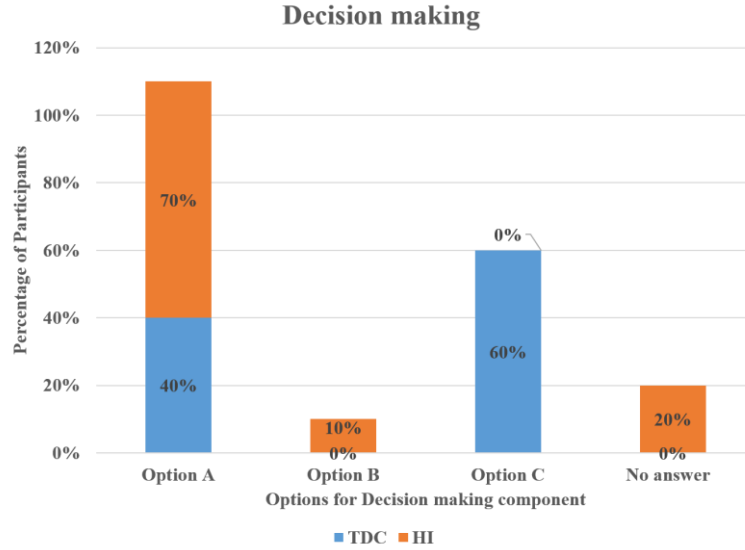
Question and options for Decision making component of park scenario

Park scenario-Decision making			
	Option A	Option B	Option C
ರೋಹಿತ್ ಏನು ಮಾಡಬೇಕು?	ಮಕ್ಕಳನ ಕೇಳಬೇಕು	ಹೋಗಿ ಆಟ ಆಡಬೇಕು	ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು
/ rōhit jennu māḍabēku?/	/ maka ana kē abēku /	/hōgi āṭa āḍabēku/	/ appa ammana kē abēku/
What should Rohith do?	Ask the children	Just go and play	Ask parents for permission

The difference between the two groups were evident, with 70% of the children with HI choosing option A, “Ask the children”, while 60% of typically developing children opting option C “Ask parents for permission”. In addition, 20% of children with HI failed to respond to the question. The same can be observed in the Figure 7.

Figure 7

Percentage of Participants Selecting Different Options on decision making for road scenario



4.3.2 Participation

The questions and the three options related to Participation component of Park scenario are provided in Table 4.8.

Table 4.8

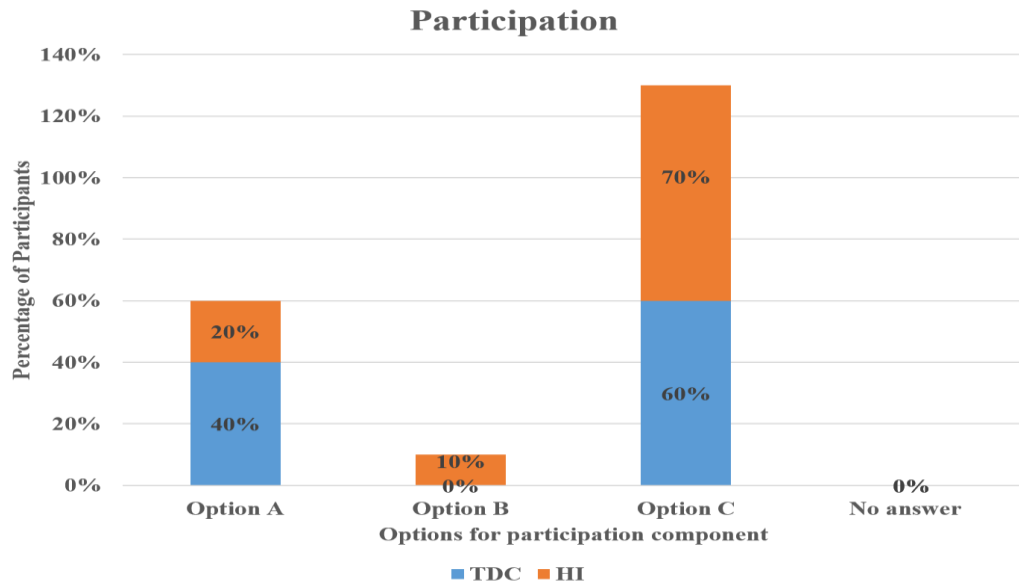
Question and options for Participation component of park scenario

Park scenario-Participation			
	Decision making	Decision making	Decision making
ನೀನು ರೋಹಿತ್ ಆಗಿದ್ದೆ ಏನು ಮಾಡಿದೆ?	ಮಕ್ಕಳನ ಕೇಳಬೇಕು	ಹೋಗಿ ಆಟ ಆಡಬೇಕು	ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು
/nīnu rōhit āgidre jennu māḍṭide?/	/makaḷana kēḷabēku /	/hōgi āṭa āḍabēku/	/appa ammana kēḷabēku/
What should Rohith do?	Ask the children to join them	Just go and play	Ask parents for permission

Figure 8 represents the percentage of participants from both the groups choosing a particular option. From the figure it is very evident that participants of both the groups have primarily selected option C, “Ask the parents for permission”

Figure 8

Percentage of Participants Selecting Different Options on Participation for Park scenario



4.3.3 Communication

Questions and the options for Communication component of Park scenario have been provided in Table 4.9.

Table 4.9

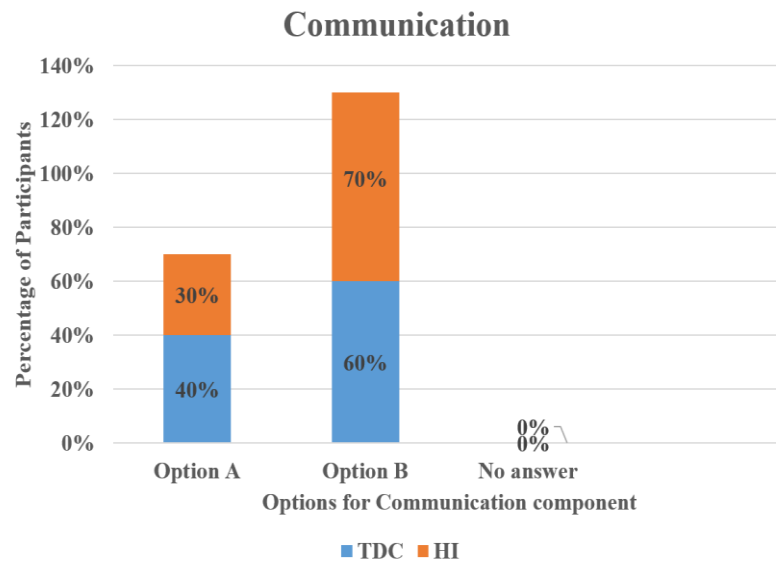
Question and options for Communication component of park scenario

Park scenario-Communication		
	Option A	Option B
ರೋಹಿತ್ ಮಕ್ಕಳ ಹತ್ತಿರ ಹೋಗಿ ಏನು ಮಾಡಬೇಕು?	ಮಕ್ಕಳನ ಕೇಳಬೇಕು	ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು
ರೋಹಿತ್ ಅಪ್ಪ ಅಮ್ಮನ ಹತ್ತಿರ ಹೋಗಿ ಏನು ಮಾಡಬೇಕು?		
/ rōhit maga[a hatra hōgi yennu māḍabēku? /	/maka[ana kēlabēku /	/appa ammana kēlabēku/
rōhit appa ammana haṭṭira hōgi jenu māḍabēku		
what should Rohit do after approaching children?	Ask the children to join them	Ask parents for permission
Or		
What should Rohit do after approaching his parents?		

Option C, “Ask parents for permission” was predominately selected by both children with HI (60%) as well as typically developing children (70%). The same has been depicted in Table 9.

Figure 9

Percentage of Participants Selecting Different Options on communication for Park scenario.



To conclude, in this scenario participants of both the groups predominately opted the same options across the three components. They were able to relate to the character of scenario in decision making domain and apply the same decision making to self in the questions related to participation and communication domains as well.

4.4 Hotel scenario

Table 4.10 represents the question for the decision-making component. The three options for the question have been provided in the table as well.

4.4.1 Decision making

Table 4.10

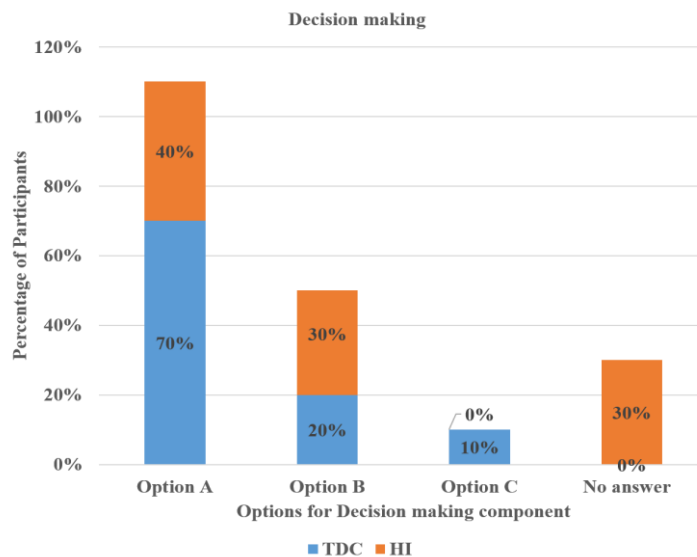
Question and options for Decision making component of Hotel scenario

Hotel scenario-Decision making			
	Option A	Option B	Option C
ಗೀತಾ ಏನು ಮಾಡಬೇಕು?	ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು	ಅಪ್ಪ ಅಮ್ಮನ ಹತ್ತಿರ ದುಡ್ಡು ಕೇಳಬೇಕು	ಹೋಟೆಲ್ ಅಂಕಲನ ಕೇಳಬೇಕು
/ gītā jēnu māḍḍabēku?/	/appa ammana kēḷabēku/	/appa ammana haṭṭira duḍḍu kēḷabēku /	/ hōṭel aṅkalnā kēḷabēku /
What should Geetha do?	Should ask parents	Should ask parent for money	Should ask the hotel uncle

In this component, option A, “Ask parents” was primarily selected by both the groups, typically developing children (70%) and) children with HI (40%). The same can be observed in the Figure 10.

Figure 10

Percentage of Participants Selecting Different Options on Decision making for Hotel scenario



4.4.2 Participation

Table 4.11 represents the question as well as the three options for the participation component of Hotel scenario.

Table 4.11

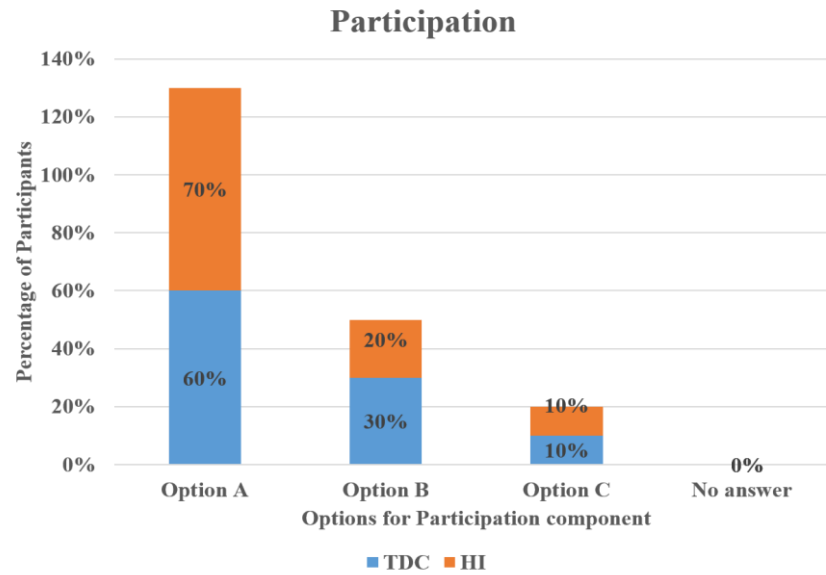
Question and options for Participation component of Hotel scenario

Hotel scenario – Participation			
	Option A	Option B	Option C
ನೀನು ಗೀತಾ ಆಗಿದ್ದೆ ಏನು ಮಾಡುತ್ತಿದ್ದೆ?	ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು	ಅಪ್ಪ ಅಮ್ಮನ ಹತ್ತಿರ ದುಡ್ಡು ಕೇಳಬೇಕು	ಹೋಟೆಲ್ ಅಂಕಲನ ಕೇಳಬೇಕು
/ nīnu gītā āgidre jennu māḍṭide ?/	/appa ammana kē abēku /	/appa ammana haṭṭira duḍḍu kē abēku /	/ hōṭel aṅkalnā kē abēku /
If you were Geetha what would you have do?	Should ask parents	Should ask parent for money	Should ask the hotel uncle

Majority of the participants from both the groups, 60% of typically developing children and 70% of children with HI, selected the option A “Should ask parents”. The same can be observed in the Figure 11.

Figure 11

Percentage of Participants Selecting Different Options on Participation for Hotel scenario



4.4.3 Communication

Table 4.12 represents the questions along with the three options for the communication component of Hotel scenario.

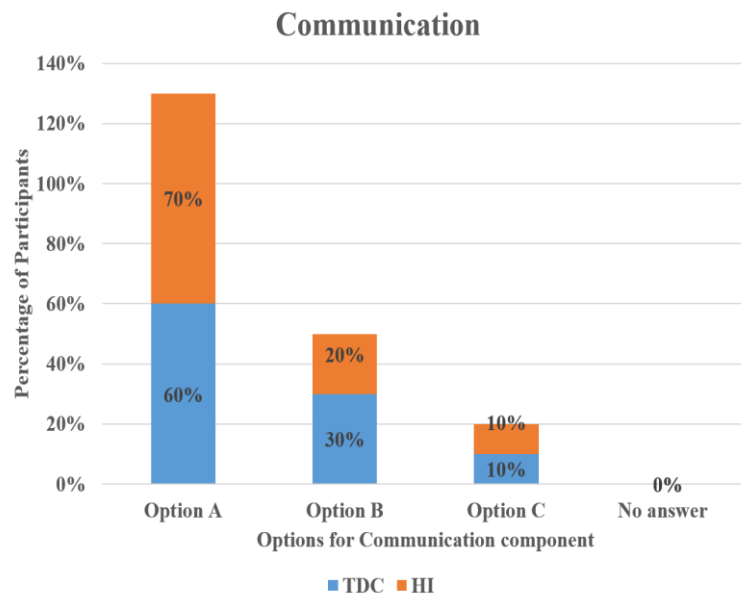
Table 4.12*Question and options for Communication component of Hotel scenario*

Hotel scenario – Communication			
	Option A	Option B	Option C
ಗೀತಾ ಅಪ್ಪ ಅಮ್ಮನ ನೋಡಿ ಎನ್ನು ಮಾಡಬೇಕು?	ಅಪ್ಪ ಅಮ್ಮನ ಕೇಳಬೇಕು	ಅಪ್ಪ ಅಮ್ಮನ ಹತ್ತಿರ ದುಡ್ಡು ಕೇಳಬೇಕು	ಹೋಟೆಲ್ ಅಂಕಲನ ಕೇಳಬೇಕು
ಗೀತಾ ಹೋಟೆಲ್ ಅಂಕಲನ ಏನು ಮಾಡಬೇಕು?			
/ gītā appa ammana nōḍi jennu māḍḍabēku ? /	/appa ammana kēḷabēku /	/ appa ammana haṭṭira dudḍu kēḷabēku /	/ hōṭel aṅkalnā kēḷabēku/
/gītā hōṭel aṅkalnā nōḍi jennu? /			
What should Geetha do after looking at her parents ? Or What should Geetha do after looking at the waiter ?	Should ask parents	Should ask parent for money	Should ask the waiter

Similar to participation component, it was observed that majority of the participants from both the groups, 60% of typically developing children and 70% of children with HI, selected option A “Should ask parents”. The same can be observed in the Figure 12.

Figure 12

Percentage of Participants Selecting Different Options on Communication for Hotel scenario



Based on the results of this scenario, it can be noted that the answers were consistent and related across the domains by children in typically developing group. On the other hand, children with HI were able to maintain the answer across participation and communication domain only. In addition, 30% of children with HI were unable to answer the question under the domain of decision making.

4.5 Road crossing scenario

The question and the three options related to decision-making component of road crossing scenario are provided in Table 4.13.

4.5.1 Decision making

Table 4.13

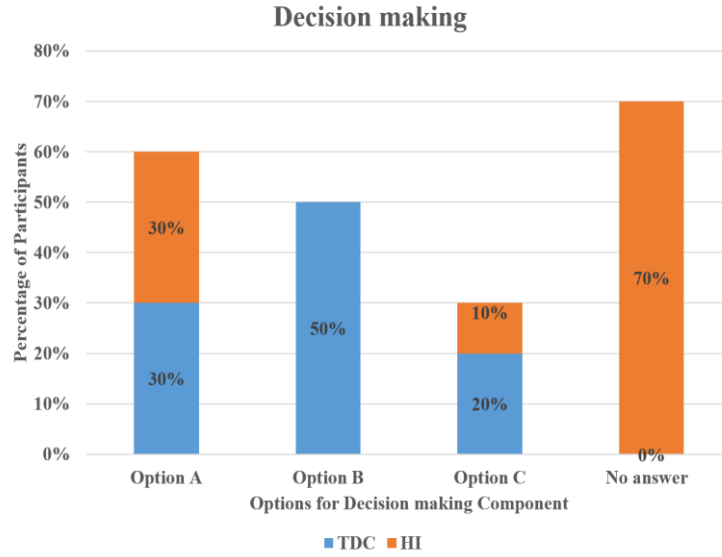
Question and options for Communication component of Road crossing scenario .

Road crossing scenario – Decision making			
	Option A	Option B	Option C
ರಾಹುಲ್ ಏನು ಮಾಡಬೇಕು ?	ಅಮ್ಮನ ಹತ್ತಿರ ಸಹಾಯ ಕೇಳಬೇಕು	ರಸ್ತೆಯ ಸೈಡಿನಲ್ಲಿ ಹೋಗಬೇಕು	ರಸ್ತೆಯ ಎರಡು ಕಡೆ ನೋಡಿ , ರಸ್ತೆ ದಾಟಬೇಕು
/ rāhul jennu māḍḍabēku ?/	/ ammana haṭṭira saḥāja kē[abēku /	/rasteja sidḍinalli hōgabēku /	/rasteja yaraḍukaḍe nōḍi raste dāṭabēku/
What should Rahul do ?	Take help from mother	Go on the side of the road while crossing	Look both sides of road while crossing the road

Majority of the participants under typically developing group selected the option B, “go on the side of the road while crossing” whereas children with HI (70%) were unable to answer. The same can be observed in the Figure 13.

Figure 13

Percentage of Participants Selecting Different Options on Decision making for Road crossing scenario



4.5.2 Participation

Table 4.14 represents the question and the three options for the Participation component of Road crossing scenario.

Table 4.14

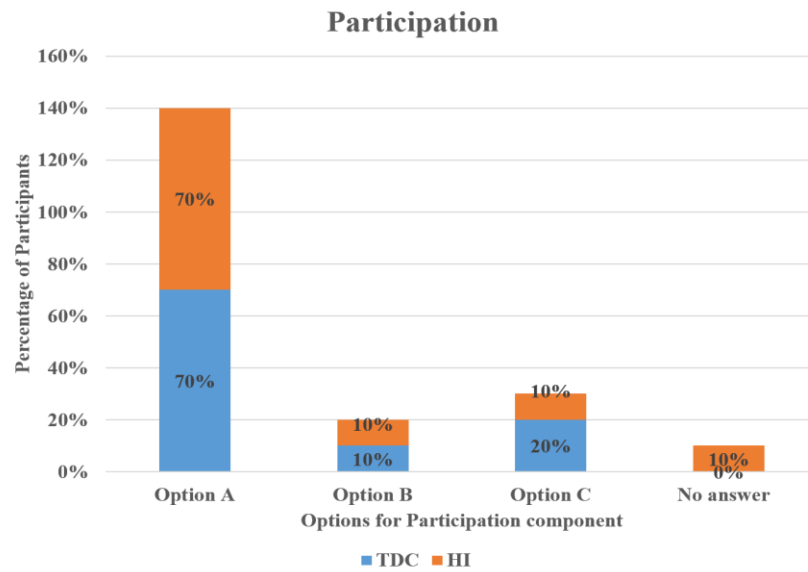
Question and options for Participation component of Road crossing scenario.

Road crossing scenario – Participation			
	Option A	Option B	Option C
ನೀನು ರಾಹುಲ್ ಆಗಿದ್ದೆ ಏನು ಮಾಡುತ್ತಿದ್ದೆ?	ಅಮ್ಮನ ಹತ್ತಿರ ಸಹಾಯ ಕೇಳಬೇಕು	ರಸ್ತೆಯ ಸೈಡಿನಲ್ಲಿ ಹೋಗಬೇಕು	ರಸ್ತೆಯ ಎರಡು ಕಡೆ ನೋಡಿ, ರಸ್ತೆ ದಾಟಬೇಕು
/ nīnu rāhul āgiddre nīnu māḍṭide ?/	/ ammana haṭṭira sahāja kē[abēku/	/rasteja sidḍinalli hōgabēku /	/rasteja yaraḍukaḍe nōḍi raste dāṭabēku/
If you were that Rahul , what you would do?	Take help from mother	Go on the side of the road while crossing	Look both sides of road while crossing the road

In this component 70% of participants from both the groups have selected the option A “Take help from mother”. The same can be observed in the Figure 14.

Figure 14

Percentage of Participants Selecting Different Options on Participation for Road crossing scenario



4.5.3 Communication

Table 4.15 provides the question for the communication component of the road crossing scenario. The three options for the question have also been provided in the table.

Table 4.15

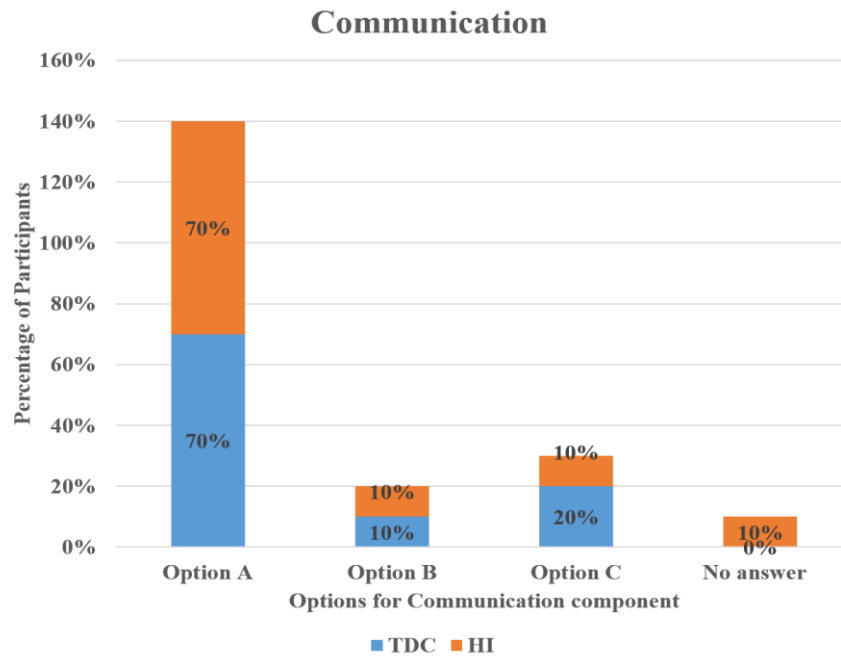
Question and options for communication component of Road crossing scenario.

Communication	Option A	Option B	Option C
ಅಮ್ಮನ ಹತ್ತಿರ ಹೋಗಿ ರಾಹುಲ್ ಏನು ಮಾಡಬೇಕು ?	ಅಮ್ಮನ ಹತ್ತಿರ ಸಹಾಯ ಕೇಳಬೇಕು	ತಮ್ಮನಿಗೆ ರಸ್ತೆಯ ಸೈಡಿನಲ್ಲಿ ಹೋಗಬೇಕು ಎಂದು ಹೇಳಬೇಕು	ತಮ್ಮನಿಗೆ ರಸ್ತೆಯ ಎರಡು ಕಡೆ ನೋಡಿ , ರಸ್ತೆ ದಾಟಬೇಕು ಎಂದು ಹೇಳಬೇಕು
/ ammana hattira hōgi rāhul jennu māḍḍbēku ? /	/ ammana haṭṭira sahāja kēḷabēku/	/ṭammanige rasteja sidḍinalli hōgabēku jandu hēḷabēku /	/ ṭam:anige rasteja jaraḍukaḍe nōḍḍi raste dāṭabēku jandu hēḷabēku/
ತಮ್ಮನ ಹತ್ತಿರ ಹೋಗಿ ರಾಹುಲ್ ಏನ್ ಮಾಡಬೇಕು? /tammaṇa hattira hōgi rāhul jennu māḍḍbēku ?/			
What should Rahul do approaching his mother ?	Ask help from mother	Tell brother will go on the side of road to get the ice cream	Tell brother to look both sides of road to cross the road to get the ice cream

Similarly to participation component, 70% of participants from both the groups have selected the option “Take help from mother. The same can be observed in the Figure 15.

Figure 15

Percentage of Participants Selecting Different Options on Communication for Road crossing scenario



In sum, the observations made here in this scenario was similar to the observations made for home scenario. Typically developing children were able to maintain the answer provided for decision making component across the other two components as well. Further, an equal distribution of percentage of participants across the three answer options was also observed. However, children with HI were unable to decide for the character in the scenario but were able to relate to the answers under participation and communication components when they had to relate themselves to the scenario.

CHAPTER V

DISCUSSION

The results for the present study aiming to compare decision making, participation and communication components of life skills between typically developing children and children with Hearing Impairment have been discussed in this section under the respective objectives of the study. Each objective has been discussed considering all the five scenarios, home, road, park, hotel and road crossing.

5.1 To compare decision making abilities during life skills in children with hearing impairment and typically developing children.

A difference was observed between both the groups for the decision-making skills across all the scenarios except Home scenario, where the child was sick. This can be attributed to the fact that preschool children fall sick frequently and are being taken to the hospital making this scenario as well as the option A, “Going to the Hospital” very common for children irrespective of the presence or absence of hearing impairment.

Further, for the rest of the scenarios, it was found that majority of children with HI were pooling towards one particular option while the percentage of typically developing children were spread across the three options provided. This can be because of the effect of parental teaching. Literature reports that the parental language input influence the language comprehension, expression and use of language in children with Hearing impairment. Additionally, the quantity and quality of language input also mattered. Evelien et al. (2020) compared the parental input of typically developing with that of parents of children with hearing impairments. It has been noted that parents of hearing-impaired children communicated to their children in short utterances, with a

vocabulary that is less varied in quality, and with insufficient language strategies. These factors have an impact on the development of the children's expressive and receptive language skills.

Further, the opportunities provided for these children to experience as well as to think about the situations should also to be considered. Further, parental behaviour has been linked to concurrent and later child outcomes with respect to language, cognition, and social behaviour (Olsen et al., 2002) as well. It has been documented that parental acceptance of presence of hearing impairment and as a consequence overprotection towards the child accompanied by poor sociability might affect the development of cognitive abilities (Nasralla et al., 2014) like thinking and reasoning. This might also have contributed to children with hearing impairment pooling towards one option though all the options might be correct answer.

In addition, it was observed that a few participants in the group of hearing impairment were unable to choose an option for the decision-making component across the three scenarios, namely, Hotel scenario, Road crossing scenario and Park scenario. Specifically, for the road crossing scenario question, majority of participants failed to respond. This can be because that children with hearing impairment might have been finding it difficult to apply decision making abilities for the character, unlike self, in those scenarios that are infrequent in the child's life. In this case, the infrequent scenarios might be hotel, road crossing and park. Also, it should be noted that the scenarios included in the study are ones that children are unlikely to read or being read in storybooks. Social stories are not included in the story books that are currently available, such as Panchatantra, moral storybooks, and bedtime storybooks. Hence, children with hearing impairment might not have been able to respond to the questions in the scenarios used in the study.

Further previous studies report that parents with hearing children focus more on developing their child's language and hearing skills, fostering their imagination, and creating an appropriate reading environment when they read picture books to them. However, it implies that parents of children with hearing impairments do not read in a variety of ways and don't put much effort into teaching their kids to read aloud (Wenqing et al., 2019). Hence the parental interaction with the children with Hearing impairment also influence the ability to think, make decisions.

5.2 To compare the component of Participation during life skills in children with hearing impairment and typically developing children.

Across the five scenarios, the component of participation was investigated by examining how the participants were able to relate themselves to the character mentioned across different scenarios. There was difference in percentage of options opted by the participants among both group across scenarios. It was observed that in the Home scenario there was shift in the selection of options to the questions mentioned in decision-making component to that of participation component by children with hearing impairment. This indicates that the children with Hearing impairment were unable to relate self in the character of scenario for the component of decision-making while in the participation component they were able to relate, because of which the shifts in the results were noted.

In addition, in Road scenario it was observed that majority children with Hearing impairment opted a particular option, where as in typically developing children the selection of options were almost equally distributed across the three options. This can be attributed to the effect of parental teaching where the generalisation of the topic would be not considered by the parents (as clinically observed) which would inversely affect learning.

In contrast to these two scenarios, in the other three scenarios (Hotel scenario, park scenario and Road crossing scenario), the percentage of children with Hearing impairment were spread across the three options just as it was observed in typically developing children. This can be because of the fact that these scenarios are the regular routine scenarios where children would have been experienced in real. In addition, parents' desire for children to participate in real life skills also may be the reasons for the results obtained. This has been supported in the previous study, where the encouragement of parents for their children to participate is one of the facilitating factors that improve the participation abilities in children with Autism (Golas et al., 2024), which can be applied to other population as well.

5.3 To compare communication abilities during life skills in children with hearing impairment and typically developing children.

The communication abilities in children with Hearing impairment were found to be similar to those of typically developing children. This can be due to the reason that in the present study only communication ability was the focus and not the mode of communication (verbal or non-verbal) that children with hearing impairment are using.

In sum, children with hearing impairment were found to have difficulty in applying decision-making abilities for another character/ person, specifically when the scenarios were those that were infrequent in stories that are generally narrated to them. However, they are able to apply decision-making abilities as well as participate in those scenarios where the character is 'self'. In addition, they are also able to communicate effectively as typically developing children either using verbal and/or non-verbal mode once they participate in a scenario or a life skill. However, these findings need to be validated on a larger sample size considering children with hearing impairment from

various socio-economical status, geographical area, culture as well as considering the speech and language stimulation at home and early intervention.

CHAPTER VI

SUMMARY AND CONCLUSION

Life skills is defined as the abilities for adaptive and positive behaviour that enables individuals to deal effectively with the demands and challenges of everyday life (WHO, (1993). To carryout life skills, an individual requires components like critical thinking, decision making, problem solving, creativity, resilience, participation, negotiation, empathy, and communication. These components are exhibited as per the age of an individual.

Studies focusing on comparing the life skills of children with communication disorders and typically developing children report that the former group is not on par with the latter. Studies on hearing impaired individuals have primarily included adolescents rather than children indicating that adolescents with hearing impairment find it challenging to manage life skills. This indicates the likelihood that younger children with Hearing impairment might not be able to manage age-appropriate life skills. Therefore, it is important for Speech Language Pathologists to know how similar or different are these children with hearing impairment when compared to typically developing children and implement these life skills in intervention to improve communication skills. Hence, the present study aimed at comparing decision making, participation and communication abilities during age-appropriate life skills in children with hearing impairment to typically developing children of age range 5-7 years.

A total of five scenarios related to five different life skills were taken. The five scenarios were Home scenario, Road scenario, Hotel scenario, Park scenario and Road crossing scenario. For each scenario three questions addressing the three domains, decision-making, participation and communication were developed and validated. For

these open-ended questions, three options were selected based on the top three common answers provided by 50 typically developing children. Later these questions and options were converted into pictures, which were also rated for familiarity, clarity and iconicity. These pictures were used as the stimuli for the study.

A total of twenty participants were recruited where 10 were children with HI and the other 10 were TDC. All the five picture-based scenarios were presented to the participants one after the other and they were asked questions related to decision making, participation and communication. They were instructed to select one of the options out of the three presented to them for each question. The options selected by the participants were documented. Qualitative data analysis was carried out where the percentage of participants in both groups choosing an option were calculated, and compared this percentage within and across the groups.

Out of the three components, differences were observed in decision making component across the two groups. In the participation and communication components children with hearing impairment were as comparable as to typically developing children. Additionally, it was noted that in the decision-making domain children with hearing impairment were not able to relate to the character introduced in the scenario and carry forward the same in the participation and communication domain. Further, some of the participants were not able to respond to the decision-making question and in a few scenarios the participants majorly opted to one particular option only. All these observations from the results can be attributed to the factors such as type of parent child interaction, parental teaching approach, early interventions, frequency of exposure to various situations or scenarios.

Hence, it is important to consider the components such as the decision making, participation and communication skills which helps the individual to carryout age-appropriate life skills. In addition, including scenario-based teaching approach would improve not only the communication skills, social skills but also improve generalisation of the learnt behaviour which was found to be affected under decision-making component. However, these findings need to be validated by carrying out similar studies on a larger sample size.

6.1 Implications of the present study

- 1) To emphasis on learner-centred approach that might be implemented in the process of speech and language intervention by an SLP. This teaching approach enable the children to adapt to any situation.
- 2) Incorporating life skills into language learning process as a goal would assist the child in comprehending concepts holistically.
- 3) Help in generalizing the learnt behaviour in a better way.

6.2 Future directions

- 1) The findings must be validated on a larger sample size
- 2) To carry out similar studies on children with various other communication disorders across different age range
- 3) To carry out similar studies on children with hearing impairments from diverse socioeconomic backgrounds, geographic locations, and cultural backgrounds.
- 4) To carry out similar studies taking other components of life skills into consideration

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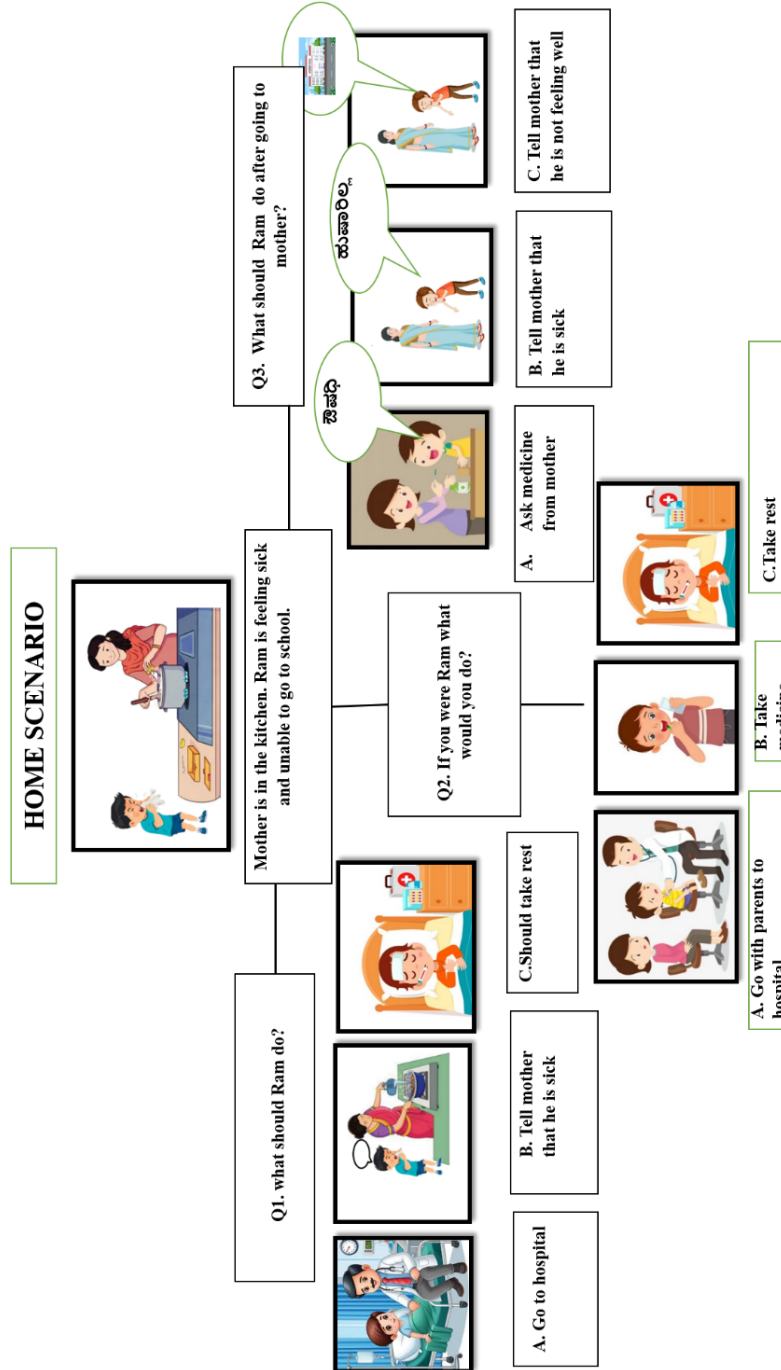
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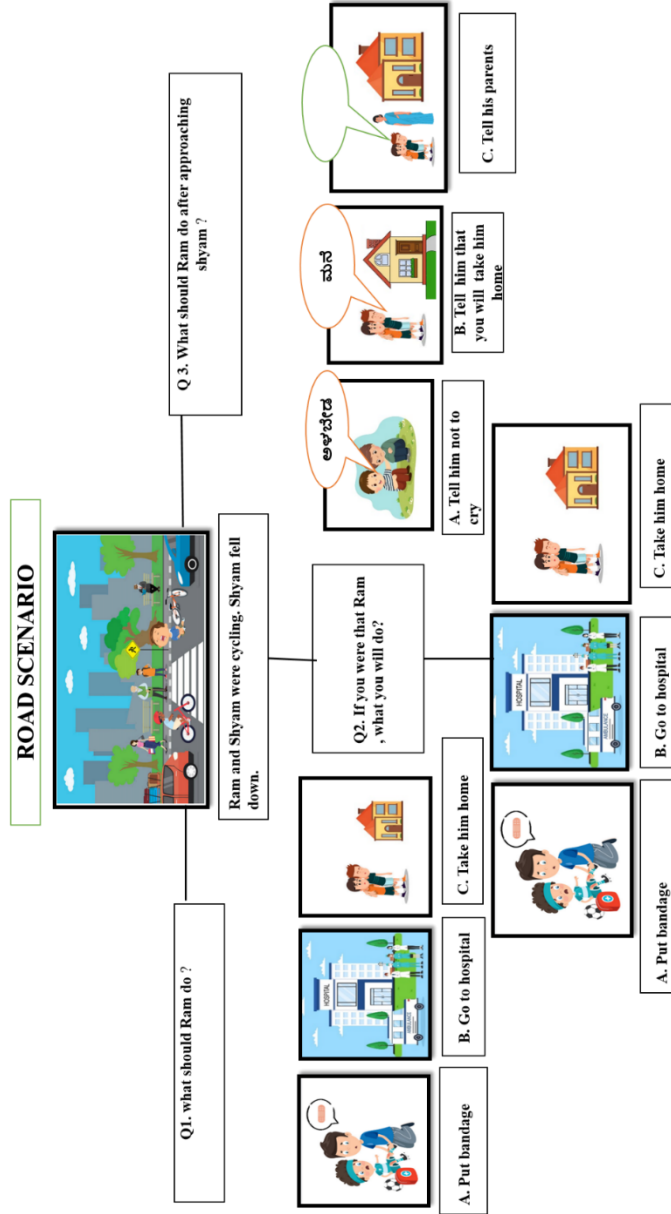
APPENDIX A

Picture stimuli for Home scenario



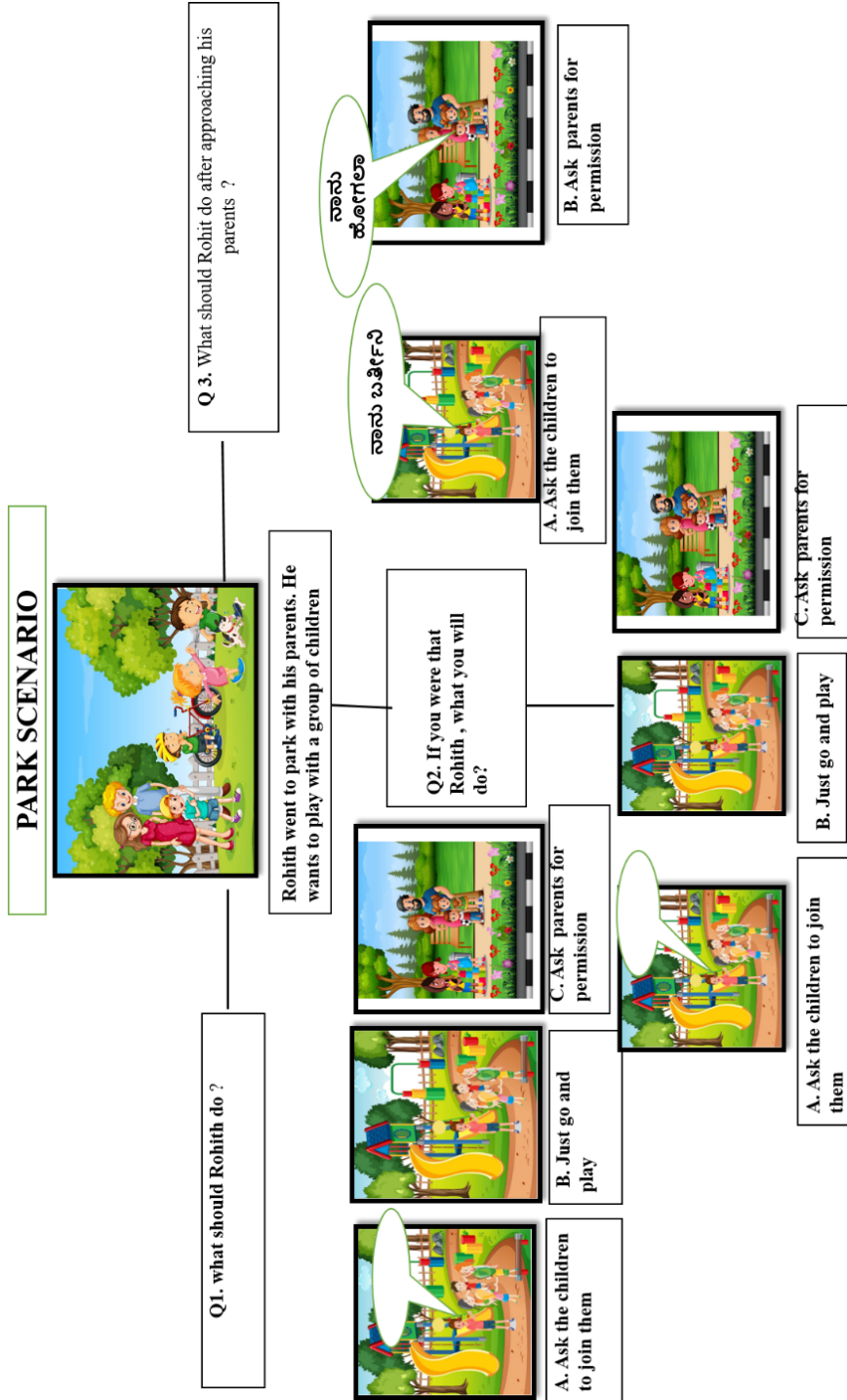
APPENDIX B

Picture stimuli for Road scenario



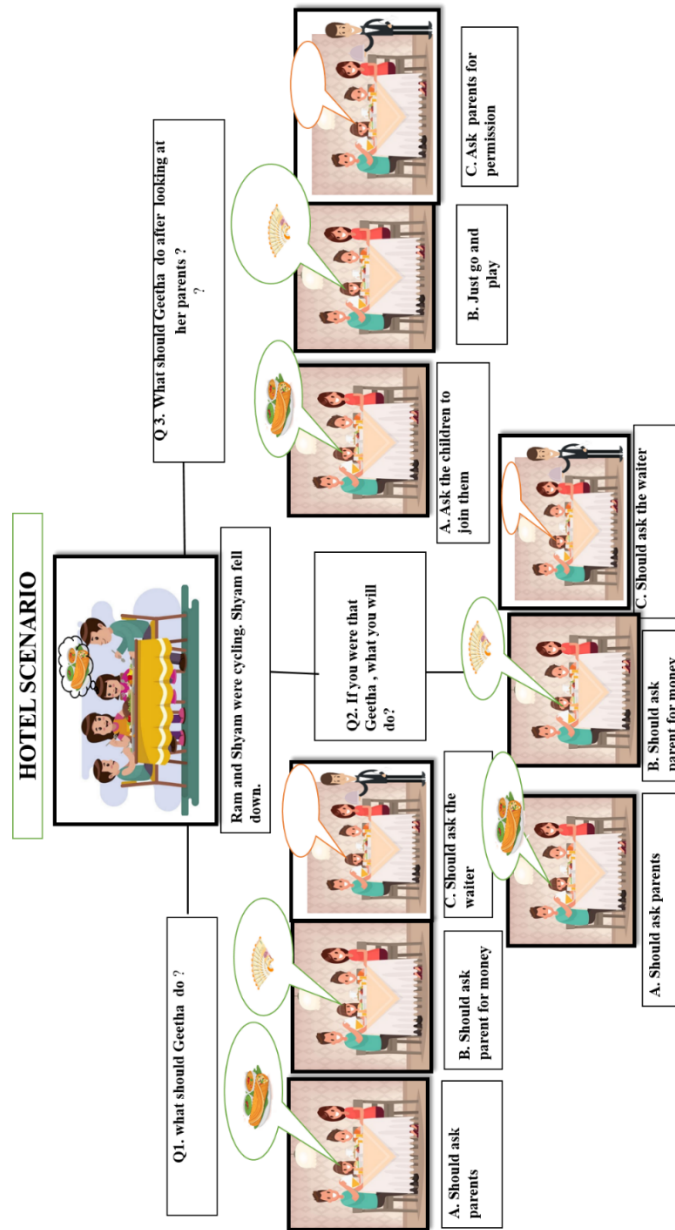
APPENDIX C

Picture stimuli for Park scenario



APPENDIX D

Picture stimuli for Hotel scenario



APPENDIX E

Picture stimuli for Road Crossing scenario

