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Utilisation of Relevance in Answering Questions in a Context by Typically Developing Tamil Speaking Children

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Abstract

This study explored whether incorrect answers of children for questions that are pragmatically demanding, was due to an inability to assimilate the relevant information from a particular scenario. One hundred and thirty-eight typically developing Tamil speaking children from 6;1-9;0 years of age participated in this study. While answering 'why' questions, or understanding indirect answers to questions, the child has to use the inferences that can be generated on the basis of the words used. When children grow older, the ability to process implicature occurs by inferring the 'why' questions which helps in the recovery of implicature. Ten scenarios in Tamil were developed based on implicature using 'why' /jen/ question. Children were asked questions after a scenario was described to each child individually. Later all the responses were analysed based on correct and incorrect answers with respect to the implicated meaning. The incorrect answers were divided into three subcategories; world knowledge, irrelevant and don't know for further analyses. The results revealed that the number of incorrect answers were highest in 6;1-7;0 year old children when compared to other two older groups. Also, it was evident that children answered the scenarios more easily when; the picture stimuli were shown compared to the verbal only scenario. Results are discussed in relation to Relevance theory of communication and the clinical implications.

Keywords: Pragmatic language, Incorrect answers, Implicature, Tamil

Introduction

Children's questions have significantly caught attention in different research fields, such as the educational, linguistics, cognitive psychology, and in speech language pathology. Children ask specifically "why" questions, to obtain more information to fill in gaps in their knowledge (Piaget 1929). Isaacs in 1930 explained, that children ask "why" questions, when they have to deal with differences, deviations, or contrasts in a communication, that have stimulated a sense of apprehension. During the development of "why" questions in children's speech, Brown (1968) had indicated the presence of some recurrent discourse patterns, which consisted of sentence and constituent exchanges, which are the basis of a learning process. Tyack and Ingram (1977) explored on how children develop different patterns of questions, especially comprehension and expression of questions to identify the patterns of question acquisition. They explained how children first learned the use of "what" and "where," as early as two years of age, and then in chronological order the uses of "why," "how," and "when" questions. More recent works (Chouinard, Harris, & Maratsos 2007; Loukusa, Ryder, & Leinonen 2008) have shown how children's abilities to answer questions and to explain their answers are developed between the ages of 3 and 9. Besides these studies, Frazier and colleagues (2009) examined children's questions and their reactions to the answers they received in conversations with

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adults. They observed that children more often agree and ask follow-up questions following adult explanations and, conversely, more often ask their original question again and provide their own explanations.

It is common for children to answer questions in a given context. Children between three to six years of age are able to integrate the relevant information from a given context using their previously acquired world knowledge (Ryder & Graves 1998; Winer et al. 2001; Sperber & Wilson 2002). Children in the age range of two and three years relay on world knowledge while answering questions which is evident in their responses. World knowledge is based on personal knowledge/experiences about the specific communicative situation. According to Robinson & Whittaker (1987), three and four-year old children were able to use their world knowledge in preference to the meaning of the linguistic expression or the speaker's intended meaning while answering questions. When they were unable to answer relevantly, it indicated that they interpreted the questions literally or that the abstract thinking was not yet developed (Marinac & Ozanne 1999).

According to the Relevance Theory (RT), individuals have an inherent ability to infer which is guided by the cognitive system (Sperber and Wilson 1995). This helps in processing implicature (the implicated meaning) which occurs gradually as the child interacts with others in the early years. For example, when a boy is playing with his mobile phone, his mother says, "complete your homework first". The boy must know that he has to write his homework before playing games on his mobile phone. This meaning is possible to comprehend when the world knowledge ("playing with mobile phones for long time is not good/healthy"), and with physical and verbal context ("homework has to be completed on time or else his teacher might scold him the next day") and "he has to write without any more delay").

Various studies on pragmatics have been reported on how children become proficient in using the pragmatic functions as they develop skills and knowledge beyond normal language acquisition. The understanding of implicated meaning in context is therefore dependent on the processes of inference. When children grow older, their ability to process implicature occurred by inferring 'why' questions which helps in recovery of implicature. There is not much clarity on whether children's incorrect answers to questions reflect a reliance or preference for inferring meaning (i.e. semantic meaning or knowledge from memory) and further, whether their answers reflect difficulty in processing implicature, or whether incorrect implicatures are generated.

Thus, to understand the process of how children's incorrect answers can be examined in terms of whether they reflect inferring semantic meaning using world knowledge, or whether they reflect integrating knowledge and given information from context, Relevance theory was used. Children's incorrect answers are expected to reflect a developmental trend in utilising relevant context to understand the focus of the question. In this study children's incorrect answers to questions were examined based on short scenarios. Thus, it was hypothesized that incorrect answers will reflect a reliance on world knowledge, inferring meaning on the basis of the words used in the scenario and the question asked.

Aim

Thus, the aim of the study was to examine if children's incorrect answers reflect an inability to integrate relevant information from the scenario when answering pragmatically demanding questions.

Method

Current study was approved by Institutional Ethics Committee, Sri Ramachandra University, (Ref: PhD IECNI/11/FEB/21/07).

Participants

A total of 138 typically developing children participated in this study (Table 1). Children were selected from mainstream schools in and around Chennai. Informed consent was obtained before the data collection. Children with normal speech and language development with Tamil as their native language only were considered for the study. Assessment of Language Development (ALD) by Lakkanna, Venkatesh & Bhat (2008) which is a standardized test for assessing language skills was administered to rule out if any child had language delay. An informal hearing screening was done to rule out hearing difficulty. Those children who had difficulty in hearing, any articulation or fluency issues, poor attention and concentration, reading and writing difficulty and any other neurological conditions were excluded.

Table 1

Details of typically developing children who participated in the study

Age range (years)	Average age (years)	Male	Female	Total
6;1-7;0	6.5	25	25	50
7;1- 8;0	7.4	25	23	48
8;1-9;0	8.6	20	20	40
Total		**70**	**68**	**138**

Procedure

Material and Task Design

The material was based on 10 routine scenarios from commonly occurring day-to-day activities. Three sequence scenarios were developed in Tamil based on the pragmatic function 'implicature'. Specific probe questions were framed in Tamil (/jen/ 'why' - questions) for each scenario. All questions were kept grammatically simple and on familiar themes for children in the age range of six to nine years. The material developed consisted of 5 visual and 5 non-visual scenarios. Each scenario was presented to the child followed by a probe question. The whole session was video recorded. In visual task, three sequence pictures for 5 scenarios were presented to the child one by one. The researcher explained the scenario in the picture and a probe question was asked targeting the implicature aspect in the question. The child had to answer verbally by integrating the information explained in the short scenario and using his/her world knowledge. In non-visual task, the next 5 scenarios were orally presented without any picture stimulus. The child had to listen carefully and answer the question asked in these five scenarios. Both tasks were performed in order to obtain information and generate an implicature question to answer successfully. Each child was seen individually in a quiet room in their school premises. They were explained about the task before recording.

Analysis and Scoring

In this study children's incorrect answers and how they utilise context when attempting to answer pragmatically demanding questions were analysed. Children's answers for each task were therefore coded according to the context utilised in the answer. Four categories were apparently used to analyse the responses: 1. Contextually correct, 2. World Knowledge 3. Irrelevant and 4. Don't know (Ryder & Leinonen 2014). The data was transcribed orthographically from videotaped sessions. The inter-rater reliability (Interclass Correlation Coefficient, ICC) was calculated between two raters. The overall ICC score of 0.975 indicated a good inter-rater reliability. Children's incorrect answers for each task were therefore coded according to the context utilised in the answer. Also, the effect of visual versus non-visual scenarios was compared across the age group for their responses.

The incorrect answers were analysed as follows:

(1) *Contextually Correct (CC):* When the child comprehended the scenario based on what they have heard and considered what is meant by the question according to relevance theory. The comprehended information has been utilised in the response made to the probe question. Thus, the answer includes what was in the context and not any repetition of words used in the scenario.

(2) *World Knowledge (WK):* The question has triggered the child to use world knowledge and experience of similar situations in their life. That is, they have utilised knowledge from memory based on the words in the text or the question.

(3) *Irrelevant (IRR):* The child gives an answer which is not relevant in the given context and does not appear to be the result of world knowledge/experience or reflect an ability to consider the focus of the question.

(4) *Don't know (DK):* The child says they don't know the answer.

Illustrations of each answer type are given in the "Appendix 1".

Results & Discussion

Frequency analysis was carried out for all the responses exhibited by the children in each group. The number of correct and incorrect answers was converted into a percentage score. The incorrect answers were categorized into subcategories such as world knowledge, irrelevant and don't know. For each child, the number of incorrect answers for each subcategory was converted into a percentage score.

Performance of children for implicature questions

The overall percentage of responses for correct and incorrect answer types of children from 6;1-9;0 years is indicated in Figure 1.

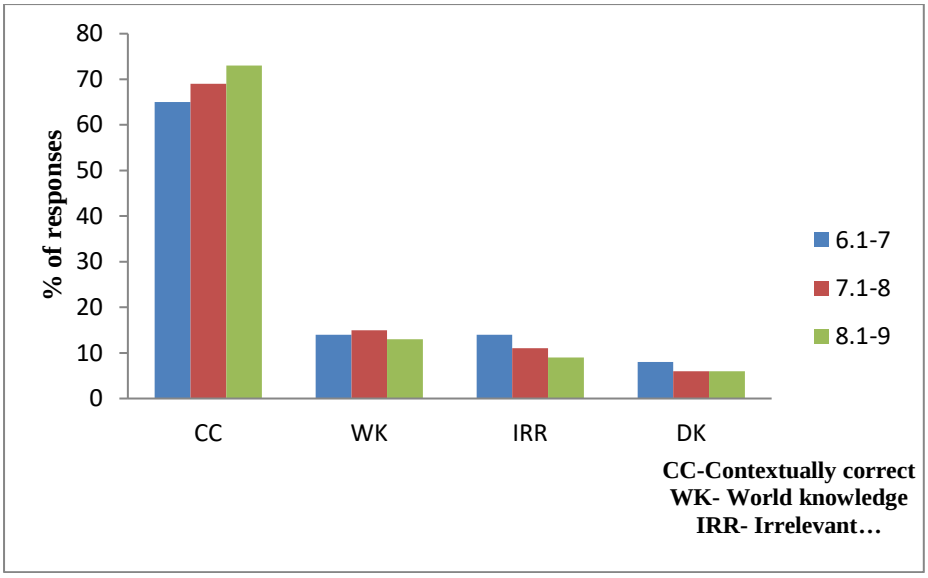

Figure 1 Percentage responses of implicature questions in children from 6.1- 9 years

The overall correct responses for implicature questions in Tamil reached a maximum score of 73% in 8;1-9;0 year-old-children. On analysis of the incorrect responses, 8;1-9;0 year-old-children exhibited 13% of responses in the subcategory 'world knowledge', and 9% of responses in the subcategory 'irrelevant'. Similarly, in 7;1- 8;0 year-old, 15% of responses were present in 'world knowledge' and 11% of responses in 'irrelevant' subcategory. Whereas, in 6;1-7;0 year-old-children, 14% of responses was present in 'world knowledge, and 14% of responses in 'irrelevant' subcategory. The percentage of responses in 'don't know' subcategory in youngest group (6;1-7;0), was only 8%. Thus, it is evident that typically developing children in all the age group were able to use world knowledge while answering a /jen/ (why) question better than responding to the answers irrelevantly or not saying the answer. Children attempted to provide an answer to almost all the questions, thus there were a few 'don't know' answers in all the three age groups. The number of incorrect answers within each category reduced with increase in age. Thus, children acquired the ability to use relevant context in interpretation of questions in a gradual manner.

According to Sperber and Wilson (2002) children consider the first relevant interpretation that came to their mind while answering "why" questions. Also, Paul in 1990 reported that children use their world knowledge or experience in inferring the answers for pragmatically demanding questions. These interpretations were either based on the semantic meaning of the word in the question or recalling something that they have known. The children's answers reflected a developing ability to use context even if they have not understood the intended focus of the question. The irrelevant answers by children elucidate the inability to integrate the contextual information from a given scenario.

This study has given an oversight on how children develop the ability to integrate information (and possibly to understand the communicative intention of the speaker). The ability to recover implicatures in a question occurred as their experience of language situations increased. While providing an irrelevant answer, children make inferences based on world knowledge (something which is familiar in their experience) but which is irrelevant in the context of the scenario and question.

Sperber and Wilson (2002) suggested that children stop at the first available interpretation rather than showing that they have difficulty in understanding (or attending to) the focus of the question. It is not clear from the model how the children move on from this phase, but a child is said to develop the ability to judge the intention of the speaker as they grow older. In early language development, changes in external contextual demands are said to result in shifting of the child's attention from one content word to another. This experience of shifting attention is said to result in self-organised patterns and the stability of these vary over time.

Also, it was found that children's performance increased with visual support. The visual context facilitated children to comprehend scenarios and questions more accurately. The pictorial information helped children to direct their attention to the relevant part of the context and to concentrate on the specific questions asked. In line with an earlier study with English children (Ryder & Leinonen 2003) a similar developmental trend was found for implicature questions.

Conclusion

This study examined if children's incorrect answers reflect an inability to process relevant information while answering pragmatically demanding questions. The results revealed that children gradually develop the ability to integrate given information and utilise relevant context based on their previous knowledge (something which is familiar in their experience). Children's experience on questions being answered depends on recovering implicatures and it varies with age. Children's ability to combine different sources of information to process language is constrained by their experience of language use. It is common to use open ended questions and imply meaning rather than giving an explicit instruction. In view of the developmental nature of pragmatic interpretation, this may mean that some children do not understand what is being asked of them, particularly children who maybe language delayed. Results of this study suggested that the pragmatic language difficulties of children with speech and language impairment and pragmatic language issues must be considered in language evaluation and therapy to make them understand that, in a situation where the combining of information is required, the relevant information should be identified by the child.

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References

Brown, R. (1968). The development of wh questions in child speech. *Journal of Memory and Language*, *7*(2), 279.

Chouinard, M. M., Harris, P. L., & Maratsos, M. P. (2007). Children's questions: A mechanism for cognitive development. *Monographs of the Society for Research in Child Development*, i-129.

Frazier, B. N., Gelman, S. A., & Wellman, H. M. (2009). Preschoolers' search for explanatory information within adult–child conversation. *Child development*, *80*(6), 1592-1611.

Isaacs, S. (1930). Intellectual development in young children. *London: Routledge & Kegan Paul*, *326*, 192-327.

Lakkanna, S., Venkatesh, K., & Bhat, J. (2008). Assessment of Language Development. Mangalore: Codeword publishers.

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Loukusa, S., Ryder, N., & Leinonen, E. (2008). Answering questions and explaining answers: A study of Finnish-speaking children. *Journal of Psycholinguistic Research*, *37*(3), 219-241.

Marinac, J. V. & Ozanne, A. E. (1999). Comprehension strategies: The bridge between literal and discourse understanding. *Child Language Teaching & Therapy*, *15*(3), 233–246.

Paul, R. (1990). Comprehension strategies: Interactions between world knowledge and the development of sentence comprehension. *Topics in Language Disorders*, *10*, 63–75.

Piaget, J. (1929). The child's concept of the world. *Londres, Routldge& Kegan Paul*.

Robinson, E. & Whittaker, S. (1987). Children's conceptions of relations between messages meanings and reality. *British Journal of Developmental Psychology*, *5*, 81–90.

Ryder, N. & Leinonen, E. (2003). Use of context in question answering of 3, 4 and 5-year old children. *Journal of Psycholinguistic Research*, *32*(4), 397–415.

Ryder, N. & Leinonen, E. (2014). Pragmatic Language Development in Language Impaired and Typically Developing Children: Incorrect Answers in Context. *J Psycholinguist Research*, 43:45–58.

Ryder, R. J. & Graves, M. F. (1998). *Reading and learning in content areas* (2nd ed.). New York: Wiley.

Sperber, D. & Wilson, D. (1995). *Relevance communication and cognition* (2nd ed.). Oxford: Blackwell.

Sperber, D. & Wilson, D. (2002). Pragmatics, modularity and mind-reading. *Mind and Language*, *17*(1–2), 3–23.

Tyack, D. & Ingram, D. (1977). Children's production and comprehension of questions. *Journal of Child Language*, *4*(2), 211-224.

Winer, G. A., Cottrell, J. E., Mott, T., Cohen, M. & Fournier, J. (2001). Are children more accurate than adults? Spontaneous use of metaphor by children and adults. *Journal of Psycholinguistic Research*, *30*(5), 485–496.

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Appendix 1

Illustrations of incorrect answers for each subcategory

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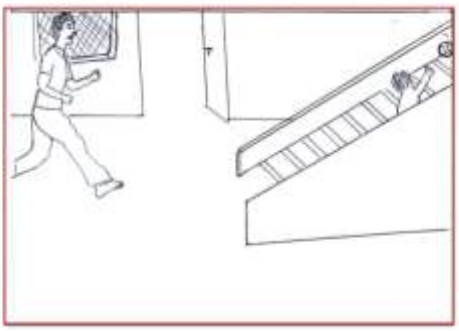
1. **A scenario with picture:**



Scenario 1:/oɾɨ pa:pa: ba:lvilaja:diʈe thanija: mottama:dikku padila jeɾipona:, appa avanga appa: avalapa:thuʈu vegama: ava kiʈɨ odipona:ɾɨ/
Translation: A baby was playing with a ball and she started climbing the stairs alone. Seeing this her father ran towards her quickly.
Question: /appa: jen oɖiporaɾɨ?/
Translation: Why did the father run?
Contextually correct answer: /kuɻandaikiɻa viɻundɨɖiva:niappa: oɖiporaɾɨ/
Translation: The father ran towards the baby as she might fall. (previous text explicitly states that the baby is climbing the stairs alone)

World knowledge answer: /adi paʈidumnɨ/
Translation: She will get hurt (World knowledge of situations when one might get hurt if we climb the stairs without proper grip).

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Irrelevant answer: /pa:pa: thanija mottama:dikku pona: ja:ra:vdhupudichiɻu poidɨva:ngɨ/
Translation: If the baby goes alone upstairs someone might catch her and go.
(The child's answer is irrelevant in the context, as there is no one else in the house).
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2. A scenario with without picture:

Scenario 2: /oɾɨmaɾatula niɾaija kiliŋga iɾundɨchan. Aŋga niraijɨ paɻam iɾundndhuchan. a:na: oɾuna:l ellakiliŋgalum antha maɾatulaiɾundɨ vera maɾatukɨ poiɾɨcha:m/
Translation: There was a tree in which many parrots lived. The tree had lots of fruits. One day all the parrots had left this tree to live in another tree.
Question: /kiliŋgaellam jen oɾumaɾatulaiɾundɨ veramaɾatukkɨ poiɾukum?/
Translation: Why did the parrots went away to another tree?
Contextually correct answer: /paɻam ellam ka:liajiɾukum/
Translation: All the fruits would have got over (from the text the child understands that the parrots need to find food for their survival).
World knowledge answer: /maɾam kanʧi poiɾukum/
Translation: The tree would have dried (world knowledge about the condition that if trees are dried then they don't bear any fruits).
Irrelevant answer: /rumba na:la: iɾunda, boradichirukkum/
Translation: If they lived in the same tree for a long time, they would have got bored (This child's answer is irrelevant to the context as it birds cannot get bored).

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