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COMPREHENSION AND PRODUCTION OF INFORMATION QUESTIONS BY PRESCHOOL SETSWANA-SPEAKING CHILDREN

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Abstract

The aim of this study was to investigate comprehension and production of *wh*-question markers in preschool Setswana-speaking children and to document changes in comprehension and production of these questions as the children mature. The study further aimed to investigate production and comprehension of subject and object *mang* (who) and *eng* (what) questions.

The development of questions is an important aspect of preschool language ability. Questions play a key role in promoting conversation and participation in discussions. The ability to ask questions assists the child to obtain new information and to organise his/her knowledge. Comprehension and formulation of questions are thus vital communication skills for learning and deficits in questioning skills impact all areas of language learning and scholastic achievement.

There is extensive literature describing the development of questions in English and other Indo-European languages. In Southern Africa however, there has only been one longitudinal study that reported the development of questions in Sesotho. Information questions in Setswana are marked by the following words: *Mang*? (who), *-fe*? (which), e*ng*?(what), *-kae*? (where), *leng?* (when), *goreng?* (why) and *jang* ? (how). The interrogative conjunction *naa, kana,* and *ntla* are sometimes used to introduce questions. This is however, used with sentences that are already questions (Cole, 1955) and is normally attached at the beginning or end of the sentence.

Research indicates that there are structural differences in the syntax of *wh*- questions. English and other European languages derive *wh*- questions by moving the *wh*- word to the front of the clause (Owens, 2001), while, in African languages the question word remains in situ (Demuth, 1995). Also, unlike English, there is no syntactic movement nor use of additional auxiliaries when asking yes/no and *wh*-questions in African languages. *Wh*-questions in Setswana involve re-ordering of the elements in the sentence and positioning of the question-word at the end of the sentence, except when asking *goreng* (why) questions, where the question-word is always at the beginning of a sentence.

Preschool children growing up in Pankop and Ga-Rankuwa, peri-urban areas of Mpumalanga and Gauteng Provinces participated in this study. 231 normally developing boys and girls

who spoke Setswana at home and are in the age ranges of 3.0-3.11, 4.0-4.11 and 5.0-5.11 years were tested for the main production and comprehension part of the study and additional 116 three to five-year-old children were tested for the study on comprehension and production of subject and object *eng* (what) and *mang* (who) questions. While the children were identified by their teachers as Setswana speakers, 39% of the participants came from monolingual home backgrounds. In most instances the mother and the father did not speak the same language and the children were further exposed to other languages spoken in the area.

Test materials included pictures from the Diagnostic Evaluation of Language Variation (DELV) Screening and Criterion Referenced tests (Seymour, Roeper & de Villiers, 2003), What Are They Asking cards from Super Duper publications (2006) and computer generated pictures. Sixteen pictures from the DELV Screening and 40 pictures from the DELV Criterion Referenced tests were used to develop 56 questions for the comprehension task, eight questions for each question-word. The production task consisted of two tasks to maximise data collection (Cohen & Manion, 1991). 12 pictures of the Question Asking subtest of the DELV Criterion Referenced test and 44 cards from *What Are They Asking* were used to elicit questions. Eighteen computer generated pictures were used to assess comprehension and production of object and subject *eng* (what) and *mang* (who) questions.

The children were tested individually in the quietest room available at the school. All interactions were audio-taped and later transcribed by the researcher and the research assistant. Descriptive research method utilising a mixed cross-sectional developmental design was used to compare the three age groups (3.00-3.11 years; 4.00-4.11 years; 5.00-5.11years), gender (boys and girls) with the three independent variable, types of *wh*- questions, comprehension and production. The small study investigating comprehension and production of subject and object *mang* (who) and *eng* (what) questions was analysed separately. Data analysis using SAS 9.2 computer system was used to calculate (means, standard deviations and score ranges) and to compare results. One way Analysis of variance (ANOVA) was employed to compare the groups and procedures used.

DELV comprehension findings revealed that *eng* (what), *kae* (where) and *mang* (who) questions were easier for all children. Their mean scores ranged from 4.16 to 7.38 for *eng* (what); 4.16 to 6.26 for *kae* (where) question and 3.48 to 5.68 for *mang* (who) question. The

children understood *goreng* (why) better than *jang* (how*)* and *efe/ofe* (which) questions and had the lowest mean score for *leng*(when) questions. Paired sample t-test revealed significant differences in mean scores for all questions for three- and four -year-olds and three- and five-year- olds and less so when comparing mean scores for four and five -year- old children. Gender comparisons of the mean scores revealed that male participants obtained higher mean scores than females for some of the questions.

Production task using DELV pictures revealed similar trends to the comprehension task. The most productive question-form for this production task was *eng* (what), followed by *kae* (where), *mang* (who) and *goring* (why). The children were not able to ask *leng* (when), *jang* (how) and *efe/ofe* (which) questions. Male participants obtained higher mean score though the differences were not statistically significant. The children responded much better to What Are They Asking production task. They produced all questions including jang, (how), leng (when) and *efe/ofe* (which). Three and four -year-old female participants produced more questions than males, while the differences between the genders were minimal for five-year olds.

ANOVA between group comparison of comprehension and DELV production tasks revealed significant findings at 1% for all question except *eng* (what), and comprehension and What are they asking tasks findings were not significant for *kae* (where) and *goreng* (why) questions, while the findings of the two production tasks were not significant for *mang* (who) and *leng* (when) questions. The findings of the three procedures indicate that Setswana speaking three to five year old children understand Setswana *wh*-questions and that depending on the type of production materials used these children are able to ask these questions, though *leng* (when), *jang* (how and *efe/ofe* (which) questions were fewer in the speech samples. Their failure to ask these questions can be explained by the complexity of the concepts encoded by these words.

Syntactic asymmetry between object and subject *wh*-questions in African languages have been described in the literature. African languages do not permit *wh*-words in subject position but rather use passives, relatives or cleft constructions to form subject questions (Demuth & Kline, 2006). Subject and object *mang* (who) and *eng* (what) question were difficult for three-year-old children, yet they asked more object *mang* (who) and few object *eng* (what) questions. Four and five- year- olds answered most questions correctly and were

able to produce object and subject *mang* (who) question, and object *eng* (what) questions. This in in agreement with the literature which showed that subject questions were easier for *who* but object questions are easier for *what* questions. The children were not able to produce subject *eng* (what) questions.

The results of this study are interpreted and discussed within the RRG (Van Valin, 2005, 2007, 2011) theory as it allows for direct mapping of syntax and semantics and takes into account the discourse and pragmatic rules specific to the language under investigation. The theory acknowledges the role of the person asking or answering questions and the processes that must be performed consciously or unconsciously, in order to obtain an answer or pose a question.

Development of culturally appropriate assessment procedures for children who speak languages other than English and Afrikaans continues to be challenge for professionals in this country. This study is an attempt to build a body of data that addresses the need for developing linguistically appropriate materials for children who speak African languages. Nelson Mandela once said "there is no better investment than to help children to develop". The findings of this study also point to the need for collaboration between preschool teachers and Speech-Language Therapists as well as information sharing with parents/guardians/caregivers regarding language stimulation.

DECLARATION

I hereby declare that this thesis is my own, unaided, independent work. It has not been submitted before for any degree or examination at this or any other academic institution, or has it been published in any other form.

_____ _____

Dedication

This thesis is dedicated to my beloved friends and teachers, Drs Jill and Peter de Villiers, who came into my life at the right time and never stopped supporting and encouraging me. Thank you for taking me into your home, for introducing me to your students and friends where the seed for this project was planted. I am endlessly grateful and indebted to you.

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List of Abbreviations

AAL: Acquisition of African Languages

CHILDES: Child Language Data Exchange System

DELV-CR: Developmental Evaluation of Language Variation-Criterion Referenced

ECD: Early Childhood Education

HSRC: Human Sciences Research Council

IMF: Information Requesting Mechanisms

IASCL: International Association for the Study of Child Language

LAD: Language Acquisition Device

LANGTAG: Language Plan Task Group

LF: Logical Form

RRG: Role Reference Grammar

SLI: Specific Language Impairment

SES: Socio Economic Status

UG: Universal Grammar

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CHAPTER 1

INTRODUCTION

The main objective of this study is to better document comprehension and production of information questions by preschool Setswana-speaking children from a developmental and a linguistics point of view. The study aims to investigate the order of acquisition of Setswana t*wh*-questions in a sample of three, four and five-year old Setswana-speaking children.

This chapter introduces the general background, purpose and the research questions. In the following chapters the literature, methodology, results and discussions are presented and recommendations are given. Chapter two reviews literature that relates to the acquisition of *wh*-questions in different languages and the theory that is suited for explaining the findings of this study. Chapter three discusses theoretical background for the study. The research methodology, research paradigm, participants, research instruments and data collection and analysis are discussed in chapter four. Chapter five presents the results and discussion of the comprehension and production tasks as well as the results and discussion of comprehension and production of subject and object *eng* (what) and *mang* (who) questions. Chapter six is a discussion of the findings of the study together with conclusions drawn from the literature. Recommendations and limitations of the study are also discussed.

The Constitution of the Republic of South Africa (1996) mandates the Department of Education to promote multilingualism and respect for all languages spoken in the country. However, achievement of this objective has been fraught with tensions and contradictions. The ANC led government has not been able to fully implement the language policy outlined in the country's 1996 Constitution. The Constitution declared eleven official languages; nine African languages including English and Afrikaans. A Language Plan Task Group (LANGTAG), commissioned by the Minister of Arts, Culture, Science and Technology to recommend feasible measures for achieving the government's language policy objectives, especially with regard to the use of African languages, identified “the fast growth of English, and its dominance in the domains of science and technology as well as in sport and music” as a major impediment to the development of African languages in the country (LANGTAG (1996:69). English continues to dominate as a language of learning and teaching across the

education sector in South Africa, even though there is widespread concern about the performance of black learners in examinations at various levels in education.

There is therefore the need to elevate the status of African languages both in education and as a medium of exchange socially. To achieve linguistic equality in this country, African languages must be used more in educational institutions and the media in general. The findings of this study add to the body of information on the acquisition of African languages thus helping to elevate the position and status of these languages to both speakers and policy makers. Understanding of the knowledge children have regarding their mother tongue should sensitize both educators and policy makers regarding the consequences of the decisions made regarding these languages.

Acquisition of English is well documented. This information is easily extrapolated for Afrikaans (van Dulm & Southwood, unpublished monongraph), and preliminary language acquisition studies in isiZulu, Sesotho, Siswati, isiXhosa and Setswana have been documented. However, there are four other African languages (Sepedi, Tsonga, Venda and Ndebele) spoken in this country where very little is known regarding how they are learned by young children. Additional developmental studies are required in all these languages because language development is the single most important vehicle used by Speech and Language Therapists when assessing children and when developing treatment protocols to assist children with language impairment.

Setswana is one of the official languages of South Africa (Constitution of the Republic of South Africa, 1996. p. 4. Act 108 0f 1996). Setswana is also spoken in Botswana, Namibia and Zimbabwe (Basadi-Palai & O'Hanlon, 2004). It belongs to the Sotho group of African languages, together with Sepedi and Sesotho (Cole, 1955). Within South Africa, Setswana speakers are concentrated in the North West Province (67, 8%), with some speakers in Gauteng (17, 4%), Free State (5, 2%), Limpopo (2, 0%), Mpumalanga (2, 3%), Northern Cape (5, 0%) and Western Cape (0, 1%) provinces (Statistics SA, 2011). According to Statistics South Africa three and a half million South Africans- 8.2% of the population- reported that their home language was Setswana in 2001. Interestingly, while the number of speakers has increased to just over four million, the percentage of the population has decreased to 8.0% according to the latest Statistics South Africa (2011) findings. Thesefindings also show that a total of 9.9% of South Africans speak Setswana among other

spoken languages. It is not known how many Setswana speakers use only this language to communicate. However, the UNESCO World Languages Survey Report of 2000 estimates that only 24.3% of this population is monolingual, that is, they have no knowledge of other languages spoken in this country, most people are multilingual, that is, they can understand and speak other African languages, including Englisn and Afrikaans. This report states that as expected literate Setswana speaking adults also speak English and Afrikaans to some extend.

In a study conducted by Conduah (2003) 154 first-year students, 11 third-year students and 13 members of staff were asked to give their opinion regarding the use of African languages at the University of Witwatersrand. Their responses were disappointing. First year students were equally spread between positive, neutral and negative, while 64% of third year students agreed and 68% of the staff said no. The students were noncommittal about which language to choose between isiZulu and Sesotho. This study highlighted the pertinent conflict in educational institutions between the need for access to English and the struggle to accommodate an African language, and conflicts between access to English and students' African identities. Preschool educators are faced with similar issues. The demand for English is very strong. Preschool children who are frequently not competent in their mother tongue are taught through the medium of English in most schools.

The participants in this research are from areas bordering the North West, Limopopo, Mpumlanga and Gauteng provinces. The chidren were selected from schools in Pankop, a town to the west of Mpumalanga, bordering Limpopo in the south and Gauteng in the east, and Ga-Rankuwa township in the west of Pretoria which borders the North West in the east. Mpumalanga is home to over four million people and according to Statistic South Africa (2011), the principal languages spoken in this province ares Siswati and isiZulu. The North West has a population of over three and half million, two thirds of which speak Setswana (Statistics South Africa, 2011).

The North West has rich resources of gold, platinum, diamond and other minerals while Mpumalanga has extensive coal mines. However, despite these riches both provinces are regarded as the poorest areas of South Africa (Bradshaw et al., 2000) and have the lowest standard of living in South Africa (GAFFNEY'S Local Government Report 2004-2006; Statistics South Africa 2007, 2011). Also, according to GAFFNEY'S Local Government

Report (2004-2006) the local municipalities in these towns are characterised by extreme poverty, inadequate health services, poor roads, transport and telecommunication services.

The participants of this study were selected predominantly from these poor backgrounds. The potential threat of poverty to the development and well-being of children, particularly the damaging effects of language delay, cannot be under-estimated. The environment in which the child grows is important as it may influence his/her development, particularly during the first five years of life (Lund & Duchan, 1988). Children growing up in deprived areas may be at a disadvantage, particularly since poverty reduces the capacity of parents to engage in relationship-sustaining behaviours, thus compromising their ability to guide, protect, and support their children (Barbarin & Richter, 2001).

Communities living in formal areas are more likely to access government services than those living in informal or traditional areas. Despite the centrality of equality as a founding value and a fundamental right enshrined in the constitution, inequality persists, and its effects are more pronounced in the development of children. The percentage of children attending preschools in these areas is lower than the national norm (Statistics South Africa, 2011). This, despite the government's commitment to Millennium Development Goal 2 (2010) which focusses on increased access to preschool opportunities, especially improving access for six-year- old children to Grade R. This initiative aimed to ensure that more preschool children are adequately prepared, both socially and cognitively, for the first grade of schooling (Millennium Development Goals, 2010).

Schools in most black areas are normally over-crowded, with untrained teachers and very little stimulating teaching materials (HSRC Report, 2008). This is still the case despite the advent of the "new South Africa" in 1994 and the opportunities that this brought for many black people. Minister Trevor Manual, co-chair of the National Planning Commission cautions that "we need to think hard about how we bring up our children because the foundations laid in childhood will stay with them throughout their lives … adequate exposure to simulating environment affect their physical, emotional and cognitive development" (2012, p.10). He refers to the poor quality of education that persists and the 2011 annual assessment report that showed that the average grade three learner scored 35% in literacy and 28% in numeracy. The National Development Plan (2012) focusses on how these challenges can be defeated. The plan suggests that children should have access to two years of quality early

childhood education before they start formal schooling. The most important investment that the country can make is to invest in the well-being and development of young children.

One of the ways in which inequality is expressed and continues to affect children's lives in South Africa relates to where, and with whom they live. Hall (2012) shows that only 23% of children growing up in rural areas live with both parents: 43% are raised by their mother while 32% have neither parent, and a small fraction, 3% is raised by their fathers. The National Planning Commission (2011) recognises the importance of supporting the development of young children as a key strategy for reducing inequality. Yet despite the focus on early childhood development (ECD) programmes in the Children's Act 38 of 2005, the phasing in of grade R and a National Integrated Plan for ECD, there remain inequalities in access to quality ECD programmes for children growing up in remote rural areas, and access to language, especially to adequate stimulation during formative years is a challenge for most children growing-up in these areas.

Van Rooy and Pienaar (2006), in an article on linguistic research trends in South Africa during the 2000 to 2005 period, report that even though most articles published during this period were on syntax, there were very few articles investigating African languages spoken in South Africa. Hence the purpose of this study is to investigate the development of *wh*-questions in preschool Setswana-speaking children, a language that has been poorly represented in linguistic investigations according to Van Rooy and Pienaar (2006). Setswana was chosen for this project because the findings together with the reports of Tsonope (1987) which was done in Botswana and Bortz (2013) attempt to address this challenge posed by Van Rooy and Pienaar. This study has both a linguistic and a developmental purpose (Miller & Fletcher, 2005). Its aim is to determine the specific areas of similarity and difference in the acquisition of Setswana *wh*-questions and what can be inferred from the emerging patterns for language learning while determining specific patterns of performance characteristic of the language under investigation. Changes in comprehension and production of *wh*- questions as the children mature and their knowledge of the grammatical constraints governing the structure of questions in this language are documented.

Wh-question words are among the most powerful words a child can learn. From early childhood these words form the basis of personal interactions and instructions. It is hard to imagine a communication interaction where these questions are not used. Asking questions

helps children to obtain new information, verify old information and help them to know people or things around them as well as start or maintain conversations (McLaughlin, 1998). How can one check whether one understands the other person if one does not know how to ask questions? More importantly, what would be the communicative consequences of poor understanding and use of questions?

The order of acquisition of *wh*-question words in Setswana is the focus of this study. There is one acquisition study reported on this topic which used Sesotho, a language similar in structure and syntax to Setswana. Demuth's (1992) longitudinal study of Sesotho speaking children revealed that the children used *eng* (what*)* and *kae(* where) questions first, followed by *mang (*who*)* subject questions and just one example of each of the following; *leng* (when*); kang (*with what*); jwang (*how*); ofeng/mang (*whose*); hobaneng (*why*);* and *mang (*who*)* object questions. The *why* questions used by the participants in this study had the structure *verb +el+ ng* instead of the obligatory word (*hobaneng*-why). This data was obtained from a sample of 1312 spontaneous utterances produced by children aged two-to-three years, collected over a period of one year. According to these findings the sequence of development appears to be the same as that reported for English and other indo-European languages. CHILDES data (MacWhinney & Snow, 1985) of this study reflect that there are more yes/no than *wh*-questions (66 vs 33) that were produced by these children. This seems quite limited given that data collection was done weekly over a period of one year. Thus the present study follows an elicitation procedure in order to elicit a substantial number of different *wh*-questions. Ingram (1991) states that spontaneous language sampling is an important and necessary starting point to get an initial insight into the topic and then it is necessary to switch other robust procedures such as elicitation. Targeted elicitation of specific questions allow for further exploration of how children learn these questions especially given the many morphological possibilities that govern these languages. The methodology of this study allow for more in-depth investigation of the children's knowledge of *wh*-questions in Setswana, including their understanding and use of object and subject *who* and *what* questions.

While Demuth's data seem to indicate that the sequence of acquisition of *wh*-questions in Sesotho follow the expected pattern of developement, in line with English data, the possible effects of the differences in syntax and the unique morphosyntactic structure of African languages needs further exploration as mentioned above. A number of studies over the last

thirty years have investigated the acquisition of African languages of Southern Africa. These studies have documented the development of syntax in five languages; Sesotho, Setswana, isiZulu, Siswati, and isiXhosa. They focused on the acquisition of nominal morphology and agreement, with some attention paid to verbal morphology, syntactic constructions, and the acquisition of tone and clicks (Demuth 2003; Gxilishe, 2008). A summary of the reported acquisition data in these languages is presented in table 1.1.

Kunene (1979) recorded spontaneous speech samples and informal elicitations of two 2 to 3.6 year old Siswati speaking children. This study investigated the Noun Class and agreement systems of Siswati. Further experimental research was conducted with three 4.6 to 6 year children to investigate production of subject and object grammatical markers. Connelly's (1984) longitudinal study of four 1.6 to 3.1 year old Sesotho-speaking children documented the acquisition of the Noun Class (NC) system, prosody, click sounds and use of motherese. Demuth's (1984) longitudinal naturalistic study of four rural children aged 2.1 to 3.8 years has been widely published. She recorded the children as they interacted with members of their extended families and older siblings. Demuth's published information includes: socio-linguistic information on child and care-giver interactions, particularly prompting (1984a); question routines, acquisition of relative clauses and cleft constructions (1986); word order (1987); the Noun Class and agreement system (1988); and acquisition of impersonal construction and tone (1989a). Tsonope's (1987) naturalistic study of two Setswana speaking children aged 1.11 and 3 years looked at the Noun Class morphology, agreement, possessives and demonstratives. Suzman's (1991, 1996) naturalistic longitudinal study of two 1.11 to 2.6 years old isiZulu speaking children investigated the Noun Class, agreement and passive.

The above-mentoned findings were all the result of longitudidal studies completed by the authors as part of their doctoral studies. More recently, Gxilishe published several studies on the acquisition of isXhosa phonemes (Gxilishe & Tuomi, 2001), clicks (Gxilishe, 2004), the Noun Class system (Gxilishe, Denton-Spalding & de Villiers, 2008), tense (Gxilishe & de Villiers, 2007) and subject agreement (Gxilishe & de Villiers, 2007). Similar to the acquisition of African languages mentioned earlier, Gxilishe reveals that the pattern of mastery of Noun Class marking in young children acquiring isiXhosa as a first language is followed by an early mastery of tense markers. This finding is important because de Villiers, Roeper, Harrington and Gadilauskas (2012) argue that the introduction of tense on a verb signals the automatic introduction of a proposition as well. This propositional status is

manifested once children have realized both the syntactic rules governing subject-verb inversion and its illocutionary force while acquisition of subject agreement in isiXhosa showed parallel development in both noun-class marking on the nouns and subject-agreement marking on the verbs around the age of 1-to-3.3 years old (Gxilishe & de Villiers, 2007).

The above mentioned studies provide significant information on how one up to five-year-old children who speak these languages learn constructions such as passives, relative clauses, *wh*-questions, noun class, tonal system and other morphological markers. Gxilishe (2008) states that children learning these languages appear to be relatively precocious when compared with their English-speaking peers. The fact that normally developing children acquire this complex morphological system so early and error-free raises interesting questions regarding the development of *wh*-question words in these languages. While the findings of the studies presented above have been valuable, the methodology used for data collection while linguistically sound does not provide the type of data that can be applied to the general population. Elicitation tasks using pictures is an accessible method that can be expanded and retested over and over to provide a more efficient research framework for exploring understanding and use of *wh*-questions and other grammatical forms in similarly structured African languages. Bortz (1995) devised and standardized a receptive and expressive language test for preschool isiZulu speaking children. The test pilot included 188 children and the standardization sample had 303 children in the age range of 3.9 -4.3 years old, all residing in Soweto. Bortz found that these children demonstrated good knowledge of the noun class system of isiZulu and that their receptive language abilities were better that their expressive abilities. Bortz used real objects to elicit her language structures which make the study difficult to replicate as the objects she used may not be readily accessible.

More recently, Bortz (2013) investigated understanding and expression of the passive in Setswana in a sample of 2.6 - 5.5 year old children. The study described the development of the reversible, negative, non-actional, inanimate and impersonal verbal passives and the children's capabilities regarding the length of the passive. Using elicited imitation and elicited production tasks she found that all participants scored higher on elicited imitation tasks. There was a developmental trend where youngest children scored the lowest, and impersonal passives were more difficult than non-actional and inanimate passives for this age group. The performance of the participants was found to be significantly better with short sentences than long sentences. Elicited production results showed that participants scored

very poorly on all tasks with no age group achieving a mean above 12% with a range of 8-12%. The youngest children achieved the lowest means. Participants performed best on inanimate tasks, followed by negative tasks and performed the worst on the impersonal tasks.

Table1.1 Summary of studies of acquisition of Southern African languages

Author	Langauge	Age Group	Findings
Kunene (1979)	isiSwati	2.3 - 6 years 4.6 - 6 years	NC, agreement Subject/object markers
Connelly (1984)	Sesotho	1.6 - 3.1 years	NC, prosody, clicks, motherese
Demuth (1984; 1986; 1988)	Sesotho	2.1 - 3.8 years	NC, Prompting, relative, cleft and impersonal constructions, word order, agreement, questions
Tsonope (1987)	Setswana	1.11 -3 years	NC, agreement, possessive demonstratives
Suzman (1991; 1996)	isiZulu	1.11-2.6 years	NC, agreement, passive
Bortz (1995)	isiZulu	3.9- 4.3 years	Receptive and expressive test including NC, object, subject, possessives, relative, adjective prefixes
Gxilishe et al. (2001; 2007)	isiXhosa	1-3.3 years	NC, Phonemes, tense, agreement,
de Villiers et al. (2012)	isiXhosa	Comments only	Propositionality, illocutionary force, Subject/object agreement
Bortz (2013)	Setswana	2.6 -5.5 years	Understanding and expression of the passive

Table 1.1 reflects three decades of research on acquisition of Southern African languages. The documented information highlights the gaps regarding what is still unknown. The information is still limited, especially for Speech and Language Therapists who need this information to support their clinical practice. While the information available is important for some aspects of language acquisition, on the whole, the profession still lacks linguistically appropriate norms of speech and language development that therapists could readily use when assessing children and adults who speak these languages. Language specific normative data is critical for speech and language assessments as it facilitates valid judgments. Such norms would also be valuable for educators to identify children who need to be referred for early assessment and intervention to prevent speech, language and academic problems. Therefore, many Speech and Language Therapists are acutely aware of the need for the development of assessment and treatment materials specifically for children who speak African languages as their first language. Speech and Language Therapist have an ethical responsibility to effectively assess and treat their clients in the client's first language, even where a language mismatch between the client and the therapist exist (Pascoe & Smouse, 2012).

More research, especially, experimental research on the acquisition of syntax, morphology, and semantic constructions of Southern African languages, is needed to deepen our understanding and to develop suitable assessment protocols for these languages. Mayo and Johnson (1992) commenting on the paucity of data in American Speech and Language journals relating to content on multicultural paediatric populations reported that "as a result of the void of basic scientific and practical clinical information on multicultural populations, the profession faces the unenviable position of being significantly underprepared to meet adequately the service needs of these communities" (1992, p. 8). They called for an increase in *socially responsible research* on multicultural populations, that is, high quality research that avoids the victim analysis paradigm but provides *practical answers* to yet unexplored or under developed questions about language. Given the service challenges that face clinical practice when assessing or treating children who speak African languages in this country, the place of in-depth child language research will be at the centre of the Speech and Language Therapy profession for many years to come.

An example of this paucity of assessment materials for children who speak laguages other than English and Afrikaans is highlighted in Barbarin and Richter's (2001) birth-to-ten study

of children growing up in Soweto. They report that at each point of development, lack of access to both financial and human capital might have had negative implications for their subjects and that there was likelihood that some may have language deficiencies in their early years. Yet, despite this, only 24 of 1606 four-year- olds and 25 of 1535 five-year -olds from their sample were reported to have a speech/language difficulty. Contrary to their expectations and recommendations of the literature, speech and language problems were not common in this sample of children growing-up in poverty. It is possible that children with subtle speech/ language impairments may have been missed since these findings were based on parents' reports and no attempt was made to evaluate these children professionally. Statistics South Africa (2011) figures supports this observation and report that 98.5% of the population 5 year-old and older does not have a communication problem and that only 1.5% reports a communication difficulty. So despite the hardships described here regarding the communities from which the participants of this study were selected, the sample used in this study is an adequate respresentation of children growing-up in peri urban areas in this country and their language backgrounds reflect the status of preschool children in similar areas in this country.

This chapter summarises the state of the literature regarding acquisition of some Southern African languages. Detailed information regarding how children learn the Noun Class systems of these languages and the grammatical morphology that arise from these systems have been described. The status of Setswana and other African languages versus English in South Africa is emphasized and the socio-economic conditions of the area where the participants of the study were selected from are also highlighted.

CHAPTER 2

LITERATURE REVIEW

"Questioning is a unique example of using language to gain information about language and about the world in general" (Owens, 2001, p. 328). A rising questioning intonation at the end of a sentence solicits attention and explicitly invites the listener to take the speakers' turn. Thus turn-taking pragmatic strategies of functional appropriacy and accuracy are prerequisite skills that children must have if they are to participate fully in the exchange of information through discourse. Questions are used to request specific information, so the need to use them arises often in social interactions. They are an important part of discourse as they promote conversation and participation; in fact, social competence requires a conversational command of asking and answering questions (Webber, 2007).

Children use questions to maintain conversation, explore the environment, learn new words and glean information about the world (Lewis & Penn, 1989). They are prevalent in the speech adults address to children even though the debate concerning their beneficial effects on the children's language development has not been settled. Yoder and Davies (1990) suggest that properly timed use of certain types of questions may aid conversation and assist the child to obtain new information as well as organise knowledge they already have, thus playing a significant role in the child's ability to understand language and to communicate effectively. Yoder, Davis, Bishop and Munson, (1994) and Hirsch-Pasek, Kochanoff, Newcombe, and de Villiers (2005) are of the opinion that questions are used to scaffold interactions with children, thus facilitating learning of discourse skills, while Bohannon and Bonvillian (1997) and McLaughlin (1998) proposed a social-interactive theory which purports that variation in the rate of language acquisition may be explained by differences in children's participation in conversation with responsive adults. They state that social context, turn-taking behaviours, care-giver and infant intercations are all catalysts for language development.

Mastering the skill of answering and asking questions is critical to early learning. Parents and caregivers have endless opportunities to give children practice in questioning and answering. When children are included in turn taking conversations as often as possible, their language and questioning skills are stimulated (Owens (2001). Initially, questions may be used to

comment on what the child is gazing at or to direct his or her attention to the activity. As the child's communication skills improve, questions give the child an opportunity to practice language use and to learn from the adult's advanced linguistic skills, thereby acquiring the rules of conversational discourse (Bohannon & Bonvillian, 1997; Hirsch-Pasek, 2005; Snow, 1998; Yoder et al.1994). Asking clarification questions or providing glosses for child utterances expands the child's minimal contribution and ensures that their content is enhanced and becomes a meaningful part of the conversation. Research has shown that helping parents develop a better understanding of questions and training them on how to use effective types of questions can greatly benefit children's language development and early literacy skills (Berent, 1997; Chouinard, 2007; Friedmann & Novogodsky, 2011).

Planas (undated) cites Savonic (1975), who observed that adults frequently use more questions than declaratives when interacting with children. These questions perform the function of directing or requesting a child to perform an action. Questions are also used in conversation by adults to encourage turn-taking. For adults interacting with young children, the aim of using questions is to elicit a verbal intervention from their interlocutors. Planas believes that this form of interaction is appealing to young children. They are more likely to accept their turn to speak after a question than after a declarative utterance. Snow (1986) stressed the facilitating nature of questions in general, and puts more emphasis on the role of clarifying questions in bringing children into the conversation.

Questions are a valuable assessment and therapy tool for Speech-Language Therapists. They foster verbal participation which in turn provides the therapist with an opportunity for identifying those aspects of the child's language that s/he wants to assess. The formation and frequency of question usage has important valuable diagnostic information for therapists. Being able to answer questions helps the child to express his/her knowledge and understanding as well as reflect how the child is making sense of the world around them. Asking questions is also an essential topic continuation strategy for therapy. Yoder et al., (1994) believe that, because questions carry a social obligation for the child to respond, they are better facilitators of verbal interaction than comments. Making predictions and inferences about people, locations, thoughts, feelings and actions are essential elements of communication that can be expressed and measured through questions. However, despite this, there is very little information in the Speech and Language Therapy literature regarding how questions can be used with specific populations as assessment and therapy tools. An

understanding of the developmental profile of production and comprehension of *wh*-questions in Setswana is thus necessary for Speech-Language Therapists and for educators.

Comprehension and formulation of questions are vital communication skills for learning. Deficits in questioning skills impact all areas of language learning and play a vital role in children's ability to function in academic and social settings (Webber, 2007), therefore determining the adequacy of a child's understanding and production of questions is not a trivial matter. According to the American National Reading Panel, if a student does not have proficient questioning skills s/he will experience difficulties participating in classroom discussions, taking tests, and interacting with peers (Put Reading First, 2007). They further state that success in academic tasks such as reading and mathematics are dependent on well-established skills in comprehending question forms and performing the associated reasoning processes.

Specific measurable gains have been reported in children's receptive and expressive vocabulary, print knowledge and narrative abilities when good question strategies are used by teachers (Yoder & Davis, 1990; Yoder et al., 1994). Marshall (2010) investigated the correlation between question-asking and reading comprehension in grade one and two learners in three educational settings. The question production subtest of the DELV-CR was used. The average score from a total of 9 for grade one English first language speakers was 7.1; black children in a predominantly black school educated by black teachers obtained 2.5 while those in a mixed school educated by white teachers who were English first language speakers obtained 6.3. However, by the time the children were in grade there was a slight improvement in the scores of the grade two black children from the mixed school and those who were English first language speakers (7.6 and 8 respectively). The greatest improvement was reported for grade two black children in the black school. Their score improved from 2.5 to 6.1. This indicates that spending just one year in school produced a dramatic influence in these children's production of English questions.

There are those who believe that questions may encourage children to be dependent on adults and consider questions a form of directive behaviour (MacDonald, 1989; Mahoney & Powell (1988), cited in Yoder, et al.,(1994). de Rivera, Girolametto, Greenberg & Weitzman (2005) studied children's responses to educator questions in day-care facilities. They found that the educators' use of questions did not change as a function of the children's ages and that

educators used more closed-ended topic-initiating questions than open-ended topic-continuation questions. This finding has positive and negative implications. On the positive side, adult topic-initiating questions may elicit additional conversational exchanges that expose children to advanced language model. However, on the negative side, the closed-ended topic-initiating questions may lead to little or no responses from the children, which may end the conversation prematurely.

The role of input and how it is manipulated to suit the child and the role the child plays is an important area of investigation. It is not always possible to know the experiences that children have encountered prior to assessment. Iglesias (2001) states that individuals may share a similar background but not have similar experiences. Thus we should approach assessment of children with "vigilance, always conscious that behaviour that is different from expectations, regardless of the language in which it is being assessed, might be a result of lack of experience rather than a child's inability to learn" (p.10). Variations in performance cannot necessarily be attributable to variation in ability. Iglesias recommends that assessment protocols must take into consideration the child's social and linguistic needs. Children may perform poorly on a test because they are not familiar with thequestion-anser routines that such a test may employ (Ortiz, 2001). Wyatt (1999) states that use of obvious or "known information" questions during structured language assessment situations can lead to delayed verbal responses from some African American children. She suggests that the limited context of verbalization during structured language elicitation may be unfamiliar to children who are raised in home communities where such adult-child routines are less frequent.

Li et al., (2013) report that there are differences across cultures on how different interlocutors in different communities might interact with children. The common style of conversation normally associated with middle class households, sometimes called "child-raising and self-lowering" (Ochs & Schieffelin, 1984) or "scaffolded conversation" (Snow, 1998) may not be common in most communities. Variations in cultural experiences have been shown to affect test performance in English-speaking children from culturally and linguistically diverse backgrounds. Pena (2001) commenting on English-speaking children from Latino backgrounds noted that as a group the children may retain cultural practices that influence the content of language development. Also, even when the children are from the same ethnic background, and have had the same experiences; their performance may still vary because of

individual differences that they bring to the task. Iglesias (2001) reports that child socialization practices vary across and within cultures.

Demuth (1992) noted a number of interesting trends in the families she observed in Lesotho. She found that majority of the Basotho caregiver's speech consisted of either imperatives or questions. Sesotho-speaking adults include young children and preverbal infants in conversation through prompting and question routines. The adult asks the question and provides the answer, answering for the child when s/he does not know or does not have enough language to answer. "Thus young Basotho children become conversational partners long before they can utter a word" (p.588). Secondly, there are peer interactions especially in those homes where the toddler has a younger sibling and the adult attention is more focused on the new-born. Demuth reports that this child-to-child interaction provides a rich source of language stimulation for the younger child. Beside prompting, directing and questioning, adults used restricted input in the form of short grammatical sentences but they did not simplify their language or use baby-talk.

Tsonope (1987) observed that prompting routines were prevalent in interactions of the Batswana adults and children he studied. The children were instructed *–ere-*(say) and the child was expected to repeat parts of or the entire adult utterance. Suzman (1991) observed that isiZulu-speaking adults did not seem to speak about subjects that were unique and of interest to children. Rather, children were "participants in the matter of fact conversation about daily activities" (p.31). Interestingly, both Suzman (1991) and Demuth (1992) report that the children in their studies did not make grammatical errors; rather they acquired their language by a gradual refining process that resembled adult input. The acquisition errors they noted were those of omission as opposed to overgeneralization of structures. So, when conducting assessment with children from these communities it is important to conduct assessment in a manner that systematically examines whether the child's language performance is typical of his/her social and linguistic experience.

Adult-child interactions in different cultures reveal that question-asking strategies are not universal as shown above. This implies that there may be different emphasis on how adults use questions with children and therefore the age of acquisition of questions may vary because of differences in adult-child interactions across different contexts and cultures. This is still an important area for further investigation. However, *wh*-questions still account for a

substantial percentage of questions used to stimulate children's development of language across cultures. *Wh*-questions tap the child's understanding of language in a sensitive manner, and can reveal the development of language (de Rivera, Girolametto, Greenberg & Weitzman, 2005; de Villiers, 1991; de Villiers & de Villiers, 2000; Roeper & de Villiers, 2000). Syntactic studies have shown that the sequence of development followed by English-speaking children when learning *wh*-questions is determined by linguistic factors that include the syntactic function of the *wh*-word that heads the question and the semantic generality of the main verb (Bloom, Merkin & Wootten, 1982; Bloom, 1991), and the relative frequency with which children hear particular *wh*-words and verbs in their input (Rowland & Pine, 2000).

In contrast, Rowland, Pine, Lieven and Theakston (2003) three hundred hours of naturalistic data from twelve two- to three-year-old children and their mothers revealed that the acquisition order of *wh*-questions could be predicted from the frequency with which particular *wh*-words and verbs occurred in the children's input and that syntactic and semantic complexity did not reliably predict acquisition once input frequency was taken into account. These results highlight the importance of input frequency when learning *wh*-questions. Clancy (1989) also highlighted the importance of semantic and syntactic complexity as primary determinant of the order in which children acquire *wh*-questions. However, Allen and de Villiers (2001) are cautious when interpreting the influence of frequency of forms. They believe it is important to assess the complexity and the richness of the linguistic environment.

Clancy (1989) highlights the importance of cognition in language development. She observed that the acquisition order for Korean children was consistent with studies of English and reported that this supports universality of cognition in language development. She also reported that there were some constrains regarding comprehension and production of *wh*-forms which influence the order in which mothers introduce these forms to the children, thus leading to similarities in the input of form and function across children and languages. She further observed that differences in interactive styles across caregivers and children may influence input frequencies of particular forms and that individual children's selection of different forms for use may explain the discrepancies that are sometimes seen in acquisition order.

Clancy (1989) and Rowland et al. (2003), though they differ slightly in their explanation of the observed order of acquisition, concur that this development is a result of the correlation between complexity and the frequency with which mothers use particular *wh*-words and verbs. The syntactic form of the question, semantics of question-words and observation of rules of conversational interchange play a significant role in language acquisition. However, the importance of the relationship between the frequency with which children hear particular *wh*-questions, differences in communication settings and forms and pragmatic functions of question-words are valuable areas for further investigation. As reported above there are significant cultural differences in interaction practices that influence language development and important to when discussing acquisition of *wh*-questions.

Despite the many investigations of children's ability to ask and answer questions, especially, *wh*-questions, there is very little research that describes the skills for interpreting and responding to questions. This lack of information concerning this linguistic area of questions is surprising in view of the researchers' agreement that much of the young children's experience with information exchange occurs in question-answer situations and that this verbal stimulation is heavily laden with *wh*-questions, and, that children learn to formulate particular forms of questions only after they have learned to respond to questions of the same form, that is, comprehension precede production in development (Klima & Bellugi, 1966; McLaughlin, 1998).

McLaughlin (1998) warns researchers to be cautious regarding discrepancies that may occur when an area is tested in both comprehension and production and to take into account the type of data considered most reliable in indicating the child's linguistic development. He states that it is not entirely clear how comprehension and production systems relate to each other especially in the early stages of language acquisition. However, it is generally assumed that a child must experience a language form to eventually reproduce it (Ingram, 1991). This general assumption is based on the work of Bloomfield (1933) cited in Ingram (1991) who stated that the child first acquire a word separately in comprehension and in production and only later connect the two. Bloom and Lahey (1978) maintained that the relationship between production and comprehension might vary depending on the child's stage of language development. In comprehension the child is exposed to redundancies, restating and other paralinguistic features of speech that aid understanding, while production requires the child to perceive and formulate utterances. While comprehension may deal with how the child

establishes meaning in language input, production is much deeper according to Ingram (1991). Production describes reasons why spoken language may not reflect the child's linguistic competence and describes mechanisms the child may use to achieve the expression of their competence.

This chapter discusses the structure of information questions in English and in Setswana, followed by an indepth discussion of acquisition of canonical wh-questions and subject and object *wh*-questions. A discussion of English questions is included in this chapter in order to locate the scope of the present study and to show how this study adds to the body of information already documented on this topic.

2.1 Structure of English *wh*-questions

This heading may seem out of context given that the purpose of this study is to document *wh*-questions is Setswana. However, it is important to forground this investigation with an explanation of English questions in order to provide the reader with sufficient background and rationale for studying Setswana questions. While questions are universal, that is, they appear in all languages of the world, there is some variation in their structure in the different languages (Stromswold, 1995). They are used to request specific information, so the need to use them arises often in conversation. There are three basic types of questions *yes/no*, *wh*-questions and *tag*-questions (McLaughlin, 1998). They differ in the kinds of information they ask for and therefore the responses required. *Yes/no* questions query an entire proposition, they ask for confirmation or denial of information stated in the question and the listener gives a *yes* or a *no* response. A rising intonation invites the listener to speak. *Tag* questions are a form of *yes/ no* questions, however, they are more complicated than *yes/no* questions because they are seeking to confirm whether the relationship is true or untrue (McLaughlin, 1998). *Yes/no* and *tag* questions are not included in this study.

Wh-questions are used when a speaker is missing a specific piece of information. They request information that would be found in a specific sentence constituent. Thus the focus of inquiry in a *wh*-question is narrower than that of a *yes/no* question. Riggenbach and Samuda (1997) states that English *wh*-questions have the same intonation pattern as statements. In a sense *wh*-questions could be regarded as statements with an information gap. The nature of the missing piece of information influences the selection of the question-word used. This information gap exists in either subject or object of the noun phrase. When questioning the

subject the *wh*-word remains in position whereas when questioning the object the *wh*-word has to move from the predicate position through application of derivational rules (Guasti, 2004).

Thus *wh*-questions in which the subject is being queried are simpler syntactically to those in which something in the predicate is being queried (Celce-Murcia, Larsen-Freeman & Williams, 1999). According to Celce-Murcia et al. subject questions involve merely selecting the appropriate *wh*-question word, in accordance with the inquiry focus. While object questions involve an additional fronting of the *wh*-word, inverting the subject and the operator and adding the operator "do" if no other operator is present. The choice of the *wh*-word selected depends on the semantic character of the inquiry focus, for example, *what* asks for information, *where* for location and *why* for an explanation. The pragmatic context for using *wh*-question words assumes that the listener knows the proposition. If this knowledge cannot be assumed, the speaker would use a *yes/no* question (Riggenbach & Samuda, 1997).

Wh-questions seek information: in English they are formed by placing a question word at the beginning of the sentence, in contrast to Setswana (to be discussed later) where the *wh*-word is normally at the end of the sentence. Young children must master a variety of *wh*-question forms in order to function as effective conversation partners. Semantically these questions require a complex understanding of the world and provision of different kinds of information from the listener: *what* requires information about labels of specific objects and actions; *who* refers to persons; *where* relates to location; *why* asks for reasons and causes; *how* refers to the manner of doing something or instruments used; *when* relates to time; *which* is used when there are two or more possible answers or alternatives; (in Setswana *which* questions are clearly marked to distinguish humans from things). In addition to their semantics, the lexical properties of these question-words further complicate the matter. Some are arguments, required by the verb (*what, who, where*) and some are adjuncts (*how, when, why, where*) which freely relate to any verb.

The internal morphology also plays a significant role (Roeper & de Villiers, 2012). A *wh*-morpheme may attach to other morphemes (*what*= wh+that, *where* = wh+there, *when* = wh+then) or show case-assignment overtly, (for example use of *who*/*whom*/*whose*). Furthermore, *how* can refer to number (how many), amount (how much), duration (how often) distance (how far) and frequency (how often) (Lewis & Penn, 1989). Roeper and de

Villiers (2012) state that semantically ***wh***-words refer to a set that must be exhaustive and could also indicate paired relations. They state that during development each of these features of *wh*-words could emerge independently or be paired, and that the effect of this complexity on the order of acquisition is still unknown. Studying these effects across languages will provide valuable information for our understanding of their implication for acquisition. The effect of this on the order of acquisition is an important area for investigation.

The topic of *wh*-questions is perhaps one of the most researched and controversial topics in syntax because of the role questions played in defining linguistic theory and general language acquisition (Crain & Thornton, 1998; de Villiers, 1991; de Villiers & Roeper, 1995; O'Grady, 1995; Stromswold, 1995; Yoshinaga, 1996). Theoretical interest stems partly from the syntactic representation underlying *wh*-questions, which typically involves *wh*-movement, and partly from the developmental changes that occur during acquisition. The present research investigates the latter. Research indicates that there are structural differences in the syntax of *wh*-questions across the languages of the world. English and other European languages derive *wh*- questions by moving the *wh*- word to the front of the clause (Owens, 2001), except in echo questions where the *wh*-word remains in position. Echo questions serve a specific purpose; they are used when the listener did not hear the original answer. Because of their simpler syntax, echo questions are prevalent in the speech of young children (Owens, 2001). Fronted *wh*-word and *wh-in situ* has been shown for Italian-speaking children (Guasti, 2004).

2.2 Structure of *wh*-questions in Southern African languages

While the focus of this research is on *wh*-questions in Setswana, the information provided here will incorporate a general discussion of the syntactic structure of these questions in other fairly similar languages spoken in South Africa.

Setswana, like other African languages spoken in South Africa, is a tonal language that uses changes in fundamental frequency to indicate lexical and grammatical differences in meaning, and the rich morphology of this language is structured through the Noun Class (NC) agreement system (Doke, 1954). Setswana has a basic Subject Verb Object (SVO) structure, where the subject of the sentence is marked through agreement with the verb. The noun is related to the verb through an agreement marker that agrees with the noun in its class.

However, because the object follows the verb there is no agreement between the object and the verb in the basic SVO structure (Doke, 1954).

For example: monna o raga bolo (the man kicks the ball).

Subject + agreement marker+ verb +object

Questions in African languages spoken in South Africa have been described (Bresnan & Mchombo, 1987b; Doke, 1954; Lombard, 1979; Jones et al., 2001; Poulos & Louwrens 1994; Sabel & Zeller, 2006; Thwala, 2004; Zerbian 2006, Ziervogel et al., 1969). Detailed description of *yes/no* questions, sometimes called polar questions in these languages have also been described but will not form part of the discussion here as the purpose of this study is to investigate information questions. However, the phenomenon of *na/naa* and *a/afa* which applies to both *yes/no* and *wh*-questions will be briefly mentioned. Zerbian (2006) cites Louwrens (1987) and Prinsloo (1985), who investigated circumstances where these two markers are used and concluded that there was a pragmatic difference in how they are used. *Na/naa* is used to ask a standard *yes/no* question while *a/afa* is used for rhetorical questions where no answer is expected. Zerbian further states that *na/naa* can appear with *wh*-questions while *a/afa* can only occur with rhetorical questions. Similarly to Englsih information questions (sometimes called constituent questions) in African languages rely on use of the *wh*-words to indicate the type of question asked.

The structure of *wh*-questions in African languages is similar to echo questions in English. The *wh*-word remains *in situ* (Demuth, 1995) except for *why* questions, where the *wh*-word is fronted. Furthermore, there is no syntactic movement of the operators nor is there addition of an auxiliary in both *yes/no* and *wh*-questions in African languages.

Setswana *wh*-questions are marked by the following words: *mang* (who, whom, whose),*-fe* (which/whose), *eng* (what, with what), *-kae* (how big, how much, how many), *kae* (where), *leng* (when**),** *goreng* (why) and *jang* (how). The interrogative conjunction *naa* is often used to introduce questions. This is however, used with sentences that are already questions (Cole, 1955) and is normally attached at the beginning or end of the sentence. Other conjunctives *kana, ntla, abo*, are also used though not as common. The root *–kae-* can be affixed to Noun Class prefixes *bo-, mo-, se-, ba-* to form the following adjectival constructions: *bokae* (how much); *mokae/ bakae* (what nationality/ nationalities); *sekae* (what language). Syntactically,

kae (where) together with *leng* (when), and *jang* (how) are adverbs, while the root -*fe* (which) can be used to ask questions about qualificatives for things or people, *ofe* is used when asking a question about a person (+human) while *efe* is used when asking about things. This question is further complicated in that it is marked to indicate whether the noun is plural or singular, *ofe/bafe* and *efe/dife*.

Setswana verbal lexeme as in other African languages is characterised by verbal extensions which constitute systematic additions of morphemes at the end of the verbal base in acoordance with the syntactic relation between the subject and the object (Chebanne, 1993). There is an obligatory difference in the position of the question-word depending on whether the subject or object of the sentence is being queried. Objects are questioned *in situ*, that is, the position of the question-word corresponds to its position in the basic word order in a declarative sentence (Zerbian, 2006).

For example: *O batla mang*? (you want *who*?).

NC1singular subject marker + verb+ q-word

Subjects cannot be questioned in their basic word order position. Subjects of transitive verbs are questioned by means of a cleft construction as shown here:

Ke mang ya ragileng bolo? (it is *who* that kicked the ball?).

Copula + *who* + agreement marker + verb present continuous + object

Ke is inserted at the beginning of a sentence and functions like a copula. The verb morphology is also more complex; the verb *raga* is changed to *ragileng,- a* at the end of the verb is changed to *i* and *ng* is added at the end of the verb to indicate continuous tense.

Zerbian (2006) states that the context in which syntax of subjects differs from that of objects is language dependent, and that in Sepedi the subject is selected by the verb of the sentence and verb agreement with the sentence-initial constituent, that is, the NC marker. Both topic and focus are important in this language. Zerbian cites evidence from a survey of discourse context which shows that the subject does not appear in sentence-initial position when it is discourse-new information. The use of impersonal constructions at the beginning when introducing a story in African languages (*ba re enere,* they say it has been said) confirms this,

in that in the beginning of a story all information is new, so no grammatical subject can occur.

This use of impersonal construction is further exemplified by the use of passive constructions, where the question-word is moved to the end of the sentence. (*Go jewa eng*? it is what that is being eaten?). Acquisition data gathered by Demuth (1990) also confirms this observation. She observed that passive structures are acquired earlier by children learning Sesotho. She relates this early acquisition of passives to the fact that this construction is frequent in Sesotho, and that is it used to focus or question the subject. Zerbian (2006) reports that the subject position is loosely tied to topic interpretation and, because question-words always ask for new information, they do not fulfil the requirement to appear in sentence-initial position.

The status of subject markers has been investigated by Bresnan and Mchombo (1987) and Demuth and Johnson (1989). African languages generally exhibit pro-drop phenomena, that is, well-formed sentences do not have to include a lexical subject. Also, they have a constraint that restricts subjects to topical, that is, old, given, thematic referents. African languages show a tendency towards mapping topical information into subject position and new information into object position (Bresnan & Mchombo, 1987). Demuth and Johnson (1989) argue that this constraint on questioning Sesotho subject *in situ* indicates that the subject marker is the actual subject argument of the verb. Since Sesotho and Setswana are closely related Sotho languages, we can extrapolate from this information that Setswana is also a pro-drop language with the information question-word restricted to *in-situ* position. Setswana question words will be found in object or oblique position while old, given topical information is allowed in subject position.

Regarding topicalization Bokamba (1976) observed that the element under focus has already been mentioned in the discourse or else presupposed by the speaker. He states that presupposed and focus material will occur clause-initially from which it follows that *wh*-words cannot occur clause-initially as long as the subject noun phrase is viewed as the focussed element in the sentence. In cleft or relativized *wh*-questions the indefinite noun phrase containing the question-word may occur clause-initially and the questioned subject noun phrase must be at the cleft. He states that, except for stressed-focused elements all other

focusing processes in Dzamba, Likila and Lingala languages require movement to clause-initial position.

Setswana *wh*-questions involve re-ordering of the elements in the sentence and positioning of the question word at the end of the sentence. Relative clauses, passive by-phrases and cleft constructions are used to move the *wh*-question word to the front of a sentence. More importantly, there is an asymmetry between object and subject *wh*-questions as observed in Sesotho (Demuth, 1995), Siswati (Thwala, 2004) and isiZulu (Sabel & Zeller, 2006). Non-subjects are questioned *in situ*, that is, the question marker is always at the end of the sentence;

For example: *mosetsana o batla **mang***? The girl wants **who**?

NC 1 + 1st person singular agreement marker+ verb+ wh-word

Sabel and Zeller (2006) states that in isZulu wh-questions, an argument wh-phrase may appear both ex situ (in a cleft wh-construction) and in situ-but never in the structural subject position. They argue that the wh-feature of object question is weak in isiZulu and hence does not trigger wh-ex situ. Instead, the ex-situ wh-cleft construction comes about as the result of the (optional) selection of a strong focus-feature.

Setswana does not permit *wh*-words in subject position but rather uses a passive, relative or a cleft construction to form subject questions, similar to Sesotho according to Demuth and Kline (2006). In order to question the subject of a sentence, the subject must be moved and questioned as the object of a passive *by*- phrase or as the object of a cleft construction (Zerbian, 2004).

For example in the basic structure: *Monna o bitsa ngwana* (the man calls a child)

NC 1+ 1ST person singular agreement marker+verb+object

Two of these examples may be used in order to form a question:

Passive: *Ngwana o bitswa ke mang*(the child is called by *who*) or

Object+1st person singular agreement marker+verb+w+ke+q-word

Cleft: *Ke mang ya bitsang ngwana* (it is *who* calling the child)

Ke +q-word +ya+ verb+ng+object

In the passive contruction, the word *ngwana* (child) is moved to the front and /w/ is added to the verb to form a passive phrase. When moving the question word to the front, the grammar is more complicated, in that "*ke" (*it is*)* is inserted at the beginning of the cleft, and "*ng"* is affixed on to the verb stem.

In addition to the subject /object effect, passives and clefts discussed above, relative clauses also play an important role in the formulation of *wh*-questions (Bresnan & Mchombo, 1987; Demuth & Johnson, 1989; Louwrens, 1981; Demuth 1995; Demuth & Kline, 2006). Thwala (2004) has shown that there is a relationship between subject *wh*- questions and relative clause constructions in African languages spoken in South Africa. The head noun in a relative clause in these languages represents the topic, whereas the rest of the clause represents comment or new information. Clefts are similar to relative clauses, however, semantically, they encode both new information and the rest of the presupposition, that is, they encode both focus and presupposition (Thwala, 2004).

For example: *Ke mang yo o tla jang dijo*? (it is *who* is going to eat the food?).

Determiner+ question (who) + relative markers+ future tense+verb+object

Also, the grammar is slightly complex when using relative clauses, complementizer *yo o* is added and tense markers are inserted before the verb. The complementizer must agree with the subject of the sentence. Demuth (1995) states that given that African languages have fewer adjectives, relative clauses play a significant grammatical function. Demuth and Machobane (1994), Thwala (2004) and Zerbian (2004) are of the opinion that relative clauses

do not differ from topicalization as used in English and other Indo-European languages. Thwala (2004) suggests the following syntactic structure when questioning the subject of a sentence using a relative clause:

Force	Interrogative	focus VP	topic QP	topic IP
Ke	*Mang*	*ya tsamaisang*	*bana*	*sekolong*

(it is *who* that is taking the children to school).

Clefts and relative clauses are partially similar but they differ semantically. Clefs are focus-presupposition structures where focus encodes new information while presupposition encodes background information. Relative clauses fit into what Rizzi (1997) call topic comment structures. That is, topic is background/old information while comment is new information.

This unique morphosyntactic structure of *wh*-questions in African languages poses challenging and interesting questions for language researchers. There is no research that has investigated the influence of this morphosyntactic structure on how children learn information questions. Neither is there literature on how the many morphological possibilities discussed above could influence the development of questions. Constraints posed by the type of sentence used, whether cleft or oblique or passive or relative, and the distinction between animate/inanimate or human/non-human constructions have not been investigated, other than a suggestion by Suzman (1997) that at the beginning stages these morphological markers are rote learned and over-generalised.

Studying the acquisition of subject and object *wh*-questions in Setswana provide interesting insights into different acquisition predictions that may be specific to this language but also applicable to other African languages. The sequence of development followed by children when learning questions in both English and Sesotho (the only African language where acquisition data has been reported) languages are discussed below.

2.3. Order of acquisition of *wh*-questions

Vaidyanathan (1988) stressed the ‘plurifunctional’ nature of questions. He defines two broad groups of questions formed by children. The first group includes questions which aim to obtain information, and the second includes questions given the generic term "non-informative". The second group covers a wide range of functions: calling the attention of the

interlocutor, confirming or clarifying information, obtaining permission, starting a conversation affirming, proposing or suggesting an action, and prohibiting. With this classification, the range of possibilities that questions offer expands substantially and goes well beyond the simple task of requesting information. Being preliminary in scope, the present study focusses on the first aspect, requesting and providing information.

The development of questions is an important aspect of preschool language ability (Hirsch-Pasek, et al., 2005). The sequence of development of the *wh*-words in English is well documented although the reported age of acquisition varies depending on the methodology used. Initially, children recognize and respond to *yes/no* questions before *wh*-questions.

Developmentally interrogatives are evident from the first word children speak. However, mastery of the grammatical forms for English-speaking children is a prolonged process that has been described as occurring over four distinct periods (Bernstein & Tiegerman, 1993; Klima & Bellugi, 1966; Mclaughlin, 1998).

Initially preschoolers comprehend *what* and *where* questions followed by who. *Why*, *how* *when* questions are acquired later because they require understanding of causality, manner and time relationships (McLaughlin, 1998). Until such time that these children have learnt these concepts, they will respond to *wh*-questions invilvong these concepts as though they were an ealier developing questions (Bernstein & Tiegerman, 1993; McLaughlin, 1998).

Klima and Bellugi (1966) found that children did not consistently answer *wh*-questions like those they were using in phase one. Phase one is characterised by yes/no and *what* and *where* questions accompanied by a rising intonation at the end of the utterance. The *wh*-questions are used only in routines in which children generally ask for names of objects, actions, or locations of previously present objects (Bernstein & Tiegerman, 1993). At this stage, however, children do not respond appropriately to any of the *wh*-questions. In phase two children use a variety of *wh*-questions without using the auxiliary verb. At this stage children may give appropriate answers to *what, who* and *where*. In phase three children invert the subject and verb when producing *yes/no* questions but not when using *wh*-questions. Copula and auxiliary inversion appear first in *yes/no* questions and then in *wh*-questions. In the final phase children invert the subject and auxiliary verb in positive *wh*-questions but not in negative *wh*-questions. Negative questions with *not* in both the contracted and the un-contracted forms appear last (Bernstein & Tiegerman, 1993; Mclaughlin, 1998). Ervin-Tripp

(1970) cited in McLaughlin (1998), reported that children comprehend *what*, *where* and *who* questions before *when*, *why* and *how*. Ervin-Tripp stated that *what*, *where* and *who* questions code cognitively simpler ideas involving person, place, and identity. *When, why* and *how* are cognitively more complex because they code ideas of temporal and causal relationship.

Klima and Bellugi's phases of development for English questions were confirmed by Brown (1977) during research describing the development of grammatical morphemes in this language. Brown's stage one describes the development of *yes/no* and *what* and *where* questions with a noun phrase. Stage two *wh*-questions include subject and the predicate, while *when*, *how* and *why* questions appear in stage four, after the development of auxiliary verbs in earlier questions. Around the same time, Wotten, Merkin, and Bloom (1979), cited in Bernstein and Tiegerman (1993), offered an alternative explanation for the order of acquisition of *wh*-questions. They suggested that the semantics of the verb influenced children's comprehension and production of *wh*-questions. For example the verb '*eat*' is more linked to question forms *what, where* and *who*, while a verb that codes time would not work with these questions. They suggested that certain verbs are expected with certain *wh*-words and that the development of syntactically correct *wh*-questions is closely related to semantics of the verb.

Winzemer (1981), while agreeing that acquisition of questions begins with application of a rising intonation to a nucleus word and the use of *what* / *where* + NP, and that the second phase involves *wh*-questions that include subject and predicate, also agrees with the role played by semantics in early development of *what* and *where* questions and later acquisition of *when*, *why* and *how* questions. She added that *wh*-words that function as modifiers of noun phrases (*whose*, *which*, *what* and *how*) are also acquired much later. This is supported by Bloom et al., (1982), who also suggest that *what, where* and *who* (the *wh*-pronominals) are the simplest, followed by *when, why* and *how* (*wh*-sententials), and finally *which* and *whose* (the *wh*-adjectivals or sometimes called *wh*-determiners) which are considered the most complex. Bloom et al., state that *wh*-sententials are more complex because the answers "specify a reason, a manner, or time that the entire event encoded in the sentence occurs" (p.1086). *Wh*-adjectvials are acquired last because they require the answer to specify something about an object constituent. Bloom et al., (1982) suggest that the order in which *wh*-questions are acquired is determined by the syntactic and semantic complexity of the *wh*-word and the verb used in the question.

As discussed above it is well accepted that *wh*-questions differ in conceptual complexity. *What* is used to seek information regarding names of things while *where* locates objects in the immediate environment. Thus *what* and *where*, are acquired first, followed by *how, when,* and then *why,* and lastly, *which* or *whose* (Roeper & de Villiers, 2012). *How, when* and *how* are acquired later because children have to develop interests in abstract concepts such as cause, manner and time (Tyack & Ingram, 1977; MaLaughlin, 1998). The position of *who*-questions in the acquisition sequence of these questions seems unclear. Owens (2001) reports that *who*-questions were acquired first, followed by *what* and *where*, with *when* and *how* much later. This is in contrast to Webber (2007), who reported that acquisition of *who*-questions was slightly later at three and a half years old together with *when* and *why,* while *what* and *where* were acquired earlier at two years of age. Winzemer (1981) reports that the children in her study made fewer errors when answering *where* followed by *what* questions, then *how* and *why* while *when* questions produced most errors. The slight variations in the sequence of acquisition for these question-words appear to be a function of differences in data collection methodologies, particularly regarding recording of the ages of the participants, some researchers used age in years while others used age in months.

By the time children are four-years-old, they are able to understand simple *wh*-questions as well as questions in which they must attend to more complex syntactical features, including embedded clauses (J.de Villiers & P. de Villiers, 2000). However, complexity may influence acquisition in that simpler questions may be easier to learn than questions requiring an auxiliary or a main verb. J. de Villiers (1991) predicted delayed acquisition of inversion rules for adjunct *how* and *why* questions. Rowland et al., (2003) acknowledges the role of input in the learning of questions. They suggest that children's knowledge of particular *wh*-word and the auxiliary combinations, whether inverted or not, can be predicted from the relative frequencies of these combinations in the mother's speech. Children's early speech may reflect "low scope lexically-specific knowledge" and not abstract category-general rules (Rowland & Pine, 2000, p.177), as was suggested by J. de Villiers.

Yoder, Davies, Bishop, and Munson (1994) studied the effect of three styles of adult conversational styles when interacting with children (topic-continuing *wh*-questions, topic-continuing comments and non-prescribed utterances). The results indicated that children used more topic continuation when the adult used topic continuing *wh*-questions and topic-continuing comments that extended the topic. *Wh*-questions (*what*, *what do*, *who*, and *where*

going) questions elicited more child continuations in young children with developmental disabilities. Variations in the type and degree of availability of referential sources which accompany verbal questions have been shown to influence development of *wh*-questions. Hooper (1971) examined the influence of communicative demand and context in children's responses to *yes/no*, labelling (*what*), explanatory (*why*) and open-ended (*how*) questions. Twenty-four three to four-year-olds participated in the study. Four-year- olds performed significantly better than the three-year-olds in terms of functionally adequate answers, but a statistically significant difference for grammatical form, correctness was not evidenced between age groups. Open-ended and explanatory questions produced more errors than did questions requiring labelling or yes/no answers which were partly supported by Wilcox and Leonard (1978). They trained three-to-seven year old language-impaired children to produce *what*, *where* and *who* questions in structures that required use of auxiliary *is* and *does*. Their results demonstrated subsequent use of auxiliaries with *who* questions and less with the other two *wh*-words.

The idea of input influencing output is an important area of interest for therapists.Valian and Casey (2003) suggest that input is important in mastering questions, but how the child makes use of input remains an unexplained phenomenon and a mystery in language acquisition. No specific features of parental speech have been shown to be reliably correlated with the speed of children's acquisition of syntax, including acquisition of auxiliaries and *wh*-questions (Valian & Casey, 2003 p.122). They suggest that multiple exposures give the child multiple opportunities to "attend and parse" the input, allowing the child to "collect data" about the form's function. Valian and Casey's (2003) intervention study investigated a systematic syntactic intervention of *wh*-questions. They hypothesized that children would benefit from an intervention that encouraged the child to parse each input when they are provided varied examples within a structure. However, the input must be confined to a single structure and exposure concentrated within a short time frame.

They studied three groups of children divided into quasicontrol (QC), modelling (M) and implicit correction (IC). Their results confirmed that M and IM groups showed more generalization than the QC group. The two experimental groups improved their sentences containing auxiliaries on which they had not been trained (do/will). They improved significantly more than the QC children in the completeness and formal structure of the *wh*-questions they repeated. They also improved more than the QC in including an auxiliary in

their imitations and in inverting the auxiliary with the subject. The results are all the more striking given that the interventions were measurable seven-to-ten days after commencement of the experiment. They proposed that this success was due to the opportunity the experimental children had to attend to and parse each sentence.

Valian and Casey's (2003) findings are important to note for both teacers and therapists involved in teaching children with delayed development in this area. Berent (1996) studied 46 prelingually deaf young adults pursuing undergraduate degrees at the National Technical Institute for the Deaf at Rochester Institute of Technology, compared to a normal-hearing control group of fourteen students (mean age = 26.2, *SD* = 8.1) pursuing degrees in sign language interpreting at the same institution. Two pencil-and-paper tasks were devised to assess students' knowledge of English *wh*-questions. A 60-item question formation (QF) task and a 120-item grammaticality judgment (GJ) task were administered to the students individually or in small groups of two or three. The results revealed that the deaf students were significantly more successful at judging grammatical questions (83.2% correct) than they were at judging ungrammatical questions (69.7% correct). However, the type of *wh*-phrase contained in the question influenced the grammaticality results. The students were significantly more successful at judging grammatical questions involving possessive phrases *whose* (85.4% correct) than at judging those involving a simple *wh*-phrase represented by *who* alone (80.9% correct). Furthermore, errors made by the hearing control group were limited to a few questions that showed no movement of the *wh*-phrase, that is, they produced standard and not echo questions, while the deaf group produced a high percentages of no movement structures, that is, more echo or non-standard questions in English.

Smith et al., (2011) together with teachers at Clarke School for the Deaf, pre-tested 5.4- to-8.4 year old preschool and first grade oral deaf children with language delays. Most children used cochlear implants and had a range of usable hearing. The children were tested using a15 item *wh*-Question computerized elicited production test from *QuestionQuest*: Laureate Learning System Software and Versions (A and B). The structure of these questions followed the production structure of the DELV-NR. There were also 17 morphosyntax production items from the DELV Screening Test. Half of the children received version A in the pretest and B in the post-test; the other half received the reverse. They tested growth in the trained sentence structure (*wh*-questions) vs untrained morphosyntax (tense markers, copula, possessive), and transfer from comprehension training on *QuestionQuest* to elicited

production of *wh*-questions. This procedure had been used by Merchant, de Villiers and Smith (2008), who found that deaf children improved significantly on this test after using *LanguageLinks: Syntax Assessment & Intervention* software.

Smith et al., (2011) predicted significant growth in question production following the comprehension training but no change in the untrained morphosyntax. The children were trained to use *QuestionQuest* for thirty minutes per day, three times a week. They found no significant change in morphosyntax production and a significant improvement in question asking. Children who asked no questions at all in the pretest or who asked just *yes-no* questions produced *what* and *who* questions in the post-test, while those who asked *what* and *who* in the pre-test produced *where* and *why* in the post-test. More importantly, the teachers reported that the children were able to understand and discuss the meaning of specific questions during class. These results indicate that intensive, focussed direct teaching of questions is effective in providing children with critical language input needed to improve their understanding, asking, and answering of questions.

This is in contrast to researchers who suggested that acquisition is influenced by the frequency statistics of the speech that children hear. Clancy (1989) states that high frequency *wh*-words and verbs are acquired earlier than low frequency *wh*-words and verbs. Accordingly, frequency and complexity of input are regarded to be highly correlated. Clancy (1989) states that adequate explanations of the acquisition of *wh*-questions, depend upon an analysis of the functions and forms that are acquired. Research should focus on the meaning of the forms of the *wh*-questions and the functions they serve in mother-child interactions. Clancy's assertion contrasts with Demuth (1989), who argues that the timing and nature of acquisition depend primarily on the maturation of grammatical principles rather than on the frequency of exposure to the construction. Her assertions also contradicts Pinker's (1984) continuity hypothesis, which argues that grammatical principles are available from the beginning of the acquisition process and that learning takes place gradually.

Parnell & Amerman (1983) cites Parnell, Patterson & Harding's (1980) data that showed an interaction between age, stimulus type, and question form. Both the functional appropriateness and the functional accuracy of the answer reflected the significant influence of subject age, *wh*-question form and stimulus type. Functional appropriateness refers to an answer that provides specific information for the *wh*-question form, while accurate, factual,

believable and logical information refers to functional accuracy. The easiest question forms were *where* (98.6%) and *what happened* (87.3%), while *why* and *when* questions were more difficult and appeared more sensitive to developmental changes. Children demonstrated appropriateness of response more than accuracy of response. Younger (three- and four- year-old) children showed more discrepancy between appropriateness and accuracy.

Rowland, Pine, Lieven, and Theakston (2003) replicated Bloom et al.,'s (1982) study by looking at the correlation between input frequency and order of acquisition. The participants were monolingual English-speaking children who were 1.8 to 2.0 years old at the beginning of the study and 2.9 to 3.0 years old at the end of the study. The children were audio-recorded every three weeks for one year while interacting with their mother. The order of acquisition was consistent with Bloom et al.,: the suggested pattern with *wh*-pronominals occurring first, then *wh*-sententials and finally *wh*-adjectivials was observed with some minor deviations with some of the children using *wh*-adjectivals before *wh*-sententials. Regarding linguistic complexity and input frequency, the results revealed that of the two, input frequency was a more powerful predictor of order of acquisition. Children acquire *wh*-questions that frequently occur in the speech of their care-givers. The results of this study are consistent with a constructivist account of language learning which states "children must construct their grammatical categories on the basis of gradual learning of phonological, distributional and functional information embedded in the input" (Peters, 2001, p.236).

Although their study concluded that input frequency was a more important predictor of *wh*-question acquisition than complexity, Rowland et al., (2003) caution that a child's level of conceptual understanding of the concepts expressed in the input and his/her ability to understand the semantics of the question word may influence acquisition. Research suggests that children comprehend *what* and *where* questions relating to objects, locations, people and actions much earlier, than *why*, *when* and *how* questions in accordance with the development of other grammatical markers as shown by Brown and his coleagues. Comprehension of *why*, *when* and *how* questions depends on the children's understanding of causality, instrumentality/manner and time (Owens, 2001; Rowland et al., 2005).

Following Yoder et al.,'s findings, de Rivera, Girolametto, Greenberg and Weitzman (2005) examined four different subtypes of questions (open-ended, closed, topic-continuation, and topic- initiation) used by adults in child-care settings. The study aimed to investigate whether

the educator's type of question influenced the complexity of the toddlers (average age 24 months) and pre-schoolers (average age 45 months) responses. The complexity of toddlers' responses did not show any influence of question type, while pre-schoolers used significantly more multiword responses following open-ended and topic-continuing questions. The findings of this study have positive implications for pre-schoolers because adults' topic-initiating questions may elicit additional conversational exchange that expose children to advanced language models on topics they might not otherwise initiate. Social interaction theories suggest that children's increased verbal productivity elicits higher responsive feedback from educators, thus providing a richer language environment from which the children can learn more advanced language forms (Bohannon & Bonvillian, 1997).

This sequence of acquisition in both production and comprehension has been reported for a variety of other Indo-European languages (Owens, 2001; Guasti, 2004). Clancy (1989), in a study that investigated the order in which *wh*-questions were acquired by two Korean children, concludes that there is a universal sequence of cognitive development underlying the acquisition of *wh*-questions and that questions asked by pre-schoolers play an important role in cognitive development (Chouinard, 2007). Asking questions allows children to receive information exactly when they need it and are receptive to it. If that is so, then children must ask questions to gather information, and they must receive informative answers that address their request, relevant for their cognitive development. Planas (undated) states that children begin to ask questions at around two years of age and develop the skill throughout early childhood. This laborious and complex ability is due to changes that take place on an individual level in the cognitive, linguistic and pragmatic domains. Planas acknowledges the role of interpersonal factors and the influence of adult interlocutors in this process.

Chouinard (2007) investigated the role of cognitive domain in the acquisition of *wh*-questions in four different studies. The first study was an analysis of CHILDES database, followed by an analysis of diaries of sixty-eight families, then observation of an interaction with children looking at three different stimuli; live animals at a zoo, drawings of animals and three-dimensional replicas of animals. Her observation regarding children's responses to drawing has significance for the present study. She noted that the type of stimulus had an impact on the types of questions children asked. They asked more questions that request biological information about life animals than they did with drawings and replicas. Chouinard reports that children are less likely to ask deep conceptual questions when looking at drawings or

replicas. This final comment is important for the present study as the question-asking part of the study involved use of pictures.

The final study reported the findings of a study of sixty-seven 4-year- old children who were asked to describe and figure out which two items were hidden in a box. Half of the children were allowed to ask questions to help them figure out the task. Children who were allowed to ask questions were significantly more likely to identify the object. Chouinard (2007) states that these results suggest that children are capable of using their existing knowledge structures to generate questions that change their knowledge state, and that they tap into their existing conceptual knowledge to generate appropriate questions. The findings from the four studies support her hypothesis regarding the existence of the information requesting mechanism (IRM) as a way for children to learn about the world. Chouinard concludes that children ask information-seeking questions that are related in topic and structure to their cognitive development

Li, Tse, Wong, J., Wong, E., and Leung (2013) took this concept of examining form and function of interrogatives further by investigating question acquisition in Cantonese-speaking children aged 36, 48 and 60 months. Their study was a continuation of Wong and Ingram's (2003) study, which reported a significant age difference in acquisition of particle/intonation, A-not-A (*yes/no*) and *wh*-questions in a group of one-to-three-year- old children. Wong and Ingram found that particle/intonation questions were acquired first, followed by *wh*-questions and finally A-not-A questions. Li et al., (2013) investigated development of three questions reported in the Wong & Ingram study with three additional questions (indirect multiple, exclamatory and rhetorical questions), which are presumably more complex as they involve multiple question words and complex sentence structure.

Furthermore, Li et al. investigated the pragmatics functions of the questions the children used following an English pragmatic typology proposed by Chouinard (2007): 1. information-seeking question which request isolated facts or explanation; 2. action-seeking questions involving attention, action, permission, and play; and 3. non-information-seeking questions including those addressing a child and those that could not be classified. Li et al., analysed 3140 interrogatives and found that the three groups of children produced all six categories of questions. However, *yes/no* (47%), and *wh*-questions (42.4%) were more prominent, particularly *wh*-questions in *what* form, which were used more than any other question type.

There was also a significant gender difference with girls asking more *yes/no* questions while boys asked more *wh*-questions. The results, although not statistically significant, indicate that four-year-olds tended to use more *wh*-questions than the other groups. Regarding pragmatic function of these questions 52.3 % of the questions served to request an action, while 40.2% asked for information. 80.8% of the *yes/no* questions and 74% of the intonation/echo questions were primarily to request action, 72.1% of *wh*-questions and 71.4% of multiple questions were employed to request information.

The fact that there is a developmental sequence that children follow when learning information questions is well accepted. However, a number of variables have been investigated to support this development as shown below:

Table 2.1 Summary of Acquisition and learning profile for English *wh*-questions

1. Type and sequence of questions	
What & where; Copula and auxiliary inversion appear first in Yes/No questions and then in *wh*-questions.	Winzemer, (1981)
who & why; when & how and finally whose & which	
What, where, who - pronominals	Bloom et al., (1982)
When, why, how - sententials	
Which, whose	
What,where, how, when, why , which, whose	Roeper & de Villiers (2012)
Wh-pronominals, wh-sententials, wh-adjectival	Rowland et al.,(2003)
2. The role of syntax	
Syntactic complexity	de Villiers (2000)
Grammatical maturation	Demuth (1989)
3. The role of input	
Frequency of wh-words and the type of verbs	Clancy (1989)
Conversational style of the adult	Yoder et al., (194)
Children's verbal productivity elicits responsive feedback	Bohannon & Bonvillian (1997)
Frequency of input predicts order of acquisition	Rowland et al., (2003)
Types of questions used by adults	de Rivera (2005)
Questions asked depend on the nature of the topic/stimulus	Chouinard (2007)
4. The role of intervention	
Multiple exposure to different structures	Valian & Casey (2003)
Computerised programmes	Smith et al., (2011)
5. Structure and pragmatic functions	Li et al., (2013)
Cantonese	
6. Grammatical judgment	
Prelingually deaf college students	Berent (1996)

2.4 Subject-object questions

Research on the linguistic form of *wh*-questions, particulary acquisition of object versus subject questions is also an important area of investigation that has been well documented. There are differences regarding the sequence of acquisition of subject and object *who, which,* and *what* questions which seem to be influenced by the methodology used and the type of language used. Much attention has been devoted to the order of acquisition of object vs subject questions since the seminal work of Tyack and Ingram (1977), who studied comprehension of *who* and *what* subject and object questions in a group of three-to-five-year-old children. They reported high mean scores for subject questions across the age groups (table 2.2 below), with subject *who* questions being much easier than subject *what* questions and a small difference between object *who* and object *what* questions.

Tyack and Ingram (1977) postulated that semantics of the verb and its position in the sentence led to the following order of correct answers from the easiest to most difficult: *who* subject questions followed by *what* object questions, followed by *who* object questions, and finally *what* subject questions. That is, subject questions were easier than object questions for *who* but object questions were easier for *what*. Tyack and Ingram assumed that this was because animate entities (who) are more likely to be associated with the subject position, the so called animacy effect. They reported that the most frequent mistake the children made was to misinterpret the animacy of *wh*-question, animate *who* was treated as inanimate *what* or inanimate *what* was treated as animate *who*. The results of this study are important for the present research since *which* questions are grammatically marked for human and non-human, as in Setswana.

Table 2.2 Results of Tyack and Ingram (1977)

Age	3-3.5	3.6-3.11	4-4.5	4.6-4.11	5-5.5	Mean
Who-subject	72	82	72	90	83	80
Who-object	52	55	60	60	55	56
What-subject	22	38	42	40	35	35
What-object	48	48	55	67	68	57

Tyack and Ingram (1977) findings show that *who* offers the most unbiased test of a structural preference in *wh*-questions because animate *who* is common and natural in both subject and object positions (O'Grady,1997). Hanna and Wilhelm (1992) note that while the animacy effect can be used to explain misinterpretation of subject *what* questions as subject *who* questions and object *who* as object *what* questions, it cannot account for the misinterpretation of object *what* as object *who* questions. Tyack and Ingram's children's misinterpretation of subject *what* as subject *who* was as high as shown in table 2.3 below.

Table 2.3 Children's errors because of animacy effect in subject and object questions (Tyack & Ingram, 1977)

Target	Children misinterpretations	%
Subject *what*	Subject *who*	51.3%
Object *what*	Object *who*	23.0%
Object *who*	Object *what*	20.0%
Subject *who*	Subject *what*	9.7%

However, as evident above the conversion rate from subject *what* to subject *who* questions was high, while with object *what* to object *who* or object *who* to object *what*, the rate of animacy was almost the same (O'Grady, 1997). This observation might suggest that animacy effects are more strongly associated with subject position than object position (Yoshinaga, 1996). The methodology used in the Tyack and Ingram study has been questioned. Yoshinaga questioned the sentences they used as some may not occur in real life, that is, they used verbs (help and ride) in semantically inappropriate inanimate contexts, such as "*what is riding the boy*". Such unusual sentences may have influenced the results.

Another variable of the Tyack and Ingram study applicable to the present study is their findings regarding the importantce of the verb in analyzing and responding to the questions. They reported that questions with *where* and plus intransitive verbs were easiest, followed by *why* with intransitive verbs and *why* with transitive verbs. These questions were easier than *where* questions with transitive verbs. Interestingly, *how* questions with transitive verbs were easier than those with intransitive verbs. They suggested that these findings imply that if the

child has acquired the question word they will give the correct subject, but if they have not acquired the question-word, they will respond on the basis of the semantic feature of the verb.

Attempts have been made to correct limitations of the Tyack and Ingram study. Hanna and Wilhelm (1992) tested 3.4-to-4.7 year-old's production and comprehension of *who* and *what* subject and object questions using carefully selected verbs that did not exhibit animacy bias. The comprehension task revealed a high rate of correct responses for both subject and object questions. The correct response rate was slightly higher for object *who* (90.9%) than for subject *who* (81.8%). However, the correct response rate for subject *what* was slightly higher than object *what* questions (86.4% vs. 81.8%). The results contradicted Tyack and Ingram's animacy for subject and inanimacy for object account.

Hanna and Wilhelm found better performance for object questions; their children did not show preference for "*what'* subject questions. Also, there was no asymmetry between subject "*what"* and "*who"* questions. However, the findings of the production study showed that subject questions were easier that object questions for both *who* and *what* questions (subject *who* 57.6% vs object *who* 33.3% subject *what* 39.4% vs object *what* 33.3%). Analysis of the children's production errors revealed interesting trends. As in Tyack and Ingram's study the most common error involved animacy errors, with *who* subjects used for *what* subjects and *who* objects used for *what* objects, and syntactic error where the children reversed subject and object questions.

Yoshinaga (1996) cites Sarma (1991) who investigated subject-auxiliary inversion in English *wh*-questions using an elicited production task. The children ranged in age from 2.9 to 5.3 years. The older children in the group produced well-formed *who* subject questions in place of *who* object questions. In contrast, Stromswold (1995),reporting on CHILDES data for English-speaking children, suggested that these children have difficulty accessing or using object *who* questions, and that subject questions are easier to access. She also reported that the mean age for acquisition of subject/object *which* questions was mush later than *who* or *what*. Subject *which* questions were acquired later than object *which* questions.

Stromswold (1995) also examined how often the children produced subject/object questions and the influence of adult input on the questions they asked. Contrary to the findings of Tyack and Ingram (1977), Stromswold found that the children asked object questions before subject questions. The first object question occurred 1.5 months before the first subject

question. The children produced three times more object questions than they did subject questions. However, with respect to *who* questions, the overall pattern was that subject and object questions appeared roughly at the same time, probably due to "animacy effect". The referent of *who* is always animate, normally human, while *what* and *which* may or may not be human, hence the early appearance of *who* subject questions.

Stromswold (1995) found that both adults and children asked more subject *who* questions than object *who* questions, and more object *what* than subject *what* questions. But there was no correlation between percentage of adult *what* and *who* subject questions and use of these questions by the children. In addition, the adult percentage did not correlate significantly with the age at which the children acquired these questions. Stromswold questioned the argument regarding the syntactic complexity of object vs subject questions (Cazdar, 1981), because she found that the children in her study acquired argument (*who, what, which*) questions before adjunct questions. The first argument question appeared 7.1 months before the first adjunct question. Stromswold recommends the "age of first use as the most sensitive measure of acquisition because it measures the earliest age at which a child could be said to have acquired a construction" (p.27).

Stromswold (1995) questions the validity of comprehension tasks for examining acquisition of subject versus object *wh*-questions. She believes that production data, especially naturalistic one, is better suited for drawing conclusions regarding acquisition. It is important to note that Stromswold's findings are based on CHILDES data that had been collected over many years from a number of naturalistic studies. Given the constraints of the requirement for the present study, it would not be possible to collect similar data. Also, Demuth's (1996) naturalistic data collected over 12 months yielded limited information on this subject. Naturalistic spontaneous production often yields limited data.

Yoshinaga (1996) cites two studies in Cantonese (Cheung & Lee, 1993) and Korean (Kim, 1995) that investigated subject/ object asymmetry in these languages. Cheung and Lee investigated children's comprehension of *wh*-questions in Cantonese which is said to have the same word order structure as English although the *wh*-words are not placed in a sentence-initial position. Kim (1995) investigated production, comprehension and imitation of *who* subject and object questions in Korean. Korean has a similar structure to Japanese; both languages do not allow *wh*-question words at the beginning of a sentence, a structure similar

to Setswana. Cheung and Lee investigated four types of verbs (transitive action and stative, intransitive action, and functional) used with the *wh*-questions. The children were asked questions from a short audiotaped story. The object *who* questions were easier than subject questions (89% for *who* object, 76% for *who* subject). Subject *what* questions were easier than object *what* questions (73% vs 69%). Cheung and Lee concluded that in Cantonese *who* object questions were significantly easier than *who* subject questions, and that there was a similar tendency for *what* questions. Their findings did not show the Tyack and Ingram "animacy effect"; both *who* and *what* questions showed the same pattern with respect to the differences between subject and object questions. In contrast, Kim concluded that subject *wh*-questions are easier than object *wh*-questions in Korean.

Yoshinaga's (1996) investigation of subject and object *who, what* and *which* questions in a group of Japanese- speaking children and a control group of English- speaking children revealed that sentences with an animate subject and inanimate object were easier than sentences with an inanimate subject and an animate object for English-speaking children, but there was no asymmetry for Japanese-speaking children. Subject *wh*-questions were easier than object *wh*-questions for English-speaking children, but there was no asymmetry between the two for Japanese-speaking children. This is an interesting finding given the similarity in the grammatical structure of *wh*-questions in Japanese and Setswana

Error analysis revealed that English-speaking children made more object questions than subject questions errors. The most frequently occurring error for these children involved grammatical reversal of *wh*-words, which occurred more often in object *wh*-questions than in subject *wh*-questions. The pattern was reversed for Japanese. These children made more subject *wh*-question than object-questions errors, while their most frequently occurring error also involved grammatical reversals. These results suggest that for English-speaking children, the effect of animate- for-subject and inanimate- for-object reported by Tyack and Ingram (1977) and Stromswold (1995) does exist. That is, an animate entity is more likely to be associated with subject position and an inanimate entity is more likely to be associated with object position. For Japanese-speaking children, it seems that the lexical item *who* is more likely to be associated with subject position and *what* is more likely to be associated with object position.

Stromswold's spontaneous speech study seems to suggest that at least for English subject *wh*-questions are not acquired earlier than object *wh*-questions. The experimental studies seem to suggest that subject *wh*-questions are generally easier than object *wh*-questions. A number of suggestions have been given to explain the observed difficulty that has been reported for accessing and using object questions by English-speaking children. Subject questions occur more frequently in spontaneous speech sample of preschool children (Stromswold, 1995) although experimental production studies have shown a preference for well-formed subject questions (Hanna & Wilhelm, 1992) and elicited comprehension studies showed poor performance when object questions are used. One possible explanation, according to Stromswold (1995), is that this reflects a processing effect of the syntactic distance between the *wh*-word and its gap in English. Her explanation follows the principles-and-parameters framework approach of transformational grammar. In this approach, the *wh*-phrase originates in the subject position of the syntactic function associated with it and is then moved to sentence-initial position. Thus in the sentence *who is biting Mary*, *who* originates in subject position while *who* in *Mary is biting who* originates in object position.

The reported subject/object asymmetry observed in child language studies has been reported for adults as well. Philip et al. (2011) cites an online study by Wanner and Maratsos, (1978) which supports the syntactic distance hypothesis. They found that normal adults had more difficulty processing object gap relative clauses than subject gap relative clauses. O'Grady (1997) drawing on the research on adult language structure and processing suggests that the basis for this asymmetry depends on the syntactic distance between the *wh*-phrase and its gap. This gap is said to be greater in object-questions than in a subject-questions. This distance is associated with greater complexity and a higher processing load for children in both comprehension and production, making them more likely to misinterpret an object-question than a subject-question. Object-questions require subject-auxiliary inversion and non-canonical (non SVO) word order (Philip, Coopmans, van Atteveldt & van der Meer, 2001). They studied monolingual Dutch preschool children and found that the further a *wh*-expression was from its gap, the more difficult it was to process, and that the effect of this *wh*-movement was more pronounced in experimental research with preschoolers, than when the children were using the questions spontaneously. de Villiers (2001) cites McNeill (1970) and Hyams and Wexler (1993), who claim that subjects are more vulnerable than objects and that the missing subject is retrievable from the immediate context. This suggests a

semantic/pragmatic constraint in common with languages that permit null subjects (de Villiers, 2001).

Table 2.4 Summary of findings of normal populations regarding subject/object asymmetry in *wh*-questions

Author	Procedure	Results
Tyack & Ingram (1977)	Comprehension *who* and *what* 3-5 year old children	Better performance for subject *who*, then object *what*, followed by object *who* and finally subject *what*
Wanner & Maratsos (1978)	English adults on line research	Difficulty processing object relative clauses
Sarma (1991)	English subject-auxiliary inversion, elicited production,	Produced well- formed subject *who* questions
Hanna & Wilhelm (1992)	English elicited comprehension and production of *who* and *what* in 3-4-year-old children	Comprehension: object better than subject Production: subject better than object
Cheung & Lee (1993)	Cantonese comprehension using controlled verbs with *who* and *what* questions	Object *who* and *what* easier than subject
Stromswold (1995)	English naturalistic data, use of *who* and *what* questions	Early development of object questions. But early preference for subject questions
Kim (1995)	Korean production, comprehension, imitation of *who* questions	Subject questions were easier than object questions
Yoshinaga (1996)	Japanese and English *who, what, which* questions	English-animate subject and inanimate object were easier Japanese- no asymmetry

Cross-linguistically there seems to be three predictions regarding subject and object *wh*-questions that remain unresolved at this stage. One account predicted that subject *wh*-questions should be more difficult than object *wh*-questions (Cheung & Lee, 1993 and Stromswold, 1995). The other account predicted that subject *wh*-questions should be easier than object *wh*-questions because object *wh*-questions are syntactically more complex than

subject *wh*-questions (Kim, 1995 and Yoshinaga, 1996). Finally, the no asymmetry finding for Japanese object and subject *wh*-questions, (Yoshinaga, 1996) which seems to indicate no difference in their relative difficulty, in a language similar to Setswana in the structure of *wh*-questions has more relevance for the present research.

Yoshinaga (1996) cites two studies by Lempert and Kinsbourne (1980) and Hildebrand (1987) which revealed that subject clefts were easier than object clefts, this, despite the fact that clefts have a different word order and lack subject-auxiliary inversion. This is relevant for the present study because cleft questions allow for questioning of the subject of a sentence in Setswana. These results suggest that independent of canonical word order and subject-auxiliary inversion and that English clefts constructions are not that different from canonical sentences. Furthermore, word order and subject-auxiliary inversion are not important factors in determining difficulty with regard to the contrast between subject and object *wh*-questions.

2.5 Acquisition of questions by language impaired children

Children begin to respond and ask *wh*-questions at around two years of age and develop their competence throughout early childhood. This staged, sequential and complex ability takes into account individual differences in the cognitive, linguistic and pragmatic differences of the individual together with the influence of the interlocutors. Various authors who have studied dialogue between adults and children have noted that questions are prevalent in these interactions. However, the debate continues regarding the role these questions play in the speed and sequence of development of question-words.

Despite their syntactic, semantic and pragmatic complexity, normally developing children acquire questions early in language development, and they seem to acquire object-questions and subject-questions around the same time (three years old or earlier). This competence seems robust across languages despite variations in vocabulary and features to be learnt (Hamann, 2006; Jakubowicz & Strik, 2008; Stavrakaki, 2006). However, this is not so, for children who have language impairments. It is important to look at data for these children because even though participants of the present study are presumably normally developing children, investigation of application of *wh*-questions as an assessment task for children with communication disabilities adds an important dimension to this study. Development of wh-questions has been shown to be a step-by-step gradual process for normally debveloping children, which makes the process of assessment and intervention easier to manage. As

already shown, learning to understand and use questions is an essential communication skills in daily interactions. Awareness regarding the consequences of poor use of questions by preschool children, particularly those who at the end of their preschool education still demonstrates poor understanding of these questions adds essential credibility to this study. Wilcox and Leonard (1978) showed that language impaired children could be trained to produce *what*, *where* and *who* questions in structures that required use of auxiliary *is* and *does*. Their results demonstrated subsequent use of auxiliaries with *who* questions and less with the other two wh-words.

Also, children with SLI have been shown to have difficulties with comprehension and production of complex sentences, especially those including syntactic movement, relative clauses, topicalized prepositional phrases, and object topicalization structures (Friedmann & Novogrodsky, 2011). These strutures are important for producing grammatically correct *wh*-questions. English *wh*-questions require syntactic movement of a noun phrase to the beginning of the sentence and research investigating competence of SLI children in understanding and asking these of types questions has been reported. These studies investigated whether children with syntactic SLI have difficulty with certain types of *wh*-questions and how these children respond to specific intervetions where *wh*-questions are targeted.

Friedman and Novogrosky (2011) reports that children with SLI have difficulty with the comprehension and production of sentences that include syntactic movement to the beginning of the sentence: relative clauses, topicalized prepositional phrases, and object topicalization structures, features that are important when forming questions in Setswana, especially when asking subject questions. So how children with SLI understand *wh*-questions with these syntactic movements is an important area to investigate. Friedman and Novogrosky study examined whether children with syntactic SLI have difficulty with comprehension of *wh*-questions, and which types of *wh*-questions are the most difficult. They als identified subtypes of SLI.

Van der Lely and Battell (2003) investigated subject and object production of *who* questions in two groups of typically developing and SLI children. They proposed that underlying the language impaired group's difficulties was a grammatical deficit that affects the syntactic computational system "a representational deficit for dependent relations (RDDR)" (p.803).

This hypothesis states that SLI children will show more errors in their production of object questions. Their results supported this proposition. The children with SLI were less accurate when producing object questions, even though when considering subject questions, researchers could not categorically determine whether the children had good knowledge of the underlying movement relation between the *wh*-phrase and its gap. They were adamant that for object questions the children must have this knowledge in order to produce grammatical questions.

Deevy and Leonard (2004) examined the comprehension of subjects and object *wh*-questions in children with SLI in an attempt to separate the effect of their knowledge of syntactic structure and their language processing abilities when processing questions. Their study compared subject and object questions and manipulated the amount of information in the sentence by adding extra adjectives. The SLI children performed more poorly on long object questions than on short object questions. They were less accurate in interpreting questions that combined a more difficult structure with additional length. This poor performance on long object questions support van der Lely and Batell's (2003) RDDR hypothesis, which predicts grammatical difficulty with *wh*-questions requiring obligatory underlying movement of the operator. However, there was no difference in performance on both short object and subject questions.

Furthermore, children with SLI have been shown to have difficulties with understanding and formulation of questions. Friedmann Novogrosky (2009) studied comprehension of *which* and *who* questions with a group of nine-to-twelve-year- old Hebrew-speaking children with SLI. They found that the children understood subject questions better than object questions. They performed better on *who* questions than *which* questions. They performed poorly on a comprehension task for *which* object questions. **T**he results indicated that children with SLI had severe deficit comprehending *which* object questions. They understood subject questions better than object questions, and *who* questions better than *which* questions.

Van der Lely, Jones & Marshall (2011) compared the performance of fourteen grammatically impaired SLI children, aged ten-to-seventeen-years old, with that of thirty-six younger language matched controls, aged five- to-eight-years. They presented matrix *who, what, which* subject and object questions that were grammatical, ungrammatical, or semantically inappropriate. This was a follow-up to van der Lely and Battell's (2003) initial investigation

of *wh*-questions in grammatically impaired SLI children explored subject and object matrix questions using an elicitation task based on a ‘‘whodunnit’’ game. The study was designed to investigate the hypothesis that SLI children have a core deficit in movement of the relevant syntactic features. This study revealed that SLI participants are impaired on both subject and object questions. However, due to the additional movement operations in object questions in comparison to subject questions, they were more impaired on object than subject questions. Furthermore, the pattern of errors was as predicted, that is, SLI children are impaired, due to additional movement operations in object questions in comparison to subject questions.

Van der Lely, Jones and Marshall (2011) assessed whether children with SLI could make judgements about matrix subject and object questions that were either correct, contained semantic errors, or contained one of two syntactic dependency related errors, that is, errors governing the movement of the *wh*-trace in a sentence. They compared their performance with younger typically developing (TD) children matched on tests tapping grammar or vocabulary. The results revealed a consistent pattern. First, the children with SLI, like the TD children, correctly accepted grammatical questions and correctly rejected semantically anomalous questions around 85% of the time. In contrast, for the syntactic dependency errors, the judgements of the children with SLI were worse than the control group.

Table 2.5 Summary of findings of language impaired populations regarding subject-object asymmetry for wh-questions

Author	Procedure	Results
Wilcox & Leonard (1978)	Trained question production with *is/does* in 3-7yr	Poor learning for *what* and *where* questions Better for *who* questions
Van der Lely & Battelly (2003)	Grammatical SLI Production task using “who dunnit” games	Impaired on both object and subject questions but poorer performance on object questions
Deevy & Leonard (2004)	Comprehension of long sentences using adverbs	Poor on long object questions
Friedmann & Novogrosky (2009)	Hebrew SLI comprehension of *who* and *which*	Understood subject questions better, *who* better than *which*
Van der Lely, Jones, Marshall (2011)	Grammatical SLI- error judgment	Semantically good in accepting correct questions and rejecting incorrect but poor judging grammatical correctness

Prior research has identified interesting subject/object asymmetry in using and processing *wh*-questions but mechanisms underlying this phenomenon are not well explained. An examination of this phenomenon in a non-Indo-European language may produce interesting trends and provide a clearer explanation about the underlying mechanisms for this asymmetry. As previously mentioned languages differ with respect to how *wh*-questions are formed. In languages such as English, the *wh*-word in *wh*-questions is required to be at the beginning of a sentence, whereas in languages such as Japanese and Setswana, the *wh*-word stay *in situ*. Questions remains however about whether children acquiring languages that are morphologically different front Indo-European languages will show the same general sequence of development.

2.6 Language acquisition variation across gender

Individually, children differ greatly in their language abilities. Bornstein et al (2004) cites Anastasi (1958) who concluded that females are superior to males in verbal and linguistic functions from infancy through adulthood, and, Maccoby (1966) who based on a narrative review of the literature concluded that through the preschool years and in the early school years, girls exceed boys in most aspects of verbal performance. Girls say their first word sooner, articulate more clearly and at an earlier age, use longer sentences, and are more fluent. Bornstein et al,. (2004) report that girls learn to read sooner, and there are more boys than girls who require special training in remedial reading programs, they also cite studies that show that although girls do better on tests on grammar, spelling, and word fluency, boys do catch up in their reading skills.

Subsequent reviews of the literature in the 1980s, however, concluded that gender differences in verbal ability were either not consistent or small in magnitude, but where they existed they generally favoured females except in verbal IQ. Bornstein et al., found no systematic differences between girls and boys in stability assessments. Their data about gender differences in child language performance was obtained across diverse sources and types of information about child language.

2.7 Acquisition studies in African languages

Studies of the acquisition of African languages in general are few. Except the recent work of Gxilishe (2005), there has been very little interest extending the acquisition studies of Kunene (1979), Connelly (1984), Demuth (1990, 1992), Tsonope (1987), Suzman (1991, 1996) and Bortz (1994). As mentioned earlier these investigators documented the development of the Noun Class system and other aspects of morphology in Siswati, Sesotho, Setswana, isiZulu and isiXhosa. These researchers all agree that children learning these languages have mastered the Noun Class and agreement systems long before the age of three years. This is important for the present study because both syntax and morphology are important when analysing the structure of questions. Importantly, Demuth (1990) and Suzman (1996) report that children younger than three years old who are learning Sesotho and isiZulu use complex morphology, including passives, relatives, participials, subjunctives, and oblique and cleft constructions. All these structures play a crucial role in the structure of questions in African languages as discussed above.

The early acquisition of passives, clefts and oblique constructions has significance for the present study because of their prominence in forming questions. Bortz' (2013) investigation of the passive in Setswana preschool speaking children found that all her participants scored high on elicited imitation tasks and much lower on all the other tasks. She observed impersonal paasives were more difficult than non-actional and inanimate paasives and that shorther sentences were easier than long sentences to comprehend.

In the one study that investigated the acquisition of questions in a Southern African language, Demuth (1995) observed that Sesotho passives are crucial for questioning the subject of a sentence whereas in English intonation provides this possibility. Her study involved an analysis of naturalistic language sample of three Sesotho-speaking two-to- three year old children. The children were audio recorded during conversation with family and peers in rural Lesotho. Demuth (1995) reports that the most frequently used constructions by these children were object e*ng (*what*)* and adjunct *kae (*where*)* and *hobaneng* (why) questions. *Why* questions were not fully formed as the children tended to add (*-ng*) to the verb when asking questions. Given that subjects cannot be questioned *in situ,* these children reportedly used passive *by*-phrase constructions (in conjunction with a passive verb) in the entire corpus. The other mechanism for questioning subjects is clefts constructions. Even at age four years,

children used few object clefts. Demuth reports that this could be due to discourse factors. Object position in declarative sentences is usually used for introducing new information, and objects can also be questioned in that position. In contrast, subject position cannot be used for either new information or questions, thus a cleft must be used.

Table 2.6 in Appendix 2A gives an overview of questions used by participants of Demuth's study. The earlier questions used were e*ng* (what**)** and *kae* (where**)** questions and clefted *mang* (who**)** and verb+el+ ng (why) questions. Questions with *neng* (when**)**, *kang* (with what), *jwang* (how), *ya mang* (whose**)** began to emerge at age three. Demuth reports that there was no evidence of errors or over-generalizations when questioning the subject or object of a sentence, indicating that the children were aware early on that their language does not allow use of question words in subject position (Demuth & Kline, 2006). They examined several aspects of passive use, and in line with the restriction in Sesotho against mapping question word into subject position, passive constructions were used rather than cleft or relative clauses. The majority of these passive questions were subject questions with few being object/oblique or *yes/no* questions (Demuth & Kline, 2006). Use of passive, cleft or relative constructions to form subject questions, including mapping of topical information into subject position and new information into object position, is a unique feature of African languages (Bresnan & Mchombo, 1987). Demuth (1989) suggested that child-directed speech in the sample she studied was use of passive contructions and that many of these passives were questions and 73% were subject *wh*-questions (Demuth & Kline, 2006). This child-directed speech "provided ample opportunities for children to assimilate and create such constructions on their own" (p. 388).

The cleft construction is the focussed or marked alternative to the passive question. The prohibition on subject questions means that both passives and clefts play a prominent grammatical role in African languages. Demuth observed a number of interesting trends in her study of Sesotho-speaking children. She reports creative and spontaneous early acquisition of passives, clefts and relative clauses. She predicts that this early acquisition should be similar in other topic-orientated languages and that *in situ* questions should appear earlier and be more error-free across these languages. Both passives and clefts were acquired by 2.6 years old with no attempt to overgeneralize and question the subject *in situ* (Demuth, 1992). However, on the acquisition of temporal and spatial adverbs, Demuth reports that three-year- olds answered "*when* did you go" with "*hosane*" (tomorrow), and that by the age

of four years the children were still making errors when using temporal and spatial adverbs, with spatial adverbs such as "*koana"* (over there) being used in conjunction with temporal adverbs such as "*khale*" (long ago).

Much of the literature cited here for acquisition of English questions has emphasized the importance of knowledge of the *wh*-movement rule for development of properly structured questions (de Villiers & Roeper, 1995; Roeper & deVilliers 2011; Stromswold, 1995) among others. African languages do not allow *wh*-movement in either questions or relatives. The obligatory fronting of the question word in African languages is not due to *wh*-movement (Demuth & Machobane, 1994). Also, as stated above, subjects can only be questioned as the object of by-phrase in passive constructions or in a cleft or relatives constructions. Demuth (1995) reports that children as young as two-to-three years old use and understand relative and cleft constructions when questioning subjects, although, sometimes, the relative complementizer may be missing.

Sesotho children show early acquisition of embedded constructions including passives and relatives clauses. These structures are said to develop later in Indo-European languages (Guasti, 2002). Earlier acquisition in Sesotho is said to be due to the topic-orientation nature of this language where subjects cannot be new or non-thematic information. Demuth (1992) predicted that *in situ* questions, passives and relatives should appear earlier and be free of errors across all African languages and her findings of children as young as 2.6 years old showed no errors or attempts to over generalise subject questions. The present study illuminates this issue further through use of elicitation techniques.

This chapter has highlighted the important role played by syntax and semantics of the question-word together with the social rules that govern use of questions in communication interactions. Research has shown that the development of question-words is a gradual process that occurs overtime, however, there is some disagreement on the procceses that support or govern this development. Some researchers have challenged the notion that a child already knows most of what she/he has to learn about the structure of their language during early years of acquisition.

CHAPTER 3

THEORETICAL FRAMEWORK

Linguistists and other researchers interested in language development have provided robust information of what is learned during the language acquisition process. Studies on the acquisition of question markers across languages as described above are on-going. There is much that is known about normally developing, deaf and SLI children's pattern of interpretation and response to *wh*-questions and about the role of communication context in nurturing this aspects of communication.What is still not well understood and described is how language is acquired, although, there are many theories that have been postulated. A few prominent viewpoints will be highlighted here and a proposal given of a theory that best captures important concepts applicable to the language under investigation.

Language acquisition is an area of study that crosses a variety of disciplines and because of this the gols of research vary tremendously (Ingram, 1991; McLaughlin, 1998). Much of the research work in Speech-Langauge Therapy is descriptive in nature, with the primary goal of establishing norms of acquisition. While this information is usefulin providing practically applicable data, the consequences of this is that the professions lacks strong theretical frameworks to explain observed trends. Language language acquisition should provide both a testing ground for theory and develop a theory of acquisition.

There are many motivations for proposing and developing a theoretical framework in acquisition (Van Valin, 2007, 2011). Van Valin (1998) states that progress in understanding language acquisition can only be achieved when researchers operate within a well-defined theoretical framework. The research findings within this well-defined framework will play an important role in determining linguistic theory and in highlighting similarities and differences among languages. Theories of language acquisition applicable for the present research can be divided into those that theorize about the underlying structures guiding development, those that look at the structure of language, and, those that focus on an interchange between cognitive, linguistic and socio-cultural factors. However, of the three theories, Chomsky's transformational grammar is highly regarded and widely investigated. According to this theory the goal of language acquisition is to establish how the child acquires rules of sentence formation. However, Chomsky (1986; 1995) distinguishes language competence from

language performance. He states that linguistictheory should b concerned with language competence, that is, the underlying rule system known by every native speaker of the language. Chomsky further states that language consist of hierarchical structures that are respresented on two levels, the deep and the surface structures and that transformation rules map deep structure to the surface structure. Universal principles are applied to restrict what can be considred possible grammar through a process called Universal Grammar. These principle are innate.

Central to this theory is the issue of whether children learn language and construct a grammar based on the data to which they are exposed (Demuth, 1992) or whether they set parameters of an autonomous language acquisition device (LAD) (Van Valin, 1998). Support for this theory has come from two related research fields; the existence of universal grammatical principles for which there is no evidence and the grammatical forms produced during development that are not evident in the speech of adults. The theory suggests that the ill-formed erroneous child speech is an example of the existence of UG. This theory views acquisition as an instantaneous process, that is, once a parameter has been set, the child's grammar should be adult like which is not the case. Most theories seem to view development as a stage like process, language structures that are acquiredlater build on those that occurred earlier, as shown when discussing acquisition of *wh*-questions.

Chomsky (1986) and his colleagues argue that all languages share common underlying set of principles, but differ by how settings of certain parameters / switches are set and that "any differences between the grammars of languages are attributable to differences in the settings chosen from a finite and fixed set of parameters" (1986:6). This theory states that the grammatical errors that children make as they develop are a result of poor coordination between their innate knowledge and application of the relevant principles and rules (McDaniel, Chiu, & Maxfield 1995; Thornton, 1995). For example, the auxiliary errors that English speaking children make early in their development of questions are said to be due to this poor coordination of innate knowledge and that of the rules of the language (Rowland et al., 2005).

This principles-and-parameters research approach within the LAD and UG framework provides a mechanism for understanding how small differences in the fundamental structures of languages would have effects in many different areas of the surface structure of language.

Research on *wh*-questions represent an example of principles that the child should know by virtue of having UG from the start (de Villiers, 2001). According to the principles-and-parameters framework, it is assumed that the *wh*-word originates in the canonical position of the syntactic function associated with it and is then moved by a transformation called *move alpha* (Yoshinaga, 1996). The movement of the *wh*-word (*wh*-movement) though assumed to be universal, is subject to variations which are influenced by the syntax of the particular language (Stromswold, 1995). For example a simple *wh*-question in English involves overt movement of the *wh*-word to the front of the sentence, while languages such as Setswana generally does not have syntactic movement of the *wh*-word to the front, except when asking a *why* question. This *wh*-criterion is a universal constraint that may be satisfied overtly or covertly (Rizzi, 1996). However, Haegemann (1994) states that even in languages such as Setswana, it can be assumed that there is *covert wh*-movement whose effect is not observed at surface level, the so called vacuous movement.

A major theoretical quest of research in language acquisition has been to discover the principles that determine the order in which linguistic forms are acquired (Clancy, 1989) and, the topic of *wh*-questions has been central in these discussions for decades (Crain & Thornton, 1998; de Villiers, 1991; de Villiers & Roeper, 1995; Stromswold, 1995). This theoretical interest stems partly from the syntactic representation underlying *wh*-questions, which typically involves *wh*-movement, and partly from the developmental changes that occur during acquisition. *Wh*-questions and their acquisition are said to provide an important example of the argument for a generativist approach, in that they show the existence of universal grammar principles in children's language that are not directly evident from the input to which they are exposed (Chomsky, 1986; Crain, 1991; de Villiers & Roeper, 1991).

Lillo-Martin (1990) cited in Berent (1996) suggested that there are at least three parameters involved in question formation. The first pertains to the level at which *wh*-movement takes place, that is, whether movement occurs overtly in the syntax, as it does in English, or only covertly at the conceptual level- also known as logical form- as it does in Chinese (Huang, 1982). The second pertains to whether syntactic *wh*-movement is optional when permitted, as in American Sign Language (ASL), or obligatory, as in English. The third pertains to how far a *wh*-word is permitted to move: for example, out of matrix clauses only, as in ASL, or out of matrix and embedded clauses, as in English. At the level of overt syntax there are three basic *wh*-movement possibilities among languages of the world (Guasti, 2004).

Berent (1996) proposes three *wh*-movement parameters that define UG; no overt *wh*-movement, *wh*-movement out of a matrix clause and *wh*-movement out of an embedded clause. However, the overt fronting of the *wh*-word is not universal. In languages such as Chinese, Japanese and Setswana the *wh*-element remains *in situ,* while Polish, Russian and Romanian languages allow multiple *wh*-phrases and *in situ* positions for the *wh*-word (Comorovsky, 1986; Toman, 1981; Wachowicz, 1974; cited in Guasti, 2002). According to Guasti French allows optional *wh*-movement. She examined transcripts of four English-speaking children aged 1.6 to 5.1 years and found that 41 of the 2809 *wh*-questions had a *wh-in situ*. However, most of these were echo questions. Stromswold (1995) suggest that it is the morphological properties of the *wh*-word that force overt movement, subject to parametric variation and that English *wh*-questions do not behave the same way.

Watanabe (1991) argued that even in languages which do not appear to have syntactic movement of *wh*-words, there is movement of an empty operator. Thus languages may not differ parametrically in whether they have *wh*-movement or not, but rather morphological properties force the *wh*-words to move in some but not all languages. In Setswana this suggestions might account for differences between *wh*-word for *why* questions and the rest of the other wh-questions in this language. Yoshinaga (1996) used object w*h*-questions to exemplify *wh*-movement. In the study of object and subject questions in English and Japanese, Yoshinaga (1996) found that English subject questions were easier than object questions because of the absence of movement when questioning subjects. This is contrary to Stromswold (1995) who proposed that subject *wh*-questions should be more difficult than object wh-questions. This despite the fact that the English-speaking children she studied on average produced more subject than object *who* and *what* questions, though some children produced object *who* question before subject *who* questions. Stromswold's data supports Tyack and Ingram (1977) who reported better comprehension of subject than object questions. However, the same was not true for Japanese where there was no asymmetry between subject and object questions.

De Villiers (2001) cites McNeill (1970) and Hyams and Wexler (1993), who, in explaining the phenomenon of pro drop in languages that permit null subjects, state that subjects in a sentence are more vulnerable that objects, hence subjects are often left out in children's grammar. However, this is not a random omission; the missing subject is retrievable from the immediate context (Bloom, 1970). This suggests a semantic/pragmatic constraint. Gazdar

(1981) stated that since subject questions do not involve any movement of the *wh*-word, subject questions should be significantly easier to process than object questions. This debate however, has not yet been settled (de Villiers 2001). Valian (1991) reports very few null subject in English *wh*-questions while Crisma (1992) reports the same for French. This is in contrast to Radford (1994) and Roeper and Rohrbacher (1994), who found many null subjects in *wh*-questions in English and French.

Questions have been raised concerning whether children learn language and construct grammar based on the data to which they are exposed, or whether they set the parameters of an autonomous language acquisition device (LAD) (de Villiers & Roeper, 1995; Van Valin, 1998; Owens, 2001; Deevy & Leonard, 2004; Rowland et al., 2005). Guasti (2002) states that by the time children are three years old they have already set parameters governing question formation, one governing overt movement or *in situ* placement of the *wh*-element. However, English speaking children have on occasion been shown to produce non adult negative questions or yes/no question with no auxiliary (Crian & Nakayama, 1987 cited in Guasti (2002).

The patterning of errors in children's language has been used to support both the generativist and constructivist theories of acquisition. de Villiers and Roeper (1991) and Van Valin (1998), while agreeing with the generativist theorists, take a different view when explaining the errors children make in their formulation of *wh*-questions. de Villiers (1991) believes that these errors are a result of the problems that arise from the identity of the *wh*-word. Adjunct *why* and *how* questions are said to cause more errors than *what* and *who* argument questions. This is in contrast to Rowland et al., (2005) who suggest that questions requiring copula "be" and auxiliary "do" are more prone to errors because of the rules governing their peculiar position in English. Thus both these theorists look at the structure of the language and less at the underlying principles to explain acquisition. They assume that children manipulate syntactic categories such as subject, verb and auxiliary to produce rule-governed grammatical utterances (Rowland & Pine, 2000).

Ingram (1991) describing the role of input and grammatical acquisition according to Chomsky's theory of language states that maturation theory limits research goals to description only and the theory is not testable, that is, acquisition data cannot be used to either prove or disprove the theory. He contrast this with constructivism which he says

predicts that the principles it develops should lead to generalizations about language consistent with independent analyses of historical change and linguistic theory. Constructivism assume that the form of the child's grammar at any point of change according to the stage of development and will contiously expand until linguistic competence is reached. Constructivism does not allow linguistic behaviours to change due to maturation, but rather account for all changes by a building up of structures.

Ingram addresses the interplay between linguistic behaviours, the child's innate ability and the effects of the environment. There is disagreement about whether the way caretakers talk, and the circumstances under which they talk, affect learning. The controversy resides in the extent to which the internal state of the child intervenes and influences their response. Thus, an interplay of the two theories; the maturational hypothesis with its claim that acquisition is determined by the child's internal state rather than by the language environment and the constructivist hypothesis which emphasises the interplay between facilitative adult behaviour and the child's internal readiness, is an important area for consideration by Speech-Langauge Therapists. Ingram states that environment plays a role in the acquisition of language-specific grammatical morphemes. Thus he advocates a graded view of the influence of the linguistic environment. Parents adjust their speech for children, however the question is whether such adjustments contribute to acquisition or not. Ingram (1991) state that acquisition involves an interaction between the child's internal system and the linguistic environment.

The Contructivist perspective regards readiness as an important factor for acquisition. The child will not acquire a structure until the child's system is ready. This interplay between facilitative adult behaviours and the child's internal readiness play a significant role in acquisition of language-speficic grammatical morphemes (Ingram, 1991). Winzemer (1981) argues for the importance of semantic and/or syntactic complexity in children's acquisition of *wh*-questions. He states that children first acquire lexically specific information and only later formulate the general rules about their language. Bloom, Merkin and Wootten (1982) and Bloom (1991) propose that acquisition of *wh*-questions is determined by the syntactic and semantic complexity of the concept encoded by the *wh*-words and the verbs to be acquired. They argue that the order of acquisition is influenced by the syntactic function of the *wh*-word that heads the question and the semantic generality (lightness) of the main verb. This view is supported by Owens (2001), who states that the relationship between syntax and semantics is one of mutual dependence and dynamism. It changes with the child's level of

development with each aspect of language. This was not confirmed by Rowland et al. (2003), who found that *wh*-complexity and verb semantic generality were not significant predictors when considered separately, but when combined input frequency was a more powerful predictor. That is, the frequency of particular *wh*-word plus-verb combinations in the input is a better predictor of the order of acquisition of the *wh*-questions than either the *wh*-complexity of the *wh*-word or the semantic generality of the verb.

Chomsky's Universal Grammar theory has been critised for focussing on syntax only.The theory does not take into account the influence of morphology, semantics and pragmatics in acquisition. When relating the semantics of questions to their syntactic form, the focus of much recent literature on question semantics has been on the connection between the syntax and semantics, where each constrains the other. The assumption is that the syntactic structure and the semantic structure should match to the greatest degree possible, to the extent that the semantics should be able to be ''read off'' the ultimate syntactic structure, the so called logical form (LF) (Hagstrom, 2003). However, languages differ in how they treat their *wh*-words, as discussed earlier, English *wh*-questions require movement of one *wh*-word to the beginning of the sentence, while Setswana has no movement; *wh*-words remain *in situ* except when asking *goreng* (why) questions, in which case the *wh*-word moves to the front of the sentence. This difference in Setswana on how the *wh*-word behaves leads to an important question, is the movement of the *wh*-word completely syntactically controlled or is this dependent on the semantic of the question word? In other words, why do w*hy*-questions behave differently to other *wh*-questions in Setswana? Theoreticians working in semantics suggest that *wh*-phrases must be interpreted in their base positions, regardless of their surface positions (Hagstrom, 2003). According to this theory, *why* questions in Setswana are similar to other *wh*-questions in this language. A theory that looks at both the surface structure of the questions while acknowledging the influence of the underlying structure is probably better suited for the present research since very little is known about acquisition of questions in this language.

An alternative approach to these generativist and linguistic-based theories is a constructivist usage-based theory proposed by Pine, Lieven and Rowland (1998) and Tomasello (2000, 2003). These authors argue that children's early knowledge of grammar is tied to individual

lexical items. Children's ability to acquire new constructions, and to generalise, is influenced by a combination of cognitive and linguistic factors such as semantic complexity, input frequency, phonological salience and the child's social and cognitive interest (Rowland, Pine, Lieven & Theakston, 2005). However, for production of *wh*-questions to mirror cognitive development, children must be exposed to the relevant forms at the appropriate stage of conceptual development (Clancy, 1989).Clancy cites Savic (1975) and Forner (1977) who state that the order in which children produced *wh*-questions correlate significantly with the order in which the forms were introduced by their mothers. They proposed that an important determinant of the mother's influence on production was the children's cognitive development. Probably similar to Pinkers' (1984) learnability conditions, the interactions of acquisition mechanism and the environment. He states that the acquisition mechanism will need input to arrive at adult grammar.

The Role Reference Grammar (RRG) (Van Valin, 1998; Van Valin & Lapolla, 1997) is an example of a constructivist theory that incorporates input, linguistic factors and cognitive endowment. The theory suggests a direct mapping between syntax and semantics, with discourse and pragmatics playing important roles. This theory seems applicable for the present research since it allows for an exploration of all important linguistic variables when discussing acquisition. This is particularly important since the present study is the first of its kind in an African language. Unlike generativist theorists, this direct mapping of syntax and semantics representation of a sentence is not mediated by any underlying abstract syntactic representations or transformational rules. The theory does not argue against the plausibility of an autonomous LAD or UG but rather states that the differences that are observed between the different forms of developing child language and competent adult forms can be accounted for without recourse to these phenomena (Van Valin, 1998). There is only a single syntactic representation for a sentence, which corresponds to the actual form of that sentence. RRG does not allow any abstract representation or movement rules; children construct the grammar of their language based on their initial cognitive endowment which does not include an autonomous LAD or UG. The organization schema of RRG is given below in figure3.1. This figure demonstrates the role of discourse-pragmatics in mapping between syntactic and semantic representations.

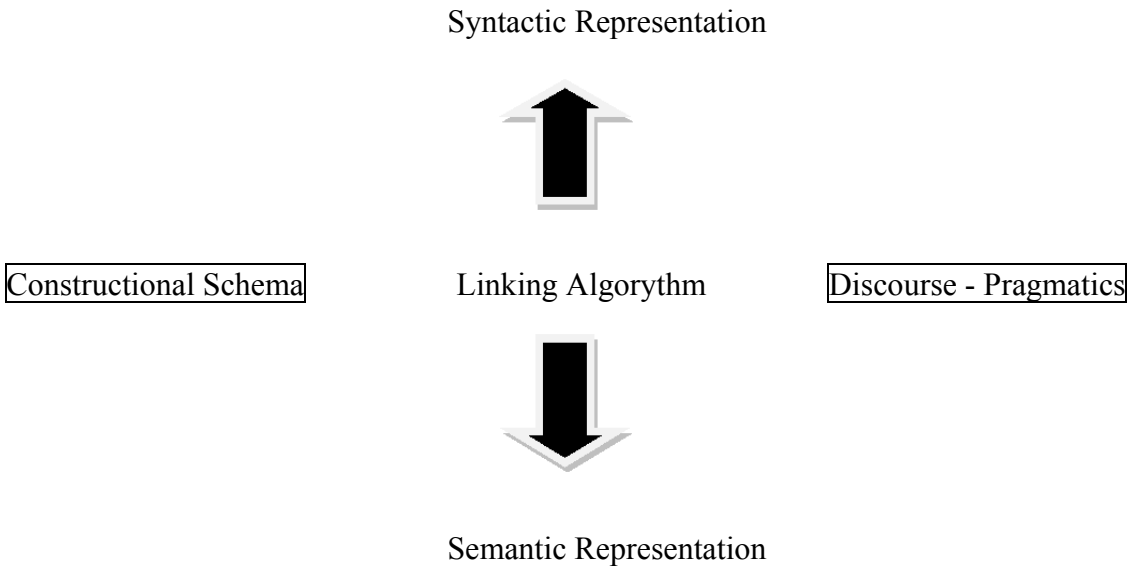


Figure 3.1 Organization of RRG (Van Valin, 2005)

The syntactic representation is linked via a linking algorithm to the semantic representation. According to Van Valin (2007, 2011) this linking algorithm may consist of lexical decomposition of the representation of the meaning of the predicator along with its arguments. Discourse and pragmatics play a significant role in linking syntax and semantics. The exact role of how this takes place is not yet clarified. However, the process is said to be richly structured in accordance with the suggestions of Bruner (1983) among others. Semantic and syntactic knowledge is knowledge of word meaning in the context of varying structure while pragmatic competence involves knowledge of structural rules of language use that require both on-going abilities to keep track of the conversation and in some instances retrieval from memory of past exchanges. Particular cultural rules for exchange must be kept in mind and these require both situational and addressee appraisal for appropriate communication. Brunner (1977) cited in McLaughlin (1998) use the concept called "social commerce" to explain the role of caregiver and infant interactions as a catalyst for language acquisition. He believes that context sets the occasion for interaction but grammatical form (utterance), propositional content (its meaning) and illocutionary function (intended effect) are constantly modified by the caregiver.

The syntactic structure of the clause in the RRG theory is not represented in traditional syntactic theory forms (subject+ verb+ object structure), but rather it is captured in a semantically-based theory known as the "layered structure of the clause" (Van Valin, 1998, p. 7). The essential elements of the clause are the *nucleus* which contains the predicate, the *core* containing the nucleus and the argument of the predicate and the *periphery*, which contains the adjunct modifiers of the core. Van Valin (2007, 2011) suggests that the linking algorithm may include: semantic representation of the sentence in the lexicon, assigning actor and under-goer, case agreement, selecting appropriate syntactic template and linking the appropriate elements from the appropriate semantics into the appropriate positions in the syntactic representation, that is, adding morphosyntactic information to the semantic representation. The theory does not specify the significant role of morphology in the analysis structure. Morphology plays a significant role when assessing expressive and receptive language. It is a key feature on which the grammar of African languages is based.

The second aspect of RRG pertinent for this research and relevant to the issue of *wh*-question formation, is the information structure, namely, narrow focus and focus domain. According to Van Valin (1998) *wh*-questions are typically narrow focus, in that the focus of the question is a single constituent represented by the *wh*-expression. Questions are requests for information, and the focus of the question signals the information desired by the speaker. However, in languages with an *in situ wh*-element, a second element of the theory regarding formation of questions becomes significant. In these languages the *wh*-expression occurs in the potential focus domain, that is, the element questioned must be either an adverbial or subordinate clause.

Van Valin (1998) takes this basic analysis proposed for formation of *wh*-questions and extends it to account for topicalization and relative clause formation. He states that children learn the basic notions of topic and focus and on the basis of their verbal interactions with caregivers and others develop constraints and restrictions applicable to their language. Interestingly, Chomsky calls this "pragmatic competence" which he states places language in the institutional setting of its use, relating intentions and purpose to the linguistic means at hand (Chomsky 1980, cited in Van Valin, 1998).

Pragmatic constraints and syntactic structure are important elements of the RRG theory. It is not enough for a child to learn words, phrases and other grammatical features (Hedge, 1991).

The child should also learn how to use language in social situations. Pragmatics is concerned with how children learn to use language in social situations to communicate effectively. In explaining the observed early production of subject *who* questions in the Stromswold (1995) study, Van Valin (1998) states that the pattern she observed correlates with the pragmatic markedness of the question type, not their syntactic markedness. Moreover, since animacy is known to have discourse-pragmatic consequences, the possible effects of animacy on the emergence of *who* questions make sense. Children often responded to subject *what* questions as if they were answering a *who* question (Tayck & Ingram, 1977). Furthermore, the general pattern of early production of object *what* and *which* questions in the Stromswold's study although contradictory to syntactic expectations (that is, object *wh*-questions are more complex that subject *wh*-questions) make sense when looked at from a pragmatic perspective. According to the RRG theory, earlier English *wh*-questions are normally narrow focus. Object position in a sentence correlates with the least marked narrow focus position while subject position correlates with the most marked narrow focus position. Hence object questions involve unmarked narrow focus whereas subject questions involve marked narrow focus.

The layered structure of the clause in RRG theory and the semantic units underlying this structure provide a useful descriptive framework for explaining and analysing theoretical constructs in morphosyntactically rich languages such as Setswana. The essential component of a simple clause, the nucleus, the core and the periphery together with their semantic units seem better suited for the language under investigation. A schematic explanation of this structure is given below. It shows the relationship between the various elements of syntax and semantics. Morphology of the noun class system governing the structure of Setswana and other Southern African languages is added as an addendum to this structure. It forms part of the nucleus and modifies the elements of the core of a sentence.

Syntactic Units	Semantic Units
(Morphology) Nucleus	Predicate
(Morphology) Core	Argument of predicate
Periphery	Non-argument

According to the RRG theory, children construct the grammar of their language on the basis of their initial cognitive endowment and the evidence to which they are exposed. Demuth & Kline's (2006) findings regarding similarities in adult input and children's expressive use of passives in Sesotho seem to support this theory. Stromswold's (1995) study of CHILDES data also supports this observation.

Cross-linguistic studies provide an important vehicle for investigating the veracity of theories such as this one described here. The RRG theory seems appropriate for the present study as it looks at the role of discourse and pragmatics and the relationship between syntax and semantics. Thus, it allows the researcher to broaden the scope of the research and to incorporate any of these constructs when discussing the finding of this study. This is important because of the preliminary nature of the topic under investigation and the paucity of research on the development of Setswana questions. According to Van Valin (2007, 2011) the RRG theory provides the best method for capturing and investigating the interaction of syntax, semantics and pragmatics when analysing grammar. Furthermore, the theory provides a descriptive content that has already been applied to typologically diverse languages such as Kiswahili, Russian, German, French, Mandarin and many more (Van Valin, 2007, 2011).

The other important aspect of the RRG perspective that makes the theory applicable for this research is that the theory highlights the importance of focus domains of the language being acquired. An important question facing a child learning a new language structure, is whether this structure would be signalled through application of morphology, syntax or prosody or all three. Focus is an important part of language learning from a RRG perspective, and is an important explanatory construct of the RRG analysis. Focus is applicable in Setswana questions as discussed elsewhere. Thwala (2004) uses Rizzi's (1997) clause topic-comment structure which states that the head noun in a relative clause represents the topic, whereas the

rest of the relative clause represents the comment or new information; the topic is background/old information while the comment is new information.

Linguists who studied the structure of African languages agree that both topic and focus are important syntactic structures in these languages. Zerbian(2006) cites evidence from a survey of discourse context which shows that the subject does not appear in sentence-initial position when it is discourse-new information. The use of impersonal constructions at the beginning when introducing a new story in African languages (*ba re enere* - they say it has been said) confirms this, in that in the beginning of a new story all information is new, so no grammatical subject can occur. This use of impersonal construction is further exemplified by use of passive constructions, where the question-word is moved to the end of the sentence, for example, go jewa *eng* (it is *what* that is being eaten). Acquisition data by Demuth (1990) also confirms this observation. She observed that passive structures are acquired earlier by children learning Sesotho and relates this to the fact that this construction is frequent in Sesotho in order to focus or question the subject. "As the subject position is closely tied to topic interpretation…. question-words always ask for new information and therefore do not fulfil the requirements to appear in sentence -initial position" (Zerbian, 2006:403).

Bokamba (1976) states that presupposed and focus material will occur clause-initially from which it follows that *wh*-words cannot occur clause-initially as long as the subject noun phrase is viewed as the focussed element in the sentence. In cleft or relativized wh-question the indefinite noun phrase containing the question-word may occur clause-initially and the questioned subject noun phrase must be a cleft. He states that except for stressed-focused elements all other focusing processes in Dzamba, Likila and Lingala languages require movement to clause-initial position. Regarding topicalization the element under focus has already been previously mentioned in the discourse or else presupposed by the speaker. Although clefts are partially similar to relative clauses, the two constructions are different semantically, because clefts are focus -presupposition structures, where focus encodes the new information and the presupposition encodes the background information. Another way in which they differ is that, the focus part of a cleft is actually a complete proposition which can stand on its own.

RRG theory allows for application of general principles of cognition or what Van Valin (1998) calls natural logic -"a general feature of human cognition not restricted to language" (p.13) - when analysing data. This is important because of the preliminary nature of this research, as already mentioned. The researcher anticipates the influence of both syntactic and pragmatic variables in the present study, as well as the influence of the level of motivation of the children which might affect their involvement during testing. The RRG theory accounts for language constraints that the child has learned and provides explanation for forms the child is producing which are not reflected in the speech to which the child is exposed, "the general principles of rational human behaviour, both linguistic and non-linguistic" p.20. The theory acknowledges that children are born with a rich cognitive endowment which makes language learning possible (Van Valin & Lapolla, 1997).

This study has both a linguistic and a developmental purpose (Miller & Fletcher, 2005). The linguistic purpose of the study is to determine the specific areas of similarity and difference in the acquisition of wh-questions and what can be inferred from the emerging patterns for language learning. The developmental purpose is to determine specific patterns of performance in normally-developing children in their use and understanding of information questions.

The aim of the present study is to investigate the acquisition of information questions in a sample of three- to- five year-old Setswana speaking children following a syntactic structure described by Thwala (2004) and Zerbian (2004). The study aims to investigate comprehension and production of wh-questions in Setswana and to document changes in comprehension and production of these questions as children mature. The study also investigates the children's knowledge of the syntactic constraints governing the structure of wh-questions in this language. The position of the question word in this language is determined by whether it refers to the object noun-phrase or the subject noun-phrase. When questioning the object noun-phrase the question word is at the end of the sentence, while when questioning the subject of the noun-phrase, passives, relatives and cleft/oblique constructions are used. Examining the nature of particular rules and/or principles operating within children's grammar reveals what children know about the structure of their language, while comparing the performance of children from different age groups reveals how this knowledge changes as the children mature. Investigating the role of discourse-pragmatics,

semantics and syntax through cross-linguistic studies enhances our understanding of how languages work.

3.1 Research Questions

1. Is there a difference between understanding and production of wh-questions: eng (what), kae (where), mang (who), goreng (why), leng (when), efe/ofe (which) and yang (how)?
2. What is the sequence of development followed by these children in understanding and production of these question-forms?
3. Is there a difference in understanding and production of subject and object, eng (what) and mang (who) questions?
4. Is there a difference in performance of male and female participants?

More specifically:

1. Are *eng* (what), *kae* (where) and *mang* (who), (*wh*-pronominal) questions easier to understand than *goreng* (why), *leng* (when) and *jang* (how), (*wh*-sentential) questions and *efe/ofe* (which), (*wh*-deteminer/ adjectivial) questions?
2. Are *eng* (what), *kae* (where) and *mang* (who), (*wh*-pronominal) questions easier to produce than *goreng* (why), *leng* (when) and *jang* (how) (*wh*-sentential) questions and *efe/ofe* (which), (*wh*-deteminer/ adjectivial) questions?
3. Is there a difference in the comprehension and production of these questions between male and female participants?

Li et al. (2013) provides the only cross-linguistic evidence of females outperforming males in producing questions, even though the majority of the questions produced by female were yes/no types. They report that boys are three times more likely to have speech and language impairment according to parents' reports. Investigation of gender differences in performance of head-start children in America found that males have lower scores than females on letter-word identification abilities and that they tend to have higher rates of learning disabilities (Hammer, Forkas & Maczuga, 2010).

4. Is comprehension and production of subject eng (what) and mang (who) questions easier than object eng (what) and mang (who) questions?

CHAPTER 4

METHOD

4.1 AIMS

The aim of this study is to investigate the development of *wh*-questions in a sample of three-, four- and five-year- old Setswana-speaking children. The study aims to investigate their comprehension and production of information questions and to document changes in comprehension and production of these question markers as the children mature. The study further aims to investigate constraints on the question word from the referent subject or object.

The aims of this study were:

1. To compare comprehension and production of *wh*-questions: *eng* (what), *kae* (where), *mang* (who), *goreng* (why), *leng* (when), *efe/ofe* (which) and *jang/yang* (how) by three-, four- and five- year- old Setswana-speaking children.

2. To document the sequence of development followed by these three, four and five- year-old children in comprehending and producing *wh*-questions.

3. To compare gender differences across the three age groups on comprehension and production of these question forms.

4. To compare performance of the three age groups on comprehension and production of subject and object, *eng* (what) and *mang* (who) questions.

Hypotheses

Null Hypotheses: There are no differences between the groups, and between male and female participants

Alternate Hypothesis: Younger children will perform poorer than Older children, comprehension scores will be higher than production scores.

Language evaluations are social situations in which participants are asked to perform a series of tasks or activities that are expected to elicit targeted structures (Iglesias, 2001). For example, when interacting with a child in order to elicit a language sample it is important to assess the extent to which the interlocutor is providing the necessary support to facilitate elicitation of a representative sample. Based on these observations judgments about the communication abilities of the child can be made. Given the preliminary nature of this study the research assistant was encouraged to observe her interactions and to note how the children were responding to the three data collection procedures. Her observations were quite insightful and are reported as part of the findings of this study.

4.2 RESEARCH DESIGN

Descriptive research methods were used with a mixed cross-sectional developmental design (Schiavetti & Metz, 1997). This study is descriptive because there was no manipulation of variables. This type of method allows the researcher to observe group differences, developmental trends and relationships among variables (du Plooy, 2002). According to Hsu & Hsu (1998), a cross-sectional design is used when comparing the performance of different children from various age groups, observed at a single point in time. This study involved two independent variables- gender (boys and girls) and age (3-3.11 years old; 4-4.11 years old; 5-5.11years old)- and three dependent variables; types of w*h*-questions, comprehension vs production and distance of the question word from the referent subject or object of the sentence. This design allowed for a comparison of the developmental trends for comprehension and production tasks across the ages and the gender of the participants.

A combination of elicited comprehension and production tasks were utilised to maximise data collection (Cohen & Manion, 1991). Both methods individually have a number of disadvantages however, in combination these disadvantages were minimised. Demuth (1998) observed that spontaneous sampling data may underestimate the child's competence. If a structure does not occur it may be difficult to determine the cause of that absence.

4.3. PARTICIPANTS

Preschool children growing up in the regions of Mametlhake, Marapyane, Dinokeng, Pankop and Ga-Rankuwa, peri-urban areas at the borders of Gauteng/ North West/ Mpumalanga and Limpopo Provinces were selected for this study. These areas were selected because Setswana is spoken in the areas and the majority of the preschools in the areas use Setswana as a

medium of instruction. The schools were contacted telephonically to request permission for the study. A letter describing the research was then taken to the principals on the day of the visit to the school (Appendix 4A).

Ga-Rankuwa is a township located about approximately 37 km north of Pretoria, between Gauteng and the North West, but is officially governed by Gauteng. Prior to 1994 Ga-Rankuwa and Pankop were governed by the former Bophuthatswana homeland. Pankop is on the borders of Limpopo and Mpumalanga. Officially it is regarded as a district of Mpumalanga. Pankop is located approximately 40 km north of Pretoria. Due to proximity of the two areas to the city of Tshwane Metropolitan municipality, there is constant movement of the community between the areas. Tshwane is a cross border city with many employees in the city coming from these areas of Limpopo, Mpumalanga, Gauteng and the North West (Statistics South Africa, 2012). There is a fluid migration movement of people between these provinces. Population demographics and socio economic levels are also fluid. Statistics South Africa (2012) shows a high in-flow of migration in Gauteng, but surprisingly, the North West and Mpumalanga also showed high in-flow (p.33). The highest in-flow to the North West came from outside South Africa. The functional illiteracy levels in these areas are also high with 10 to 25% of the population being functionally illiterate (Statistics South Africa, 2012).

4.3.1. Criteria for selection

All the children who participated in the study were selected by their teachers. The teachers were asked to complete a brief questionnaire about the child they selected (Appendix 4B). The selectedchildren were healthy and had no obvious physical, cognitive, hearing or visual impairments that could have negatively affected their speech and language development and spoke Setswana at home. This was confirmed by a questionnaire completed by their parents/guardians (Appendix 4 C). However, the possibility that the children might have been exposed to other languages in the area is acknowledged. In fact, Grade R children (5-to-6 year- olds) were being introduced to English in most schools.

4.3.2. Sampling procedure

The children were purposively selected from the identified schools. A research assistant who lives in the area chose the schools. Only schools where the research assistant was certain that Setswana was the medium of instruction were contacted. The principal was contacted telephonically by the researcher, an appointment was set and the school was visited by the researcher. Parent/ guardian information questionnaires and consent forms were given to the teachers to distribute to all the selected children (Appendix 4D and E).

4.3.3 Description of participants

The sample of children enrolled in the main study consisted of 259 normally developing boys and girls who spoke Setswana at home and were in the age ranges of 3.0-3.11, 4.0-4.11 and 5.0-5.11 years old. 93 boys and girls were tested for the DELV comprehension task, 81 for the DELV production task and 82 for What Aree They Asking production task. Attempts were made to keep the numbers fairly consistent for each age group. Attempts were made to have an equal number of boys and girls in each age group. An additional sample of 116 children of the same ages were tested for production and comprehension of subject and object *eng* (what) and *mang* (who) questions. Thirty children were tested for the comprehension task, ten children per age group. There were eight three-year-olds, ten four-year-olds and eleve five-year-olds for each task.

Table 4.1 Total number of male and female participants across the three age groups

Gender	Male				Female			
Age	3yrs	4yrs	5yrs	Total	3yrs	4yrs	5yrs	Total
DELV Comprehension	15	17	16	48	15	17	15	47
DELV Production	14	14	14	42	14	14	14	42
What Are They Asking	13	13	13	39	12	15	14	41
Subject/Object *kae /mang*								
1. Production	8	10	11	29	8	10	11	29
2. Comprehension	8	10	11	29	8	10	11	29

Table 4.1 presents the different subgroups, that is, the number of males and females in the different age groups for each of the five tasks used. The majority of the participants were selected from primary and nursery schools. However, the research assistants also identified families who had children in the selected age groups who were not attending the particular schools where the research was conducted but met the selection criteria for the study. These families were visited at their homes and invited to participate in the study. While efforts were made to select children who were from monolingual backgrounds, with Setswana being the only language spoken in their homes, this was not always possible. Only 39% of the returned questionnaires indicated that both parents were Setswana speaking. In most instances the mother and the father did not speak the same language and the children were also exposed to other languages spoken in the areas where they lived. Some nursery schools had begun to expose their senior classes (5-to-6) year olds to English. Appendix 4F shows languages that are spoken in this area and they are summarised in table 4.2 below. The use of participants who are monolingual and bi/multilingual in this project is acceptable since there are differences in syntax and word order of questions in African languages.

Table: 4.2 Total number of monolingual versus multilingual homes

Language Background	Number
Monolingual Setswana mother/both parents	31
More than 2 languages other than Setswana	34
More than 3 languages other than Setswana	65
Exposure to English or Afrikaans	52

4.4 MATERIALS

A letter describing the research was given to the principal when the researcher visited the school (Appendix 4 A).

4.4.1. Teacher questionnaire

The researcher met with the teachers and explained the research process, the children required for participation in the research and also requested the teachers to distribute the research questionnaire to the parents/guardians of the children selected for the study (Appendix 4 C). The teachers were asked to select children in their class who spoke Setswana at home. The selected children had well-developed speech and language abilities, hearing, vision, intellectual and motor skills, as also confirmed by their parents/guardians.

4.4.2. Parent questionnaire

A questionnaire (Appendix 4 E) together with a consent form was given to the teachers to distribute to the parents/ guardians of the children they had selected for participating in the study. The parents' /guardians' questionnaires were used to further confirm that the selected children spoke Setswana at home and had no history of illnesses such as earache, gastroenteritis, epilepsy and head injury. In addition to granting permission for the child to participate in the study, the parents/guardians were asked to confirm their relationship to the child, state the language spoken by the mother and the father and other common language spoken at home. The parents/guardians were further asked to specify whether the child was exposed to other languages either spoken by caregivers or other family members staying in their home.

The research assistant visited the schools in the morning and afternoons for a number of days collecting questionnaires and to respond to queries or offer assistance to parents/guardians who were not able to complete the questionnaires. Very few parents/guardians availed themselves for assistance. 134 questionnaires were returned to the schools, a return rate of 45.5%. Parents/ guardians who were accessible by telephone gave concent over the telephone, while others sent a verbal consent message to the school with siblings/neighbours who were collecting the child from the school. Some parents contacted the researcher telephonically for further information and clarification regarding the research. When all these contacts with the parents/guardians are combined the return rate for the consent form is 66%.

There were only 29 families where both mother and father spoke Setswana as their first language. Most families had one parent who spoke Setswana as their first, 85 mothers and 62 fathers. 50 children spoke two languages at home. Many families lived within an extended family set-up, meaning that, the majority of the participants in this study were exposed to more than one African language in their home.

4.4.3 Diagnostic Evaluation of Language Variation (DELV)

Materials used for the study consisted of pictures selected from the Diagnostic Evaluation of Language Variation (DELV) Screening and Criterion Referenced tests (Seymour, Roeper & de Villiers, 2003). The DELV is a comprehensive English language test for syntax, morphology, semantics and pragmatics, but the present study did not use the test specifically for the purpose for which it designed. The researcher elected some pictures from this test because they were deemed suitable and culturally appropriate. The human figures depicted reflect the population under investigation while the life experiences that were familiar to the participants of this study. The pictures used were deemed suitable for eliciting *wh*-questions.

Sixteen pictures from the DELV Screening test and 40 pictures from the DELV Criterion Referenced test (Seymour, Roeper & de Villiers, 2003) were used to develop 56 questions for the comprehension task. The task consisted of eight questions for each question word. 12 pictures of the Question Asking subtest of the DELV test were used to elicit question words for the production task. A pilot study to investigate the suitability of this test for the population was done and the results were presented at two international conferences:

AAL in Stellenbosch and IASCL in Edinburgh (Tshule 2008; de Villiers, Bortz & Tshule, 2008).

4.4.4 What Are They Asking

What Are They Asking cards published by Super Duper publications (2006) consists of 56 cards, which are designed to improve inferencing and questioning skills. Each card presents a fun situation in which one character asks a question. The child uses the cues in the picture to figure out what question the person or animal in the scene is asking. The cards are recommended for exercising creativity and reasoning abilities while encouraging conversational speech or can be used as writing prompts. Cards that appeared suitable for eliciting *wh*-questions for the production task were selected after after a trial test with two adults who and three children who spoke Setswana and those that produced yes/no questions were not used. This helped to reduce the number of pictures from 56 to 44. It was important to have as many picture cards as possible for trial testing and to ensure that as many targeted questions as possible were elicited.

4.4.5 Subject and Object Questions

Sixteen pairs of computer generated pictures were used to assess comprehension and production of object and subject (eng) *what* and (mang) *who* questions. The pictures were equally divided, that is, nine pictures for each subtest.

4.4.6 Reliability and Validity

The validity of the measures used in collecting data for this research has not been established, although the DELV-CR pictures have a well-established validity for the American population that has been extensively researched and reported in the manual. The validity of these pictures when testing children in the South African context has been demonstrated by Jordaan (2011) and Marshall (2010) with grade one and two English medium primary school children. Furthermore an attempt is underway to develop appropriate norms for Afrikaans (van Dulm & Southwood, unpublished monograph). With respect to reliability, defined as the extent to which the same result would be obtained if a participant was retested or tested by a different examiner (Schiavetti & Metz, 2006) the researcher attempted to ensure consistency in test administration and scoring by in-depth training and monitoring of the research assistants. The exact interaction with the child between the two research assistants and the researcher cannot be replicated, however, strict control on

administration of tasks and audio taping of the children's responses helped to standardize testing conditions.

4.5 DATA COLLECTION

Testing took place at the schools during school hours for most of the children. The children were tested in Setswana. They were tesed individually in the quietest room available at each school. The noise levels at the schools were at times quite high and the constant interruptions by other children may have affected the children's attention and memory during testing. The school principals were very accommodating and allowed testing to take place in the quietest area of the school, sometimes even offering their own office space. However, children were constantly playing outside and this often disrupted the attention of the child being tested. Also, at times the other children would come and observe testing through the windows which increased ambient noise.

The children who were not attending these schools were tested at their homes. Attempts were made to ensure that the children were comfortable and that testing conditions were kept as constant as possible. All interactions were audio-taped. An omni-directional Back Electret Condenser table-top microphone was used. A third-year Setswana-speaking Speech Pathology student from the University of Limpopo and a final-year Speech Pathology student from the University of the Witwatersrand were appointed to assist the researcher. Their responsibilities included helping the researcher to model the required responses for the children, collecting data and recording the child's response during testing while also monitoring the audio recorder. Lund and Duchan (1988) state that including another person in the elicitation or collection procedure helps in modelling responses that are expected and also takes focus away from the child, in this way making talking easier and more comfortable for the child. A trial test was carried out for both the comprehension and production aspects of the test to ensure that the children understood what was required. The children were divided into groups according to their ages. Each child was tested individually while some children were given the opportunity to be tested twice as they seemed to be nervous and shy around an unfamiliar adult. This worked well, as when they returned the next day their mood was totally different and they communicated more readily with the tester. The rewards given to each child at the end of the test contributed to their eagerness to participate.

Testing sessions took approximately 20-30 minutes per child per subtest, that is, 30 minutes for DELV comprehension task, and 30 minutes for each of the two production tasks (DELV and What Are They Asking Cards) and another 20 minutes for the subject and object subtests. Data collection procedures for each task are described below. All the participants completed the DELV comprehension task first before the DELV and What Are They Asking production tasks were introduced. The comprehension and production of the subject and object tasks were administered at the same time with each child because this usbtest was short.

4.5.1 Comprehension Task

Data was elicited through a procedure that involved answering the *wh*-question following a lead-in statement from the researcher that described the picture. The advantage of this methodology is that it ensured that the child understood what the picture represented while enabling the researcher to evoke the required question, thus exploring the full extent of the child's grammatical knowledge (Lund & Duchan, 1988; McDaniel, Chiu & Maxfield, 1995; Gerken & Shady, 1998). The spontaneous questions that the child used while interacting with the researchers were not included in the transcription.

Fifty-six pictures from the DELV test were used to gather data, while the remaining pictures were used to educate the children about the task. A description was carefully designed about each picture to elicit the answer to the question being investigated. The procedure was explained to each child before commencement of testing. The comprehension task was administered first. This was done so that the children could establish rapport with the tester and gain confidence while doing the easier procedure. The instruction to the child was: *I am going to show you some pictures and tell you a story about them. Then I am going to ask you questions about people or animals in these pictures* (Appendix 4G). The instructions were kept simple and at the children's level. The child was shown a picture and told a brief description about the actions of the people/animals depicted in the picture. A short pause is given before the child is asked questions about this picture

4.5.2 Production Tasks

A combination of pictures from the DELV test and cards from "What Are They Asking" were used to elicit questions. The instructions given to the children for the two instruments are described below. It was important to be precise about these instructions because the

children needed to understand the pragmatic conditions that were necessary and sufficient to produce the required *wh*-questions.The instructions for each of the task are described below.

4.5.2.1 DELV production task

The question-asking subtest of the DELV uses an innovative procedure to elicit questions. The child is presented with a picture with something missing and the child is required to ask the tester a question to find out what the missing feature was.

The DELV instructions to the child were: "*We are going to play a game where you get to ask me questions. This is a game about asking questions. I am going to show you some pictures with something missing in the picture. I want you to ask me the right question and I will show you the answer. In this game every time you ask me a question you get to see the answer in the next picture."* The child was shown a picture depicting an action. Part of the picture is hidden from view. In order to create a reasonable situation for the child to ask a *wh*-question, the researcher gave the child a short description about the actions of the people or animals in the picture. After listening to the description the child then used the cues given in the picture to figure out what question to ask. The child was encouraged to ask more than one question for each picture.

Trial Item: The researcher gave clues such as "this lady is giving someone medicine, can you ask me a question/s then I will show you". When the child asked a *wh*-question the answer was revealed (Appendix 4H). During training if the child did not understand the task, the researcher modelled the question by asking the child "who is drinking medicine?" The answer was then revealed. If the child failed to respond appropriately they were prompted once more. If they failed again they were asked to wait aside while another child was tested. If they still could not perform the test even after observing another child being tested, testing for that specific child was abandoned and they were sent back to their class-room. Children who produced little relevant data and those who produced incomplete questions were excluded.

4.5.2.2 What Are They Asking task

The instructions to the child were: "*This person/ animal in the picture is asking a question.* The researcher then described the action of the person/animal in the picture, then pointed to the-speech bubble- above the animal /person to show the child who/what was asking the

question. The researcher then said, *"I want you to look at the picture and tell me what question this person or animal in the picture is asking.*

Trial item: Picture of a girl at the hairdresser. The child is sitting on a chair having a haircut. The hairdresser pulls the hair from the back. The speech bubble is coming from the hairdresser's mouth (Appendix 4I). For example "*why do you have such long hair*?" Or a boy is wearing only socks and, he has one shoe in his left hand. The speech bubble is pointing to his mouth

The **DELV** question asking subtest and **What are they asking** subtest both allow for more than one acceptable question for each picture/card. For the production, the children were seen in groups of three and they were all given the opportunity to take part in the trial test. Assessment began with the strongest child and the others were allowed to listen and observe. If the child failed to produce a question following the prompt from the researcher, he/she was encouraged to describe the picture before he/she could formulate a question about that picture. This seemed to make the task easier and the testing procedure effective. However, some children had to be constantly cued throughout the test. If a child seemed to be getting restless and tired testing was discontinued and completed at a later time or the next day.

4.5.3 Subject and object *mang* (who) and *eng* (what) tasks

Since this task was fairly short, the production and comprehension procedures were administered at the same time. The children were given one trial item for each procedure, that is, one example of subject question and one example of bject question. The instructions that were followed for DELV comprehension and production tasks were used. A child was shown a pair of pictures and asked questions accordingly. For example: subject question- ke *mang* a garametsang ngwana (*who* is pushing the baby), object question- Ngwana o garametsiwa ke *mang* (the child is pushed by who) (Appendix 4J). Ten questions, five subject and object *mang* (who) questions and six subject and object *eng* (what) questions were used for the comprehension task. Eight pictures were used to test production of *eng* (what) and *mang* (who) subject and object questions.

4.6. TRANSCRIPTION AND CODING

For a child's response to be noted the response had to be intelligible and be given immediately following the researcher's lead-in statement with sufficient overlap between the

target and child's response. The child's verbal productions were transcribed in standard orthography with a commentary on the side when indicated. Lund and Duchan (1988) report that this type of transcript is structurally useful for analysing the interaction and identifying where breakdowns are occurring. A list of each of the questions answered or produced by the child were typed into an excel document. The production list consisted of the questions that were correctly articulated while the comprehension list had questions that were correctly answered. Incomplete, unclear and partial repetitions or imitations of utterances were excluded from the data. Questions that were spontaneously used by the child during interaction were not added to the data.

The researcher and research assistants transcribed the data. Reliability of the data was ensured by having the researcher check some of the entries made by the research assistants and the research assistants checking some of the entries made by the researcher. Because the primary interest for this research is the type of *wh*-question word produced or understood, the correct answer involved answering the *wh*-question correctly or producing the *wh*-question word in the correct context. Grammatical mistakes were not counted.

4.7. DATA ANALYSIS

A transcript of the child responses and the researcher's verbal productions were transcribed and presented in two separate columns, including a commentary on the context of the discussion in a third column when indicated. Lund & Duchan (1988) report that this type of transcript is structurally useful for analysing the interaction and identifying where breakdowns are occurring. A listing transcript for each of the specific structures to be analysed was made for production and comprehension tasks for each of the children. Incomplete, unclear and partial repetitions or imitations of utterances were excluded from the data. Once data had been transcribed the results were entered onto a spreadsheet.

Since all the research instruments yielded an interval level of measurement, the appropriate parametric statistical procedures were selected for between and within group comparisons and correlations (Schiavetti & Metz, 2006). All data analysis was done on the SAS 9.2 computer system by a qualified statistician. Descriptive statistics (means, standard deviations and score ranges) were calculated for each group (three-, four- and five- year- olds, and for males and females) for each question-word. These values were captured in tables and the means were displayed graphically. Statistical comparisons between and within groups were

deemed to be significant if the probability of rejecting the null hypothesis (i.e., the difference or correlation was not significant) was less than 5% ($p < 0.05$). One way Analysis of Variance (ANOVA) (Schiavetti & Metz, 2006) was employed to compare the groups. Paired sample t-test procedure was computed to compare (3 and 4, 4 and 5, 3and 5 age groups) confidence limits for each question-word.

4.8 ETHICAL CONSIDERATIONS

Ethical clearance was obtained from the Human Research Ethics Committee (non-Medical) of the University of the Witwatersrand (Protocol Number H120536) (Appendix 4K). Permission to conduct research was obtained telephonically by contacting organisations that run nursery schools and pre-primary education facilities in the area. Once the organisation had granted permission for the study, the researcher approached principals of the potential nursery schools to invite their schools to participate in the study. The principals were contacted telephonically to request permission to do research in their schools (Appendix 4A) and to use the teachers to distribute parent/guardian questionnaires and to identify suitable children for the study (Appendix 4B).

The nature and purpose of the study was carefully explained to the principals and to the teachers. Teachers were asked to identify suitable children for the research and to complete a questionnaire stipulating guidelines for subject selection (Appendix 4B). An information letter with a consent form for parents/ guardians of all children who have been identified to participate in the study was given to the teachers to distribute (Appendix 4C). This letter included a brief questionnaire for parents/guardians to provide information on the development of their child and to confirm the language spoken at home (Appendix 4D). Verbal Assent was also obtained from the children concerned before they were tested (Appendix 4D.

The information letter to the parents /guardians informed them that participation in the study was voluntary and that those who chose not to participate in the study would not be prejudiced. The participants were made aware that they may withdraw from the study without any penalty. The consent form for participating, and for audio recording of the data was explained to the parents/guardians, and their informed consent was obtained.

The parents/guardians were also made aware that the video tapes from the research would be kept in a safe place and would not be shown to a third party. The transcripts from these tapes would be used by the researcher alone and no identifying material collected during the study would be used in reporting the research results. Confidentiality was guaranteed. Telephone contact of the researcher was included on the information sheet and the parents/ guardians were encouraged to contact the researcher should they have further questions regarding the study. The children also had the opportunity to accept or decline participation in the study before being taking in for testing. If a child showed anxiety or disinterest in being tested they were not taken for testing. The teachers at the participating nursery schools were given a workshop once the data collection was completed to educate them regarding the importance of asking and answering questions appropriate for the different age groups in their care.

CHAPTER 5

RESULTS AND DISCUSSION OF COMPREHENSION, PRODUCTION AND SUBJECT AND OBJECT TASKS

The aim of this study was to investigate the comprehension and production of canonical *wh*-questions and subject and object *mang* (who) and *eng* (what) questions in Setswana. The study used an elicitation procedure with commercially-sourced and computer-drawn picture cards. Pictures that specifically depict life experiences familiar to South African black children were selected from the Diagnostic Evaluation of Language Variation (DELV) Screening and Criterion Referenced tests (Seymour, Roeper & de Villiers, 2003) and What Are They Asking cards from Super Duper. 319 preschool Setswana speaking children participated in the study. One task developed from the DELV pictures was used to collect comprehension data while two tasks, DELV pictures and What Are They Asking cards were used to maximise data collection for the production task. A small sample of computer-drawn pictures was used to collect comprehension and production data investigating subject and object *mang* (who) and *eng* (what) questions. Since, comprehension precedes production in language acquisition, the two results are presented separatedly in order to highlight the findings.

The chapter begins with an overview of the results of the comprehension task, followed by detailed descriptions of gender comparisons for this task. This discussion will be followed by the analyses of the two data sets for production of *wh*-questions and the gender differences for these tests. Finally, findings of the study on comprehension and production of subject and object *eng* (what*)* and *mang* (who) questions are presented. Chapter six presents a general discussion and implications of the findings, together with research limitations arising from this study.

The aims of this study were:

1. To compare performance of the three age groups on comprehension and production of wh-questions: *eng* (what), *kae* (where), *mang* (who), *goreng* (why), *leng* (when), *efe/ofe* (which) and *jang/yang* (how).

2. To document the sequence of development followed by the three age groups in their comprehension and production of these question forms.

3. To compare gender differences across the three age groups on comprehension and production of these question forms.

4. To compare performance of the three age groups on comprehension and production of subject and object, *eng* (what) and *mang* (who) questions.

Results are discussed in the following order for each study. First, overall descriptive statistics for each question-word for the three age groups are reported for all participants and for girls and boys separately, and gender differences on each question-word for each task are compared.

5.1 OVERALL RESULTS AND DISCUSSION OF COMPREHENSION TASK

Sixteen pictures from the DELV Screening test and 40 pictures from the DELV Criterion Referenced test were used to develop 56 questions for the comprehension task. The task consisted of eight questions for each question word.

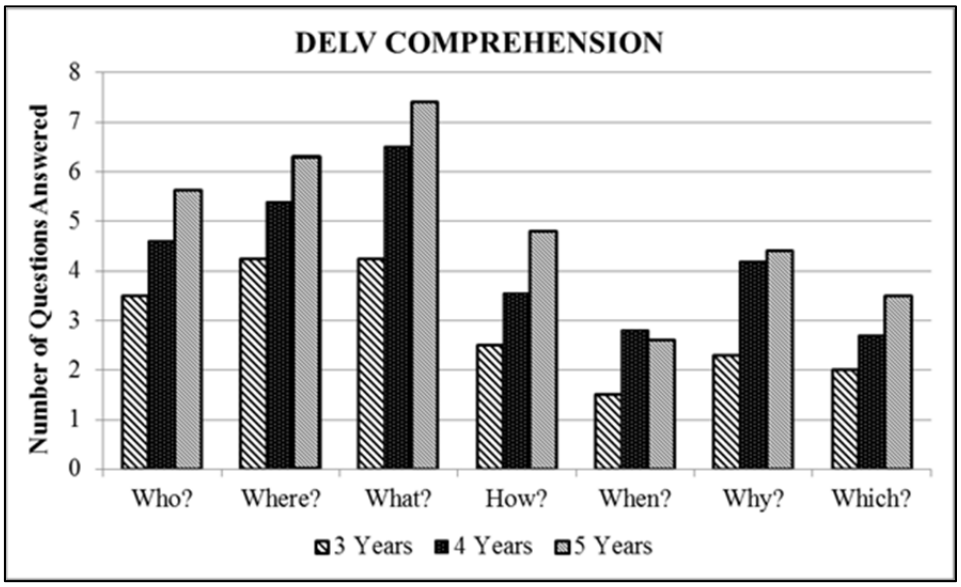
5.1.1 Average number of questions answered

Table 5.1 Average number of questions answered for each question-word across the three age groups

Age Group	Mang/ who	Kae/ where	Eng/ what	Jang/ how	Leng /when	Goreng/ why	efe/which
3 Years	3.80	3.93	4.60	2.00	1.87	2.13	2.13
4 Years	4.76	5.53	7.35	2.94	2.94	3.88	2.41
5 Years	5.63	6.38	7.38	3.44	2.38	4.06	2.94

Table 5.1 reflects a distribution of mean scores for each question across the three age groups. The mean scores reflect better performance when responding to *eng* (what), *kae* (where), *mang* (who) and *goreng* (why). The mean scores for *jang* (how), *leng* (when) and *efe/ofe* (which) are fairly similar clustering aroung two.

5.1.2 Age Differences



Key: Mang (who), kae (where), eng (what), yang (how), leng (when), goreng (why), efe/ofe (which)
Figure 5.1 Average number of questions correctly answered for each question-word across the three age groups

Figure 5.1 is a grphic reflection of the differences in the mean score for each question word. It reflects that *eng* (what) questions were understood by all children, from the youngest to the oldest. The mean scores for this question ranged from 4.16 for the youngest group to 7.38 for the oldest group. This is followed by *kae* (where) question, with the average score of 4.16 for three-year-olds to 6.26 for five-year-olds. This is followed by *mang* (who) questions, with an average score of 3.48 for three-year-olds and 5.68 for five year olds. Four-year-olds' mean scores range from 6.48 to 5.52 and 4.48 for the three question words respectively. There is very little difference in the mean scores for *goreng* (why) questions between four- and five-year-olds (4.29 vs 4.16). Three-year-olds performed poorly when answering *goreng* (why) questions and their scores continued to deteriorate for the next three remaining questions. Five-year-olds performed better when answering *yang* (how) followed by *efe/ofe* (which) and *leng* (when) questions. There is minimal difference in the mean scores of four-year-olds for *leng* (when*)*, efe/ofe (*which)* and *jang* (how) questions. Performance was better for *leng*

(when), followed by *efe/ofe* (which) and then *yang* (how) questions, while three-year-olds mean scores were better for *efe/ofe* (which), with minor differences between *yang* (how) and *leng* (when) questions. However, four-year-olds obtained slightly higher mean score for *leng* (when) questions than five-year-olds. Table 5.2 figures give a clearer representation of the mean scores and standard deviations for each question-word for the three age groups.

As expected, five-year-olds performed much better than the other two age groups on all questions as shown on figure 5.1. They showed better understanding of *eng* (what), followed by *kae* (where), *mang* (who) and then *goreng* (why), followed by *yang* (how), *efe/ofe* (which) and finally *leng* (when) questions. Interestingly, although their scores are on average high for all question-words very few children were able to achieve total scores even for the easier questions. Four-year-olds had a similar pattern for understanding of the easier questions to that of the five-year-olds, although, there is a slight variation in their understanding of the other three questions. They understood *efe/ofe* (which) better than *leng* (when) questions and produced the lowest mean score when answering *yang (*how) questions. Three-year-olds showed a similar understanding for *kae* (where) and *eng (*what) questions, with an average of 4.16 for both questions. There is a slight depreciation in the average score for *mang (*who) questions.

Understanding of these three pronominal questions is much better than understanding of sentential (*why, when, how, which*) questions. The average score for *goreng* (why) questions is slightly above 2 with the rest of the sentential questions below 2. Three-year-olds seemed to understand *efe/ofe* (which) questions better than *yang* (how) and *leng* (when) questions. Research suggests that children comprehend *what* and *where* questions relating to objects, locations, people and actions much earlier, while *why, when* and *how* comprehension depend on understanding of causality, instrument/manner and time (Owens, 2001; Rowland, Pine, Lieven and Theakston, 2005). By the time children turn four-years- old, they are able to understand simple *wh*-questions as well as questions in which they must attend to more complex syntactical features, including embedded clauses (P. de Villiers & J. de Villiers, 2000).

Table 5.2 Comparison of comprehension mean scores, standard deviations, minimum and maximum scores for the three age groups

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi
Where/kae	3	30	4.1333	1.2243	2	6
	4	32	5.5000	1.2181	3	8
	5	31	6.3226	1.0452	4	8
What/eng	3	30	4.1000	1.2959	1	6
	4	32	6.4688	1.5859	2	8
	5	31	7.3548	1.1416	5	9
Who/mang	3	30	3.4000	1.4762	1	6
	4	32	4.5313	1.4588	1	7
	5	31	5.6774	0.9447	4	7
Why/goreng	3	30	2.2667	0.9072	0	4
	4	32	4.0938	1.5525	1	8
	5	31	4.2903	1.3496	3	7
How/jang	3	30	1.5333	1.0417	0	4
	4	32	2.5313	1.1635	0	5
	5	31	3.6452	1.2530	2	6
When/leng	3	30	1.3667	1.1592	0	4
	4	32	2.7188	1.3255	0	5
	5	31	2.5161	1.2348	0	5
Which/efe/ofe	3	30	1.9333	1.1121	0	4
	4	32	2.5938	1.1319	0	4
	5	31	3.3871	1.0544	2	6

There is an expected growth in maximum scores from the youngest to the oldest age group, which is better reflected by corresponding growth in the mean scores and the dispersion of scores around the mean as shown in table 5.2. Standard deviations are small enough which indicates that the scores did not spread too far out from the mean and that the group was relatively homogenous (Schiavetti & Metz, 1997).

Mean scores of the participants of this study are in line with expectations from the literature. *Wh*-pronominals questions, *eng* (what), *kae* (where) and *mang* (who) are much easier to understand than *wh*-sententials questions, *goreng* (why), *leng* (when), *ofe/efe* (which) and *jang* (how) (Bloom et al., 1982; Demuth, 1996; Klima & Bellugi, 1966; Mclaughlin, 1998; Owens, 2001; Roeper & de Villiers, 2012; Rowland et al., 2003, 2005). Among the sentential questions, these children seem to have more difficulty understanding questions with *leng* (when) and *jang* (how) and *efe/ofe* (which) wh-deteminers/ adjectival, while questions with *goreng* (why) seem easier to understand. Overall understanding of these questions seems to follow this sequence: they understood *eng* (what) questions better, followed by *kae* (where), then *mang* (who). These three are followed by *goreng* (why), *efe/ofe* (which), *yan*g (how), and finally *leng* (when) questions.

Table 5.3 Summary of comprehension mean scores for each question-word across the three age groups

Question	Who	Where	What	How	When	Why	Which
Mean	4.75	5.31	6.50	2.81	2.42	3.40	2.50
3Years	3.80	3.93	4.60	2.00	1.87	2.13	2.13
4Years	4.76	5.63	7.35	2.94	2.94	3.88	2.41
5 Years	5.63	6.38	7.38	3.44	2.83	4.06	2.94

Table 5.3 reflects a persistent developmental profile with the lowest mean score for the youngest children. Five-year-olds obtained the highest score for most questions except *leng* (when) questions, where the mean is slightly lower than that of the four-year-olds. The sequence of understanding that can be deduced from the above table when total mean scores are compared is as follows: what > where > who > why > how > which > when. The above findings agree with the reported observation that semantically, *what* and *where* questions develop earlier than *when*, *why* and *how* questions. *Wh*-words that function as modifiers of

noun phrases (*whose*, *which*,) are acquired much later (Winzemer, 1981; Roeper & de Villers, 2012). Winzemer (1981) suggested that *what, where* and *who* (*wh*-pronominals) are the simplest questions to understand, followed by *when, why* and *how* (*wh*-sententials). *Which* and *whose* (*wh*-adjectivals) questions sometimes called *wh*-determiners are considered most complex. *Wh*-sententials are more complex because the answer requires the child to specify a reason, manner, or time that the entire event encoded in the sentence occurs, while *wh*-adjectivals are acquired last because they require the answer to specify something about an object constituent (Bloom et al.,1982; Owens, 2001; Rowland et al.,2003; Rowland et al., 2005). Owens (2001) argues that understanding of *which* questions occurs earlier than that of *wh*-sententials. He includes *which* questions with the first three *wh*-pronominals. His sequence of acquisition is *what* and *where*, followed by *who*, *whose* and *which*, and finally, by *when*, *how* and *why* questions. The pattern of understanding by four-year-old children in this study seems to agree with Owens' argument, while the general pattern of understanding of all seven questions in this study seems to indicate that knowledge of *wh*-questions improves gradually as the child matures.

Table 5.4 Between group comparison of paired sample t-test comprehension results of the three age groups

Questions	Age groups	T value	Pr>T
Kae (where)	3 to 4	-4.40	<.0001**
	4 to 5	-2.87	0.0056*
	3 to 5	-7.52	<.0001**
Eng(what)	3 to 4	-6.42	<.0001**
	4 to 5	-2.54	0.0137
	3 to 5	-10.42	<0.0001**
Mang (who)	3 to 4	-3.03	0.0036*
	4 to 5	-3.69	0.0005**
	3 to 5	-7.20	<0.0001**
Goreng (why)	3 to 4	-5.61	<.0001**
	4 to 5	-0.58	0.5654
	3 to 5	-7.82	<0.0001**
Jang (how)	3 to 4	-3.55	0.0008**
	4 to 5	-3.66	0.0005**
	3 to 5	-7.15	<0.0001**
Leng (when)	3 to 4	-4.26	<.0001**
	4 to 5	0.63	0.5328
	3 to 5	-3.75	0.0004**
efe/ofe (which)	3 to 4	-4.26	<.0001**
	4 to 5	-2.88	0.0055*
	3 to 5	-5.42	<0.0001**

** Significant at 1% * significant at 5%

Table 5.4 reflects statistically significant differences when comparing mean scores for three- and four-year-olds and three- and five-year-olds for most questions, with the strongest difference for *kae* (where), *eng* (what), *mang (*who*)* and *goreng* (why) questions. *Jang* (how), *leng* (when) and *efe/ofe* (which) questions also revealed strong significant differences

when comparing mean score of three-and four-year-olds and three and five-year-olds. However, when comparing four-and five-year-olds there is no significant difference between mean scores of), *goreng* (why) ($t=-0.58$; $p>0.5654$) and *leng* (when) ($t=0.03$; $p>0.5328$) questions and statistically significant for *eng* (what) ($t=-2.54$; $p<0.0137$) question. These statistical results indicate that on the whole, comprehension questions developed from DELV pictures managed to separate the three age groups and that the differences were most significant between three- and four-year-olds and three- and five-year-olds. The statistical differences between four- and five-year-olds was significant at the 5% level for *jang* (how) and *mang* (who) questions and slightly above 5% for *kae* (where) and *efe/ofe* (which) questions. Further explanation of these comparisons is given in **Appendix 5 A.**

Knowing what the *wh*-word stands for is a prerequisite for comprehension of the question. According to deep structure *wh*-transformational grammar, *wh*-words replace constituents of varying types and underlying complexity (Winzemer, 1981). *Wh*- questions are more complicated than *yes/no* questions because they require the listener to provide additional content to the speaker based on the question-word that specifies the information being requested. Tyack and Ingram (1977) suggest that ease of comprehension of the *wh*-word depends upon the verb used in the question. They suggest that two-to-three year-old children, when answering a *where* question, answer as if they had been asked a *what* question. Tyack and Ingram (1977) hypothesized that transitive verbs both determine ease of comprehension of the *wh*-question and predict the type of errors the children make. Bloom (1978) reports that, in spontaneous speech, *what* questions are more frequent with transitive verbs that take inanimate objects, whereas *where* questions are more frequent with locative state verbs. Even though the present research did not control for type of verb used, the children in this study understood *eng* (what) and *kae* (where*)* questions significantly better than the rest of the wh-questions asked.

Setswana questions that query information about someone, some place or something appear easier to understand than those that require explanations regarding manner, time and use of adjectival phrases. Demuth (1996) noted that there are very few adjectival phrases in Sesotho, a language similar in structure to Setswana, which could explain why the children in this study seem to perform poorly when answering *efe/ofe* (which) questions. In addition to understanding the many syntactic subtleties that govern the grammar in this language, the children must also know and understand the semantics of the specific question-word. Lack of

either syntactic or semantic knowledge limits comprehension. Winzemer (1981) states that, when children hear a *wh*-word that they do not understand, they frequently do not process the rest of the question.

In addition to the semantics of the *wh*-word, lexical expectations regarding the grammar and semantics of the verb used may influence performance. Tyack and Ingram (1977) states that, when a child answers a question they either answer with an appropriate subject or if they have not acquired the word, they answer on the basis of the semantic features of the verb. Winzemer (1981) established that *wh*-questions which query an expected constituent are easier to comprehend than questions which do not query an expected constituent. *What are you eating?* is easier to comprehend than *where are you eating*?, because the constituent queried by *what* is expected for the verb *eat*. Winzemer suggests a model that takes into account ease of comprehension and lexical expectations which are the likelihood that a sentence constituent will follow the verb based on the semantic properties of that verb. This effect was strongest for *what, where,* and *when* questions. There was no difference between expected and not expected for *how* and *why* questions. According to this model, comprehension difficulties for *when, how and why* questions could be because of the difficulty of depicting concepts queried by these words. Cognitively, *when, how, why* questions may be difficult to understand because they ask for relationships (time, causality, manner) that may not yet be understood by these children. It may be because of this abstractness of the underlying concepts that these questions were more difficult to comprehend for the children in this study.

Winzemer's research is intriguing because even though the present study did not control for types of verbs used, the idea that pictures used in the present study may have had an influence on the children's performance cannot be ruled out. Winzemer showed that, for expected and for not expected constituents, when two constituents are depicted in the picture accompanying the questions, children's choice of constituent is not random. She predicted the following sequence of difficulty *where* > *what* > *how* > *why* > *when*. However, she could not rule out the influence of the depictability because performance was poorest on those *wh*-questions in which the answer is not readily depictable, namely *how, when* and *why.* Interestingly, combining the average scores of the three groups in the present study reveals the following sequence: *what* > *where* > *who* > *why* > *how* > *which* > *when*. The difficulty of depicting answers to *why, how, which* and *when* questions may not be the only source of

poor performance for participants of this study; their averages may be low because of the abstractness of the concepts embodied by these *wh*-words. The position of *goreng* (why) in this developmental order is interesting because Owens (2001) states that in general children acquire linguistic markers that occur at the ends of words (-s, -er, -ed) before those that appear at the beginning of words (un-, dis-, in-). Therefore, given that *goreng* (why) questions appear only in sentence-initial positions, it could be expected that children will learn this question earlier than other question-words in Setswana.

Parnell et al., (1984) report that the ability to respond to *wh*-questions is related to both semantics and to the immediate context. Preschool children are more successful in giving appropriate and accurate responses when the question refers to objects, persons, and events in the immediate setting. Recognition of the type of information sought (object/location) precedes the ability to respond with the specific information requested (Owens, 2001). Also words used to order things such as *when, before* and *after*, precede words of duration such as *since* and *until* (Owens, 2001). Therefore, acquisition of *when* questions should precede questions such as *how long/much*. However, this is in contrast to the findings of the present study. Average scores for *leng* (when) questions were the lowest for the three age groups, while *goreng* (why) questions were difficult for three-year-olds. Owens (2001) state that *why* questions may be especially more difficult because of the reverse-order thinking required in the response.

As early as 1966, Klima and Bellugi found that English-speaking children did not consistently answer *wh*-questions that were already present in their speech. During the first stage of development, even though the children were using *what* and *where* questions with a noun phrase and a verb in their speech, they were not able to answer these questions correctly. The children needed to develop these *wh*-questions and include use of both subject and predicate before they could comprehend most *wh*-question forms (Klima & Bellugi, 1966). Brown's pioneering work regarding the development of syntax puts the development of *what* and *where* questions, at approximately age 27-30 months and development of *when*, *how* and *why*, at approximately age 35-40 months (cited in Bernstein & Tiegerman, 1993). According to Klima and Bellugi (1966) comprehension of these questions should be slightly later than these dates. Thus, even though the average scores for the three questions are low, the present demonstrates that these Setswana-speaking children are in the process of

acquiring these questions. In fact there is a steep growth in the average scores from the youngest to the oldest children.

The cognitive and linguistic competence required to understand and respond to specific *wh*-forms develops and improves overtime (Einbond, 1997). Jordaan (2011) and Marshall (2010) both reported an encouraging trend that indicated that knowledge of questions improve as children mature. African-language speaking children learning through the medium of English by the time they are in grade three have the same knowledge of *wh*-questions as English first-language speaking children. Thus, even though the averages scores of the participants in this study seem quite low, especially when one considers the *wh*-sentential questions, research has demonstrated that full comprehension of questions is acquired over time and that by the time the children are eight to nine years old, they have complete understanding of these questions. This implies that while this knowledge is not fully available to the child at the beginning and may limit the child's understanding in systematic ways (Bloom, 1978; Tyack & Ingram, 1977; Winzemer, 1981) there is hope for a positive improvement as the child matures.

Gullo (1981) showed that lower SES preschool children are at a disadvantage when compared to middle class SES children when asked *wh*-questions. He reported that *wh*-words whose referents are abstract (*why, when, how*) develop later in lower SES children because of the differences in SES language used. Lower SES children failed to respond correctly to *wh*-questions with w*hy*, *when* and *how*, or if they possessed knowledge required by these questions, they may be unable to formulate a syntactic and or semantically accurate response. He found that lower SES children's language was more context-centred, while middle class SES children made greater use of topic-centred speech. Lower SES children used language to secure attention for personal needs and to monitor their own actions while middle SES children used language to predict and project beyond the immediate context.

Gullo reports that *when* was the last *wh*-word to be comprehended correctly by both SES groups, but it emerged earlier in the middle SES group. He states that poor performance of lower SES childen may be exhibiting a pattern of random response behaviour due to unfamiliarity of the task, less motivation to do well on the task or they may be less reflective about their answers. His study reflected what children do or do not know as reflected in their answers to *wh*-questions. If a child does not answer correctly is it because the child does not

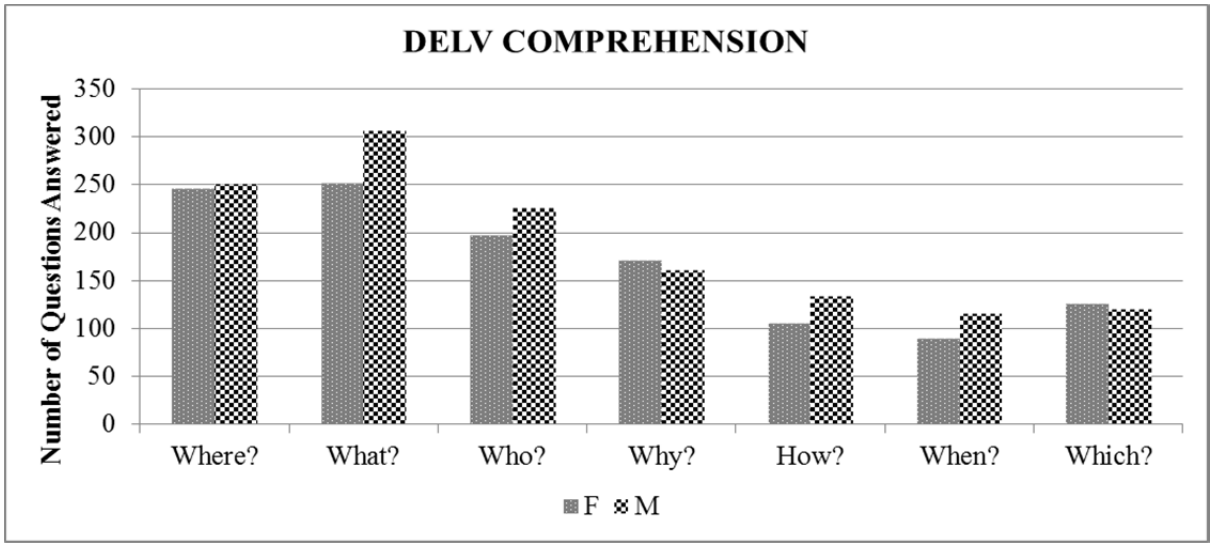
possess the requested information or does not understand the *wh*-word construct. Gullo shows that there are SES differences in children's understanding and answering of *wh*-questions.

In contrast, de Villiers et al., (2011) found no significant differences between children who spoke African American English and those who spoke mainstream English in their success on the Communicative Role Taking and the Wh-Question Comprehension subtests of the DELV. More so, Jordaan's (2011) study of three groups of foundation phase learners in English medium schools found that both English first language learners (L1) and English Second language learners (L2) attending a mixed school performed exceptionally well on the DELV question subtest. L1 learners obtained 81% to 95% across the period of the study while both groups of L2 learners obtained the same scores as L1 learners by the time they were in grade three, suggesting that understanding of *wh*-questions does not pose a significant difficulty for L2 leaners by the time they are in Grade 3. English second language learners in a predominantly black school demonstrated a significant improvement in their performance from 60% to 90 % over the period of the study (grade one to three). This encouraging result showed that the children do learn these questions as they proceed from grade to grade, in agreement with Klima & Bellugi (1966) and MacLaughlin (1998) among others who believed that mastery of the grammatical forms for questions is a prolonged process that occurs in distinct phases.

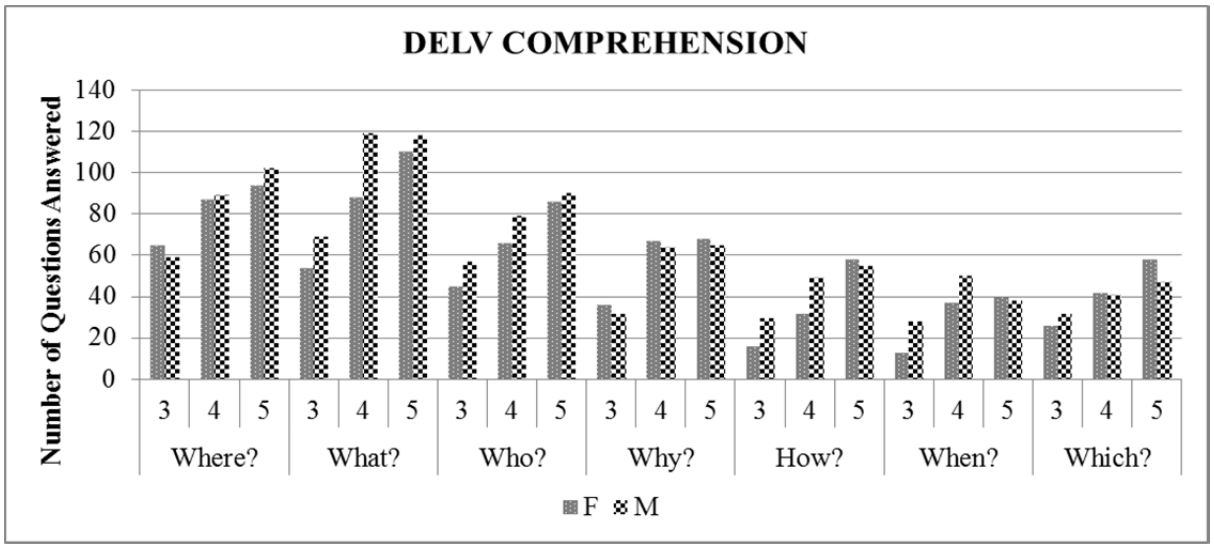
The above findings reflects that *eng* (what), *kae* (where) and *mang* (who) questions were easier to understand for the three age groups than *goreng* (why), *leng* (when), *efe/ofe* (which) and *jang* (how) questions. However, Parnell and Amerman (1983) caution use of developmental hierarchies of *wh*-questions in terms of difficulty or developmental stages, for linguistic processing strategies.This is important to note in this instance because of the possible influence of linguistic and other factors, given the preliminary nature of this study. Variation in the syntactic form of the structure of wh-questions used and the pictures that depicted these questions may have influenced the findings despite the concerted attempt to keep these variables constant.

5.1.3 Gender Differences

Figure 5.3 compares participants' total scores for each question-word. Male participants obtained higher for *eng* (what), *kae*(where), *mang*(who), *jang*(how) and *leng*(when) questions. Females outperformed male participants on two questions only *goreng* (why) and *efe/ofe* (which) questions. Their easiest questions for both genders were the three sentential questions e*ng* (what), *kae* (where), *mang* (who), followed by *goreng* (why). Male participants understood *jang* (how) questions better than *leng* (when) and *efe/ofe* (which) questions while female participants understood efe/ofe (which) questions better than *jang* (how) and *leng* (when) questions. The most difficult question was *leng* (when) for both genders.



Key: kae(where),eng(what),mang(who),goreng(why),yang(how),leng(when),efe/ofe(which)
Figure 5.2 Gender comparison of total number of questions answered for each question-word.



Key: kae(where),eng(what),mang(who),goreng(why),yang(how),leng(when),efe/ofe(which)
Figure 5.3 Age and gender comparison of total number of questions answered for each question-word across the three age groups.

Figure 5.3 indicates that male participants performed better than female participants for the three pronominal questions (*eng* (what), *kae* (where) and *mang* (who)) across the three age groups but three-year-old female participants score slightly higher on *kae*(where) questions. Female participants scored higher on *goreng* (why) questions across the three age groups while female five-year-olds outperformed male participants for *efe/ofe* (which) and *leng* (when) questions. The observed differences were statistically significant (t=-2.26; p <.03) for *eng*(what); (t=-2.27; p<.01) for *jang*(how); and (t=-2.58; p<.01) for *leng*(when) questions for three-year-olds. While there was statistically significant difference for *eng*(what) and *jang* (how) (t=-4.38; p<=.0 and t=-2.82;p<.0) for four-year-olds and *efe/ofe* (which) (t=2.70;p<.01) for five-year-olds.

So while female participants performed better than male participants when answering *goreng* (why) and *efe/ofe* (which) questions, this difference was not statistically significant (t=0.80; p>.4; t=0.34; p>.7 and t=1.20; p>.2) for three, four and five year old for *goreng* (why) questions.

5.1.3.1 Summary of Gender Differences

Table 5.5 Male and female participants' rankings of understanding of *wh*-questions across the three age groups

Rating	Highest						Lowest
Male=Total	Eng	Kae	Mang	Goreng	Jang	Efe/ofe	leng
3 Years	eng	kae	mang	goreng	Efe/ofe	jang	leng
4 Years	eng	kae	mang	goreng	leng	jang	efe/ofe
5 Years	engt	kae	mang	goreng	jang	efe/ofe	leng
Female=Total	Eng	Kae	Mang	Goreng	Efe/ofe	Jang	Leng
3 Years	kae	eng	mang	goreng	efe/ofe	jang	leng
4 Years	kae	eng	goreng	mang	efe/ofe	leng	jang
5 Years	eng	kae	mang	goreng	efe/ofe	jang	leng

Table 5.5 reflects a consistent pattern of understanding for *wh*-questions in Setswana across the three age groups. There is a slight difference in understanding of *jang* (how), *leng* (when) and *efe/ofe* (which) questions by male three-and four-year-old participants. Female three-and four-year-old participants on the other hand understood *kae* (where) questions better than *eng* (what) questions. Four-year-old females seem to understand g*oreng* (why), *mang* (who) and *leng* (when) better than *jang* (how) questions. T-test gender comparison of the mean scores revealed statistically significant findings for *eng* (what) (t=-2.26, p<.032), *jang* (how) (t=-2.71, p<.0114) and *leng* (when)(t=-2.58, p<.0153) questions for three-year-olds, *eng* (what) (t=-4.34, p<.0002) and *jang* (how) (t=-2.87, p<.0075) for four-year-olds and *efe/ofe* (which) (t=2.70, p< .0114) for five-year-olds. Full results are presented in **Appendix 5B.**

5.1.4 Summary of Comprehension Findings

The children in the present study produced satisfatory results when answering *eng* (what), *kae* (where), *mang* (who) and *goreng* (why) questions. Some of these responses prompted the research assistant to comment that, "*the comprehension task was easy for most children and they responded well. They responded well, five- year-olds responded much better and grasped the concept better than three- year-olds, who seemed to struggle a bit, while some children had to be constantly prompted throughout the test".* However, when asked to respond to *leng (*when), *jang* (how) and *efe/ofe* (which) questions they often responded as though they had been asked *eng* (what) question. When answering *jang* (how*), leng* (when) or *efe/ofe* (which) questions the children described the actions in the stimulus picture or one of the elements in the picture or they repeated the question or answered with a ritualistic response. For example: some of their answers to *kae* (where) questions included 'over there' or 'here'; when asked *jang* (how*)* questions- they answered with 'fine' or 'good' or 'like this'.

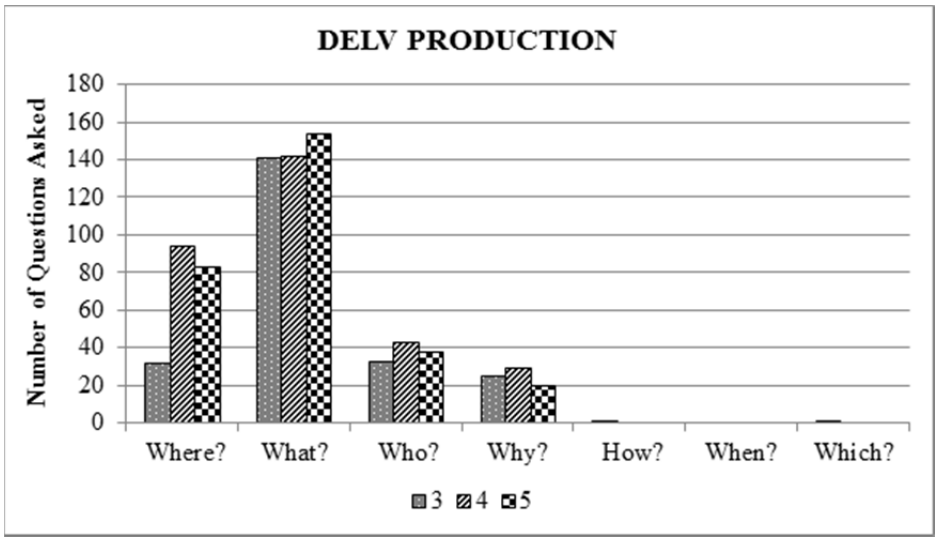
Children need to be able to answer a variety of questions to participate in general conversations and to learn other aspects of language. Why questions are very useful because by answering this question the child is able to demonstrate his/her knowledge and understanding of information and can explain reasons for his/her behavior. Understanding of *how* questions, may facilitate development of other language aspects regarding quantity or number: "how many sandwiches do you have?" or "how much soup is there?" Answers to these questions can lead to development of other quantity words like "a little", "a lot", etc. Quality *how* questions may also refers to information that is gathered through sensory input (feel, smell, look, sound, taste). Thus these children's lack of familiarity with some of these sentential questions may have implication for their language development. The ability of a child to ask *wh*-question does not necessarily mean that the child will be able to answer or understand the same question. Accurate question comprehension may be influenced by many factors including the type of stimuli used and and the manner in which the questions are asked. Vickers (2002) reports that comprehension in natural setting may depend on how well one is paying attention, how easy it is to stay focused while listening, the degree of competing noise, and one's expectations about the message. Because of this, comprehension problems in certain individuals may lead to unexpected discrepancy between comprehension and expressive use of some questions.

5.2 RESULTS AND DISCUSSION OF PRODUCTION TASKS

Comprehension results revealed that Setswana-speaking children when shown pictures and asked questions about these pictures, responded well to pronominal (*eng* (what), *kae* (where) and *mang* (who) questions and that they responded less to sentential *goreng* (why), *leng* (when) and *jang* (how) questions. They also performed poorly when answering *efe/ofe* (which) questions. The following section presents the results of the production data. Two different tasks were administered; pictures from DELV Screening and Diagnostic tests and What Are They Asking cards from Super Duper were used to collect data. Though the two tasks have been specifically developed to elicit questions, results from the two tasks are presented separately because the methods used to elicit questions vary slightly. The DELV uses an innovative procedure where the child is presented with a picture with something missing. The child listens to a story about the picture and uses the cues given by the tester to ask the right questions. After the question is asked the child is shown the missing element. What Are They Asking pictures consists of cards, which present a situation in which one character is asking a question. The child uses the cues in the picture to figure out what question the person or animal in the scene is asking. The DELV results are presented first.

5.2.1 DELV Production Task

This task used elicited production where the child was encouraged to ask questions following a short story from the researcher about the pictures. Twelve pictures from the Question Asking subtest of the DELV test were used to elicit questions for this production task. The children were encouraged to ask as many questions as they were able to for each picture. Figure 5.4 reflects the total number of questions asked by the children in each age group. The children asked more *eng* (what) and *kae* (where) questions followed by *mang* (who) and *goreng* (why) questions.



Key: Mang (who), kae (where), eng (what), yang (how), leng (when), goreng (why), efe/ofe (which)
Figure 5.4 Total number of questions asked for each question-word across the three age groups

Table 5.6 Average number of questions asked by the three age groups using DELV pictures.

Age Group	Kae where	Eng What	Mang Who	Goreng why	Jang how	Leng when	efe/ofe which
3 Yrs	1.2	5.4	1.3	1.0	0	0	0
4 Yrs	3.5	5.3	1.6	1.1	0	0	0
5 Yrs	3.2	5.9	1.5	0.8	0	0	0

The DELV production task revealed that the participants in this study were able to ask more *eng* (what) questions, followed by *kae* (where), *mang* (who) and *goreng* (why) questions. The children were not able to ask *jang* (how), *leng* (when) or *efe/ofe* (which) questions. Three-year-olds asked slightly more *eng* (what) questions than four-year-olds. These two age groups asked more *goreng* (why) questions than five-year-olds, while four-year-olds asked more *kae* (where) questions than five-year-olds.

These differences are best reflected by figure 5.4, showing a similar developmental profile to that of the comprehension task using DELV pictures. These mean scores also revealed that the most productive question forms used by these children was *eng* (what), followed by *kae*

(where), *mang* (who) and *goreng* (why) questions. This is in agreement with Owens (2001) who states that children's responses to *wh*-questions and their production of the same questions should have the same order of development, although according to McLaughlin (1978), the relationship between comprehension and production is not yet clearly understood. Some reaserchers suggests that comprehension precedes production, while others assert that the relationship varies depending on the child's stage of language development (Ingram, 1991; Li et al.,2013). Table 5.7 indicates significant differences for all questions except *eng* (what), which seems to indicate that this question was too simple for all the children and could not separate the groups.

Table 5.7 Comparison of mean scores, standard deviation of the production results from DELV pictures

Questions	N	Mean	Std. Dev.	Mini	Maxi	T Value	Pr > T
Kae (where)	79	2.5823	1.5493	0	6	14.81	<.0001**
Eng (what)	79	0.4051	2.3178	0	5	1.55	0.1244
Mang (who)	79	3.1013	1.8783	0	6	14.68	<.0001**
Goreng (why)	79	2.6582	2.2007	0	7	10.74	<.0001**
Jang (how)	79	2.5696	1.5333	0	6	14.90	<.0001**
Lang (when)	79	2.1013	1.3262	0	5	14.08	<.0001**
Efe/ofe (which)	79	2.7089	1.2624	0	6	19.07	<.0001**

5.2.1.1 Age Differences

Table 5.5 indicates that the children asked an equivalent number of *eng* (what) questions while *kae* (where) questions separated the groups with an increase in mean score as the children grew older. Three-year-old children asked twice as many *goreng* (why) questions as four- and five-year-olds. They asked fewer *kae* (where) questions. It appears that *goreng* (why) questions were asked by younger children in place of other questions. One three-year-old child asked *jang* (how) questions and another one *efe/ofe* (which) questions. There was a significant difference when comparing the mean score for *kae* (when) questions of three- and four-year-olds (t=16.06, p=<.0001) and three- and five-year-old (t=-7.17, p=< .0001) were

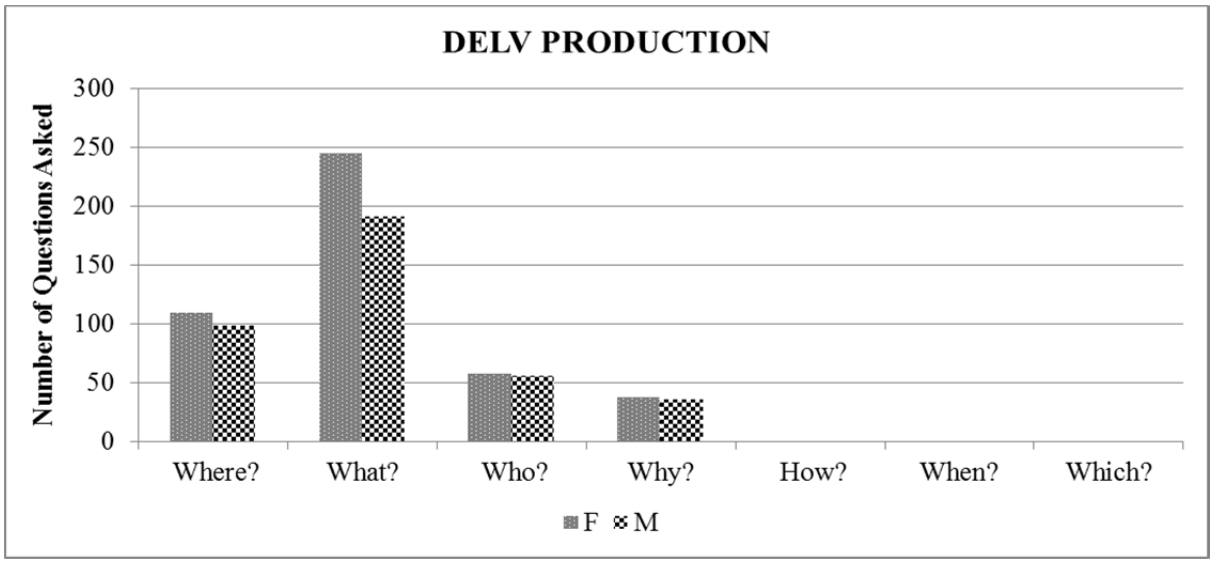
compared using paired sample t-test (**Appendix 5 C).** This pattern of results confirms Li et al., (2013) study of spontaneous sample of three-, four- and five-year- old Cantonese-speaking children. Their results revealed that all interrogative forms and functions were produced by age three and that there was no age difference between the groups. Their sample of 674 questions revealed that the most frequently used question were *what* questions (21%) followed by *why* (6.1%), *how* (4.5%) and *where* (4.3%) questions, with the rest of the questions falling below 3%: *who (*2.1%); *which* (1.3%); and *when* (0.7%). The second most common question in Setswana kae (where) appears lower on the list of questions used by Cantonese-speaking children. Thus it appears that language structure does influence use of questions.

This cross-linguistic difference supports Chouinard's (2007) notion that young children have acquired interrogative form and function by age three and can use these different questions to serve communicative purposes. The differences between Cantonese-speaking children and Setswana-speaking children about how they used these questions can be explained by differences in languages structure and in data collection methodologies. Cantonese-speaking children asked more *why* and *how* questions than *who* questions. This may be as a result of the structure of the language or the style of interaction between the children and their parents, or even the context of interaction. Toys were used to elicit data and these toys did not include human figures. Wong and Ingram (2003) suggest that syntactic complexity, cognitive complexity and personal or social factors interact to determine the pattern of question acquisition. For example, Demuth (1996) reports that parents in her study used restricted input in the form of short grammatical sentences, but they did not simplify their language to use baby talk/motherese features. Suzman (1991) found that the children in her study of acquisition of isZulu, the children did not make any errors, rather, they acquired their language by a gradual refining process until it resembled adult input. The children preferred to omit a structure rather than make an error. She found more omission rather than overgeneralization errors. One can surmise that the paucity of *why, when, how* and *which* questions in the present study is a reflection of these children's attempts to avoid making errors.

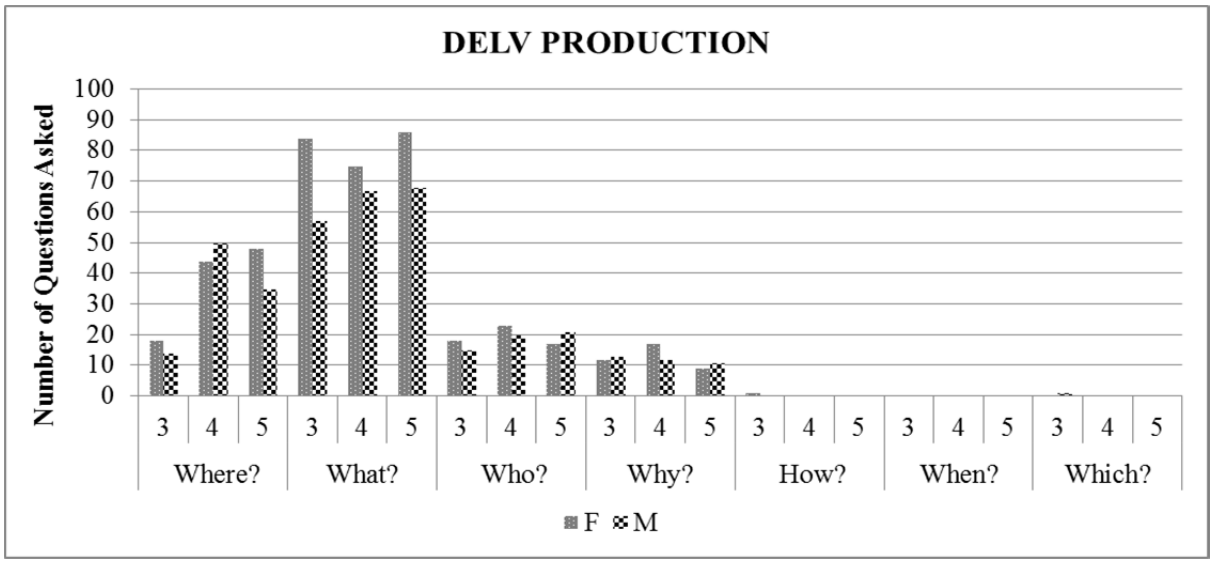
Smith et al.,s' (2011) study of prelingually deaf children following training using a computerized programme revealed significant improvement in production scores. Some children remained in Level 1 (w*hat, who* and *where),* while others completed Level 2

(including double *wh*-questions such as "who played which musical instrument?"), and even Level 3 *(how, why,* and contrasts between all *wh*-questions). This indicates that questions can be taught and that children in the present study who seem to struggle to produce *wh*-questions will acquire this skill when given the correct stimulation. Smith et al.,s' children showed growth in elicited production across the entire range of questions. Some children who did not ask questions at all in the pretest or who asked just *yes-no* questions (guessing what was missing from the picture) produced *what* and *who* questions at post-test, while those who asked *what* and *who* at pre-test produced *where* and *why* as well at posttest. One child who produced all of the tested *wh*-questions correctly at pre-test, produced the double-*wh*, for example, *who* is eating *what*?" at post-test. Training ensured that the children were better able to understand and discuss meanings of specific questions during lessons according to their teachers.

5.2.1.2 Gender Differences



Kae(where), eng(what), mang(who), yang(how), leng(when), goreng(why), efe/ofe(which)
Figure 5.5 Gender comparison of DELV Production scores for each question-word.



Kae(where), eng(what), mang(who), yang(how), leng(when), goreng(why),fe/ofe(which)
Figure 5.6 Gender comparison of DELV Production scores for each question-word for the three age groups.

Figure 5.5 indicates that female participants asked more *eng* (what), *kae* (where), *mang* (who) and *goreng* (why) questions than male participants. Figure 5.6 indicates that five-year-old female participants asked more *eng* (what) and *kae* (where) while four-year-olds score higher on mang (who) and goreng (why) and three-year- old performed better when asking kae (where) and mang (who) questions. Four-year-old male participants obtained higher scores when asking kae (where) questions while five year old obtained higher scores when asking mang (who) and goreng (why) questions.

Table 5.8 Gender comparison production mean scores for each question-word across the three age groups

Gender	Males			Females		
Question-word	3yrs	4yrs	5yrs	3yrs	4yrs	5yrs
Eng (what)	5.3	5.5	5.8	5.6	5.0	5.7
Kae (where)	1.3	2.7	2.3	1.1	1.5	2.4
Mang (who)	1.4	1.1	1.8	1.1	1.2	1.1
Goreng (why)	1.2	0.3	0.9	0.8	0.9	0.6
Efe/ofe (which)	0.1					
Yang (how)				0.1		

Table 5.8 reflects an interesting trend where male three-year-olds are using more *mang* (who) questions than four-year-olds and more *goreng* (why) questions than both four-and five-year-olds. One of these younger children also asked an *efe/ofe* (which) question. Four-year-olds asked more *kae* (where) questions than the rest of the group. Overall the children asked more *eng* (what) questions followed by *kae* (where) and *mang* (who) questions and fewer *goreng* (why) questions as shown in figure 5.5. Similarly table 5.8 reflects a precocious group of female three-year-olds. They used more *eng* (what) questions than four-year-olds, and more *goreng* (why) questions than five-year- olds, as well as using one *jang* (how) question. Female four-year-olds used fewer *eng* (what) questions but had more *goreng* (why) questions than the rest of the other two groups. Even though five-year-olds asked fewer *goreng* (why) questions than the rest of the two younger age groups, they asked more *eng* (what) and *kae* (where) questions.

Figures 5.5 and 5.6 gives clearer view of the developmental profile of how the children used the *wh*-questions when shown pictures of the DELV test. These figures seems to contradict expectations regarding the literature in that as the children gain more experience in using different questions they are expected to rely less on asking *eng* (what) questions. The children in this study, especially four-year-olds, seem to rely less on asking *goreng* (why) questions as they produce more *kae* (where) questions. This is in contrast to three-year-olds who asked an equal number of *kae* (where) and *goreng* (why) questions, and slightly more *mang* (who) questions than four-year-olds. The average mean score for *eng* (what) questions is more or less the same across the three age groups, even though five-year- old children are using more *kae* (where) and *mang* (who) questions. Also, it appears that as the children developed confidence in using *kae* (where) questions they relied less on using *goreng* (why) questions. The complete absence of *jang* (how), *leng* (when) and *efe/ofe* (which) questions is an area of concern even though the second task for question-asking seemed to encourage children to use these questions as explained below.

5.2.1.2.1 Summary of Gender Differences

Table 5.8 is a summary of the comparison of mean scores of the six questions produced by male and female participants. This table reflects that on the whole, male participants have higher mean scores for *what, where, who* and *why* questions. This is in contrast to Li et al., (2013) who provide the only cross-linguistic evidence of females outperforming males in producing questions, although the majority of the questions produced by female were *yes/no*

type. Some three-year-olds were beginning to use advanced questions, one male participant produced an *efe/ofe* (which) question and one female participant produced a *yang* (how) question.

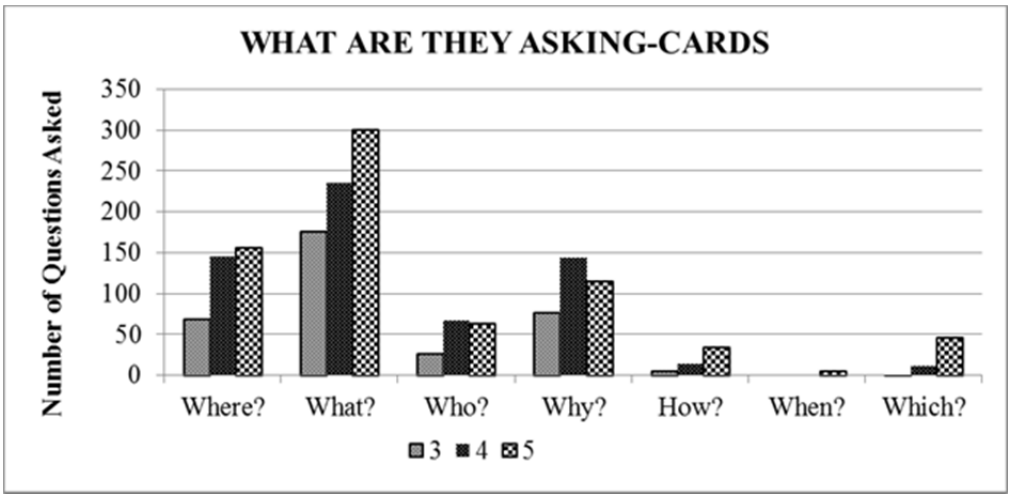
5.2.1.3 Summary of DELV Production Results

Overall the children in this study used more *eng* (what) question followed by *kae* (where), *mang* (who) and *goreng* (why) questions when DELV pictures were used to collect data. Both male and female three-year old participants seem to do better than the rest of the two older age groups as there is very little difference in scores from three- to five-year-olds for each question-word as seen in table 5.7. Li et al., (2013) found significant gender and age differences in their study of production of Cantonese questions. Females in their study utilised more *yes/no* questions while males asked more *wh*-questions particularly causal *how* and *why* questions. They found a significant difference in favour of females which supports Bornstein et al., (2004), who also showed that girls scored consistently higher than boys. Closer inspection of the four questions; *eng* (what), *kae* (where), *mang* (who) and *goreng* (why) in table 5.10, reflects better performance for male participants across the age groups. However, t-test revealed no significant differences between the genders across the three age groups for all questions (**Appendix 5 D**). However, ANOVA's within task comparison of the DELV comprehension and production tasks revealed siginificant differences at 1% for all questions across the three age groups except for *eng* (what) and *goreng* (why) questions for the three-year-old group. Pictures from the DELV test can be used reliably to create a test for understanding and production of *wh*-questions in Setswana.

Referring to the DELV production task the research assistant noted that, "*this was the most difficult test of all the tests because I had to go through it with the children every time I was testing, most children are not used to asking questions".* The discrepancy between comprehension and production scores when DELV pictures were used, may be due to the task itself and not children's experience with pictures or even their discomfort in interacting on this level with an adult. However, since comprehension precedes production in language development, the scores the children obtained during the question production task using DELV pictures are in agreement with this expectation.

5.2.2 RESULTS AND DISCUSSION OF "WHAT ARE THEY ASKING" PRODUCTION TASK

What Are They Asking cards published by Super Duper publications (2006) consisted of 44 cards. Each card presents a fun situation in which one character asks a question. The child uses the cues in the picture to figure out what question the person or animal in the scene is asking.



Key: kae(where),eng(what), mang(who), goreng(why),jang(how),leng(when), efe/ofe(which)

Figure 5.7 Total number of questions asked with What Are They Asking Cards across the three age groups

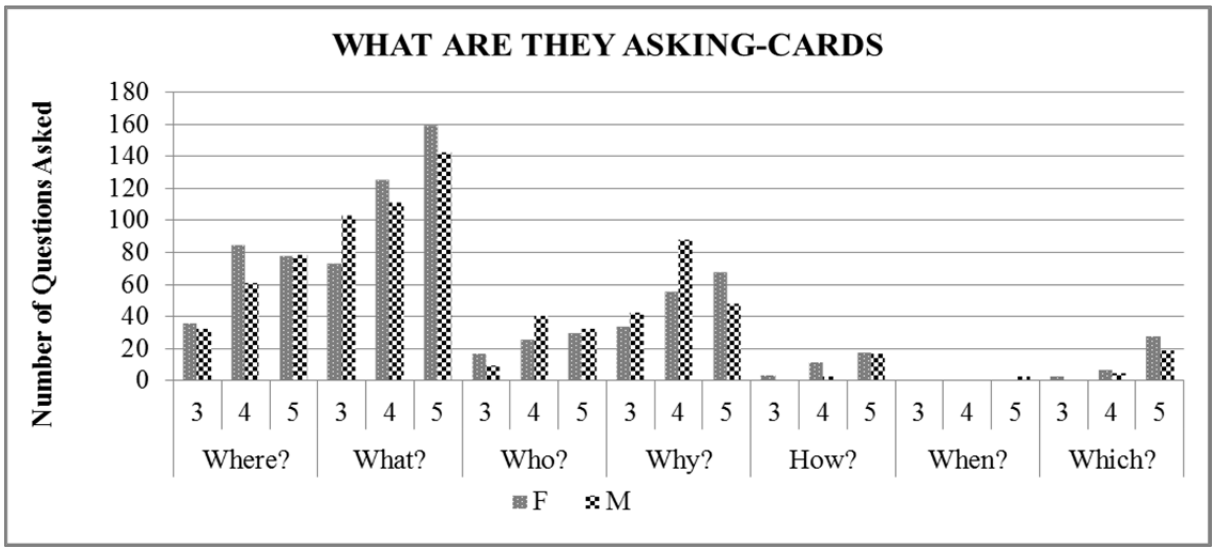
As seen in figure 5.7 the children in this study responded much better to this task (What Are They Asking cards). They produced a variety of questions (simple and complex) more than they did when DELV pictures were used, including a number of subject *eng* (what) questions which will be discussed below. Their sample included *jang* (how), *leng* (when) and *efe/ofe (*which*)* questions which were completely absent when DELV production pictures were used.

Table 5.9 Average number of questions asked across the three age groups using What Are They Asking Cards.

Age Group	Kae where	Eng what	Mang Who	Goreng why	Jang how	Leng when	Efe/ofe Which
3 Years	2.6	7.0	1.0	3.0	0.2	0.0	0.1
4 Years	5.2	8.4	2.4	5.1	0.5	0.0	0.4
5 Years	5.8	11.1	2.3	4.3	1.3	0.2	1.7

What Are They Asking cards produced a predictable developmental pattern from the youngest to the oldest children (Wong & Ingram, 2003). The children produced more *eng* (what) and *kae* (where) questions. Interestingly, they produced significantly more *goreng* (why) than *mang* (who) questions and a fairly similar number of *efe/ofe* (which) and *jang* (how) questions. This is in contrast to Brown's (1968) report of questions from a spontaneous sample which showed that *what* and *where* questions occur in the second year of life, followed by *when* and *how* with *why* questions. *Leng (*when) questions were the least occurring questions in Brown's sample. Similarly with DELV pictures, four-year olds produced more *mang* (who) and *goreng* (why) questions than five-year-olds.

5.2.2.1. Age Differences



Key: kae(where),eng(what),mang(who), goreng(why),yang(how),leng(when), efe/ofe(which)

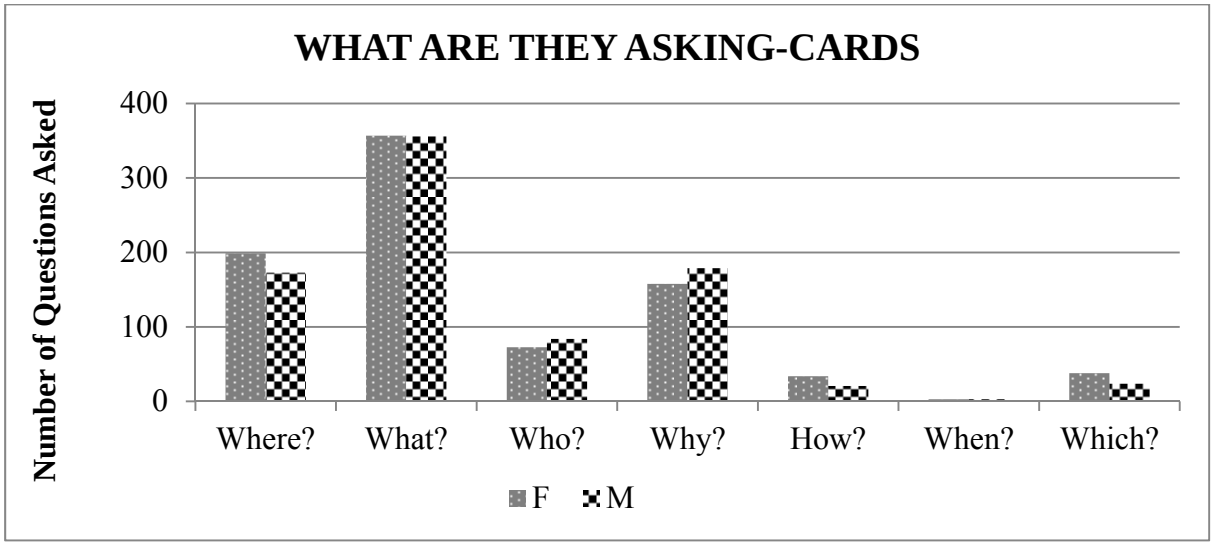
Figure 5.8 Total number of questions asked across the three age groups using What Are They Asking cards by male and female participants.

Figure 5.7 indicates that participants asked *eng* (what) followed by *kae* (where), *goreng* (why), *mang* (why), *jang* (how), *efe/ofe* (which) and finally *leng* (when) questions. The children produced more *mang* (who) than *goreng* (why) questions when DELV pictures were used. These two questions seem to differentiate the two production tasks. The general order of where in the sequence of acquisition they occure may relate to the elements in the pictures that each *wh*-word replaces. Generally *what*, *where*, and *who* usualy act as are pronouns in a sentence while *goreng* (why) would not fulfil this function. It is therefore interesting to note that these children asked twice as many *goreng* (why) than *mang* (who) questions when What Are They Asking cards were used. Also interestingly, three-year-olds asked twice as many

goreng (why) questions when What Are Thay Asking cards were used than when DELV pictures were used. These diffences between *goreng* (why) and *mang* (who) questions is statistically significant t=6.59; p<.0001 for goreg (why) and t=2.11; p<.0378.

The above finding is similar to Li et al., (2013), whose elicited production data revealed a spread of *wh*-questions, with more *why* (4.5%) than *who* (2.1%) questions and showed that, *how* and *when* questions were used when asking for semantic relations within a sentence. Owens (2001) states that *what* and *where* appear early because they relate to the child's immediate environment (nomination and location) and that these questions are heavily used by parents to encourage the child's performance. Regarding *who*, *when* and *how,* he states that they appear around the same time although the child may have difficulty with temporal aspects of *when* and *how*. Unlike *what, where* and *who* that can be replaced by one word, *when, how* and *why* questions usually cannot be replaced by a single word. These semantic relations are more difficult because they affect the entire clause rather than a single element.

5.2.2.2 Gender differences



Key: kae(where),eng(what),mang(who), goreng(why),yang(how),leng(when) ,efe/ofe(which)
Figure 5.9 Gender comparison of total number of questions asked using What Are They Asking cards.

Table 5.10 indicates an expected developmental profile; the children asked more *eng* (what) followed by *kae* (where) questions, and more *goreng* (why) than *mang* (who) questions. Female participants also asked more complex questions: *efe/ofe* (which) followed by *jang* (how) questions, with fewer *leng* (when) questions. Figure 5.9 indicates that female participants asked more *kae* (where), *jang* (how) and *efe/ofe* (which), while male participants

asked more *mang* (who) and *goreng* (why) questions. These children obtained fairly similas scores for eng (what) questions.

Table 5.10 Gender comparison of average scores across the three age groups using What Are They Asking cards.

Gender	Female			Males		
Age	3years	4years	5years	3years	4years	5years
Kae (where)	2.7	5.7	5.6	2.5	4.7	6.1
Eng (eng)	6.0	8.3	11.4	7.9	8.5	10.9
Mang(who)	1.2	1.7	2.1	0.8	3.2	2.5
Goreng(why)	3.0	3.7	4.9	3.0	6.8	3.7
Yang(how)	0.3	0.8	1.3	0.1	0.2	1.3
Leng(when)	0.0	0.1	0.1	0.0	0.0	0.2
efe/ofe(which)	0.3	0.5	2.0	0.0	0.4	1.5

Table 5.10 indicates that on the whole male participants use more *eng* (what) questions, followed by *goreng* (why) and *kae* (where) questions. Contrary to the expectations there were more *goreng* (why*)* than *mang* (who) questions and an almost equal number of *jang* (how) and *efe/ofe* (which) questions. Unlike when DELV pictures were used to elicit questions, more complex *jang* (how), *leng* (when) and *efe/ofe* (which) questions are beginning to emerge in the samples of older children. Four-year-olds asked more *mang* (who) and *goreng* (why) questions than the other two age groups. On the whole there is an increase in mean scores from the youngest to the older children for all questions.

Once more there is a slight difference, between four-year-olds who produced more how (*jang*) than which (*efe/ofe*) questions, and five-year- olds who asked more *efe/ofe* (which) than *jang* (how) questions. Three-year-olds asked an equal number of *efe/ofe* (which) and *jang* (how) questions.

5.2.2.2.1 Summary of Gender Differences

Comparison of male and female participants' mean scores across the three age groups using What Are They Asking cards reveals that on the whole three-year-old females produced more questions than males. Four-year olds were slightly better than males while the differences between the genders were minimal for five-year olds. Paired sample t-test revealed a slight significance for *efe/ofe* (which) questions ($t=1.90$, $p>.0699$) for three-year-olds and a significant difference for *jang* (how) questions ($t=2.00$, $p>.0564$). The rest of the questions showed no significant difference. Marshall (2010) investigated question asking in grade two learners in three contexts; an English first language school, predominantly black school and a mixed school. There were no gender differences with the children in the black school but some differences were noted with the children in the mixed school.

5.2.2.3 Summary of What Are They Asking production findings

On the whole all three age groups produced all seven questions when shown What Are They Asking cards. The highest mean score was for *eng* (what) questions and the lowest was for *leng* (when) questions. The children produced almost the same number of *kae* (where) and *goreng* (why) questions. These two questions are followed by *mang* (who) questions and then an equivalent number of *jang* (how) and *efe/ofe* (which) questions. When results of three- and four-year-olds were compared the results were statistically significant for *kae* (where), *mang* (who) and *efe/ofe* (which) questions, while the results for *eng* (what), *jang* (how) and *efe/ofe* (which) questions were was significant when comparing four- and five-year- olds. However, when comparing three- and five-year-olds the results were significant for all questions except for *goreng* (why) questions (Appendix 5 E). On the whole the gender differences in the scores were not statistically significant except for *jang* (how) questions for four-year-olds (Appendix 5F).

The research assistant noted that "*the cards were better for older children but some of the younger three- year- olds were unable to complete the test. I feel that the test was long especially for younger children especially three-year-olds".* Attempts were made to

accommodate the children and their needs. When a child indicated that s/he was getting restless and tired, testing was discontinued until a later time or even the next day and children who produced little relevant data and those who produced incomplete questions were excluded.

5.3. Comparison of Comprehension and the two Production Findings

The general order in which Setswana speaking children seem to understand wh-questions with the procedures used in this study was as follows: *eng* (what) > *kae* (where) > *mang* (who) > *goreng* (why) > *jang* (how) > *efe/ofe* (which) > *leng* (when). DELV production pictures revealed the same sequence of production of thesequestions: *eng* (what) > *kae* (where) > *mang* (who) > *goreng* (why), with a total absence of *jang* (how), *leng* (when) and *efe/ofe* (which) questions. However, there was a slight difference in the order that the children produced the questions when What Are They Asking cards were used. *Eng* (what)> *kae* (when) > goreng (why) > *mang* (who) > *efe/ofe* (which) > *jang* (how) > *leng* (when). Therefore, while the children appeared to understand *mang* (who) questions better than *goreng* (why) questions and *jang* (how) questions better than *efe/ofe* (which) questions, production results using What Are They Asking cards revealed the opposite. The children used more *goreng* (why) and *efe/ofe (*which) than *mang* (who) and *jang* (how) questions respectively. This particular task was most productive as the children wereable to produce all the questions targeted.

Statistical comparison of the findings of DELV production and comprehension tasks revealed significant findings for all questions except *eng* (what) questions. The statistical findings are as follows: *kae* (where) t=14.81, *mang* (who) t=14.68, *goreng* (why) t= 10.74, *jang* (how) t=14.90, *leng* (when) t= 14.08, and *efe/ofe* (which) t= 19.07, all with p<.0001. However, when comprehension results were compared to production results of the "What are they asking cards" *kae* (where) and *goreng* (why) questions were not significant. The rest of the questions were significant at p<.0001, with *eng* (what) t=-6.53, *mang* (who) t=10.10, *jang* (how) t=11.43, *leng* (when) t=14.30 and *efe/ofe* (which) t=14.68. The two production tasks revealed significant findings for *kae* (where) t=6.28, *eng* (what) t=6.38, *goreng* (why) t=6.59, *jang* (how) t=5.55 and *efe/ofe* (which) t=6.17 all with p<.0001, while *mang* (who) t=2.11, p<.0378 and *leng* (when) t=2.17, p<.0330 questions were significant at higher values. These findings are summarised in table 5.11 below.

Table 5.11 ANOVA comparison of the statistically significant questions across the three tasks

Significance level	**TASKS**: Comprehension and DELV production
<1%	Kae (where), mang (who), goreng (why), jang (how), leng (when) efe/ofe (which)
	TASKS: Comprehension and What Are They Asking cards
<1%	Eng(what),mang (who),jang (how),leng (when),efe/ofe (which)
	TASKS: DELV production and What Are They Asking cards
<1%	Kae(where), eng (what), goreng (why), jang (how), efe/ofe (which)
5%	Mang (who), leng (when)

Group comparison of these tasks using the t-test revealed strong statistically significant findings as shown on table 5.11. However, there were three questions that did not yield significant results when comparing comprehension and production results: *eng* (what) for DELV production and *kae* (where) and *goreng* (why) for What Are They Asking cards. Production tasks yielded significant results for all questions. However, What Are They Asking cards produced the widest spread and the largest number of questions when compared to the DELV production task (Appendix 5F).

5.4. Summary of Findings of Comprehension and the two Production tasks

The comprehension task revealed that overall *eng* (what), *kae* (where) and *mang* (who) (*wh*-pronominals) questions were easier to understand than *goreng* (why), *leng* (when) and *jang* (how) (*wh*-sententials) questions. The mean score for wh-deteminer sometimes called

adjectivial *efe/ofe* (which) questions falls between *jang* (how) and *leng* (when) questions. These findings were confirmed by production findings, with the highest mean score for *eng* (what) questions followed by *kae* (where), *goreng* (why) and then *mang* (who) questions. The DELV task produced a small difference in the mean scores for *mang* (who) and *goreng* (why) questions while What Are They Asking cards produced more *goreng* (why) than *mang* (who) questions. This task produced a small difference in the mean scores for *kae* (where) and *goreng* (why) questions, that is, the children asked more *kae* (where) and *goreng* (why) questions than *mang* (who) questions. The DELV task did not produce any *jang* (how), *leng* (when) or *efe/ofe* (which) questions while What Are They Asking cards produced more *efe/ofe* (which) questions, followed by *jang* (how) and *leng* (when) questions. On the whole *wh*-pronominal questions were easier to produce than *leng* (when) and *jang* (how) *wh*-sentential and *efe/ofe* (which) wh-deteminer/ adjectival questions.

While the children's performance on these questions reflects a developmental profile in accordance with their age, with a rise in mean score from the youngest children to the oldest, their overall mean scores for the two production tasks are lower than those of the comprehension task across all questions. These children appear to perform better on comprehension than production tasks. The differences between the mean scores for male and female participants were small. The comprehension task revealed significant differences between the male and female participants for *eng* (what), *jang* (how) and *efe/ofe* (which) questions. The DELV production and What Are They Asking cards tasks did not reveal any differences between the genders.

5.5 RESULTS AND DISCUSSION OF COMPREHENSION AND PRODUCTION OF SUBJECT AND OBJECT QUESTIONS

A long standing issue in the study of questions has been whether subject wh-questions are easier to acquire than object *wh*-questions or the other way round. Several experimental studies have been reported for English and other languages that do not require fronting of the *wh*-word with contradictory conclusions (Cairns & Hsu, 1978; Cheung & Lee, 1993; Ervin-Tripp, 1970; Hanna & Wilhelm, 1992; Kim, 1995; Stromswold, 1995; Tyack & Ingram, 1977; Yoshinaga, 1996). This issue of the acquisition of subject and object *wh*-questions becomes complicated when the interaction of types of wh-words, the animacy of *wh*-words (the *wh*-word *who* is animate and *what* is inanimate) and the syntactic position of the *wh*-

word are considered. The results of previous studies show that the relative difficulty of *wh*-questions with respect to syntactic position varies depending on whether *who, what* or *which* questions are used in a sentence.

Though findings regarding subject-object asymmetry have been inconclusive an interesting observation regarding cross-linguistic studies and special grammatical difficulties experienced by children with language impairments have been documented as reported earlier. In a study of older children with grammatical SLI, Van der Lely and Battell (2003) found that object questions presented particular difficulties for these children. A follow-up study on judgment of ungrammatical *wh*-questions Van der Lely, Jones and Marshall (2011) report subject questions were judged correctly for *which* and *who* questions but not for *what* questions. Friedmann and Novorgrotsky (2011) report that subject questions were easier to comprehend in older children with grammatical SLI who speak Hebrew.

Asymmetry between object and subject *wh*-questions in African languages have been described in the literature (Bresnan & Mchombo, 1987; Demuth 1995; Demuth & Johnson, 1989; Demuth & Kline, 2006; Louwrens, 1981;Thwala, 2004). African languages do not permit *wh*-words in subject position but rather use passives, relatives or cleft constructions to form subject questions (Demuth & Kline, 2006). That is, in order to question the subject of a sentence, the subject must be moved and questioned as the object of a passive *by* phrase or as the object of a cleft construction (Zerbian, 2004). The controversial issue of topicalization is also reported to play an important role in these languages. African languages tend to map topical information into subject position and new information into object position (Bresnan & Mchombo, 1987).

This area of research became interesting for the present study because of an observation that the chidren in this study did not perform as well as expected when asked *mang* (who) questions. This question seemed to behave differently to the other two nominal questions, *eng* (what) and *kae* (where). The possible asymmetry in the acquisition of subject and object-questions became a relevant topic to investigate in this study. Sixteen pairs of computer-generated pictures were used to assess comprehension and production of object and subject *eng* (what) and *mang* (who) questions.

5.5.1 Results and Discussion of the Comprehension Task

Thirty three-to-five year old children were tested. Sixteen pictures, ten for object and subject *mang* (who) questions and six object and subject *eng* (what) questions, were presented to the children. There was one five-year- old child who incorrectly answered one subject *mang* (who) question and one that incorrectly answered one subject *eng* (what) question while two four-year-old children missed subject *mang* (who) questions. The comprehension subtest was slightly more difficult for three-year -old children. Their results are more spread out indicating slightly more difficulty responding to *mang* (who) questions than *eng* (what) questions, as shown in the table 5.12.

Table 5.12 Number of children who responded incorrectly to subject and object *mang* (who) and *eng* (what) questions across the three age groups.

	Question Types			
Age Groups	Object Questions		Subject Questions	
	Mang (who)	Eng (what)	Ke mang (it is who)	Ke eng (it's what)
3 years	12	8	9	2
4 years	0	0	2	0
5 years	0	0	1	1

Table 5.12 indicates that three-year olds experienced more difficulties with this task. Early work on three-year-olds in studies by Ervin-Tripp (1970) and Tyack and Ingram (1977) suggested that children of this age were unable to correctly answer either subject (Ervin-Tripp, 1970) or object (Tyack & Ingram, 1977) questions. They reported that object *wh*-questions are misunderstood more often than subject *wh*-questions. Cairns and Hsu (1978)

also reported that object *eng* (what) questions were also more difficult than subject *eng* (what) questions. Four- and five-year-olds understood the task and responded appropriately to these questions. Ervin-Tripp (1970) reports that two-to-four-year-old children mastered subject *who* better than object *who* questions, and erroneously provided subject answers for object questions. She suggested that these children interpreted *who* as subject indicator due to the fact that a subject tends to be animate, but an object tends to be inanimate. These results were replicated by Tyack and Ingram (1977) with three-to-five-year-old English-speaking children. Their comprehension study showed that subject *who* questions were easier than object *who* questions, while subject *what* questions were more difficult than object *what* questions. That is, subject questions were easier for *who* but object questions were easier for *what.*

This is in contrast to Setswana-speaking children, especially three-year-olds. They experienced more difficulties with subject *who* questions and object *what* questions. The Hanna and Wilhelm (1992) comprehension study revealed slightly higher scores for object *who* questions than subject *who* questions and slightly higher scores for subject *what* questions than object *what* questions. This contradicted Tyack and Ingram's "animate for subject and inanimate for object" observation. In studies of languages other than English, Cheung and Lee (1993) reported that Cantonese-speaking children found object *who* questions easier than subject *who* questions and the same pattern for *what* questions. However, the reverse was reported by Kim's (1995) study of Korean-speaking children, where subject *who* questions were better than object *who* questions. Yoshinaga's (1996) study of Japanese and English-speaking children observed that subject *who* questions and object *what* questions were easier for English children, while subject and object questions were equally difficult in Japanese.

5.5.2 Results and Discussion of Production Task

Thirty-three three-to-five year old children were tested. They were shown sixteen pictures equally divided to represent eight object *eng* (what) and *mang* (who) questions and eight subject *eng* (what) and *mang* (who) questions.

Table 5.13 Total number of correct subject and object *eng* (what) and *mang* (who) questions asked by the three age groups.

	Questions types			
	Object Questions		Subject Questions	
Age Group	Mang (who)	Eng (what)	Ke mang (it's who)	Ke eng (it's what)
3years	10	4	0	0
4years	3	4	7	0
5years	5	7	3	0

In contrast to the comprehension results above, Table 5.16 shows that the youngest children only asked object questions, the highest number being *mang* (who) questions. This seems to contradict their comprehension results where the children made more object errors than subject errors. Though statistical procedure were not applied to this data because of the small sample size, the phenomenon of comprehension skills being superior to production skills is well documented (Bernstein & Tigerman, 1993; Bortz, 1994). This contradicts Winzemer (1981), who suggested that performance on elicitation task should be positively correlated with performance on the comprehension task, if the ability to produce a *wh*-word is a measure of knowledge of the meaning of that *wh*-word. The higher the child's score for a *wh*-word in the production task, the higher the child's score for that *wh*-word in the comprehension task should be (Winzemer, 1981; p.71).

Stromswold (1995) found that object questions were acquired at the same age or earlier than subject questions for simple sentences, and both appeared between the ages of three to three. She argued that if one takes the base frequency in the adult language into account, it could be that objects are acquired earlier than subjects because subject questions are much rarer in the input. Four-year-olds asked an equal number of subject and object questions. They asked more subject *mang* (who) questions with an almost equal number of object *eng* (what) and *mang* (who) questions. The five-year-old children asked more object questions. They

produced more object *eng* (what) questions followed by object *mang* (who) questions and a few subject *mang* (who) questions. It appears that as the children grow older they use more object questions than subject questions.

Typically developing children acquire object questions at the same time as subject questions, around three years or earlier (Hanna & Wilhemina, 1992; O'Grady, 1997; Stromswold, 1995; Tyack & Ingram, 1977; Yoshinaga, 1996). English-speaking children produce more well-formed subject *wh*-questions than well-formed object *wh*-questions in elicited speech (Friedmann, Belletti & Rizzi, 2009; Friedmann & Novogrodsky, 2011). Stromswold (1995) examined the influence of adult input on the questions the children asked. She found that contrary to the findings of Tyack and Ingram (1977), the children asked object questions before subject questions. The first object question occurred 1.5 months before the first subject question. The children produced three times more object questions than subject questions. Stromswold (1995) suggests "the age of first use is the most sensitive measure of acquisition because it measures the earliest age at which a child could be said to have acquired a construction" (p.27). The spontaneous speech sample she analysed indicated that the majority of the children asked object *what* and *which* questions before subject questions, however, there was no clear difference between among subject or object *who* questions.

Three-year old participants of the present study produced more object *mang* (who) questions even though they struggled to answer these questions. Four-year olds asked an equal number of object *eng* (what) and *mang* (who) questions with an equal number of subject *eng* (what) questions, while five-year old children produced more object *eng* (what) and *mang* (who) questions. Only four children in these age groups (two four-year olds and two five-year olds) misinterpreted subject questions, whereas three-year olds made more object than subject question errors, with very few subject *eng* (what) questions errors. Interestingly, none of the children in the three age groups produced subject *eng* (what) questions. Hanna and Wilhemina's, (1992) elicitation study and Kim's (1995) production study with Korean speaking children reported that subject *wh*-questions were easier than object *wh*-questions for both *who* and *what* questions.

English-speaking children produce more well-formed subject *wh*-questions than well-formed object *wh*-questions in elicited speech (Ervin-Tripp, 1970; Wilhelm & Hanna, 1992; Yoshinaga, 1996). This is not so in African languages where subject *wh*-questions undergo

movement and a number of grammatical morphemes are added to the question. Subject questions trigger a number of grammatical constructions. For example, *ke* (subject marker) is inserted at the beginning of the sentence when the question word moves to the front and appears before the question word (Thwala, 2004). Zerbian (2004) indicated that subject questions are impersonal as well as being relativized or passivized constructions. For example, a few subject questions produced by five-year-old children using What Are They Asking cards were of the form:

Ke eng e /ele/----it is what that

Ke eng ka nna----it is what with me

Ke eng ntho eo/ele------it is what that thing over there

Ke eng ntho ye oe tshwereng-------it is what that you are holding

*Ke eng ntho di le tshetseng mo***-----it is what that you poured there

*Ke eng moo bofileng ka ntho eo***-----it is what there you tied that thing with

** these questions are ungrammatical

Subject questions are grammatically more complex than object questions. Five-year-old children produced simple subject questions while their attempt at using relativized subject questions were grammatically incorrect. However, the fact that none of these children attempted to used passive constructions to ask subject questions contrasts with the findings of Demuth and Kline (2006) who reported that 73% of subject *wh*-questions directed at children are passives thus "providing ample opportunities for children to assimilate and create such constructions on their own" (p.388). One three-year-old child in the present study attempted to ask subject *eng* (what) question in this format - *o nka eng, papa o?* (he is taking what, this man?). This is instead of a more complex form - *ke eng e papa yo a ye nkileng*? (it is what that this man is taking). The child asked an object question and then attached the subject as a clarification at the end of the sentence. Owens (2001) cites Slobin who states that "in general children acquire linguistic markers that occur at the ends of words before those that appear at the beginning of words" (p.210). This could explain why questions which appear at the end of the sentence are easier to understand and use than those where the question word is nearer

the beginning of the sentence. It is also, interesting to note that children who used subject *eng* (what) questions, asked grammatically short questions, for example: *ke eng* (it is what) or *ke eng eo* (it is what that).

5.5.3 Summary of the Findings Regarding Subject-Object Asymmetry

The findings of this descriptive study of comprehension and production of subject and object *mang* (who) and *eng* (what) questions have several implications even though the number of participants included in this study was relatively small and therefore generalizations are limited. Younger children in this study made slightly more errors when answering object *eng* (what) and *mang* (who) questions than subject questions. This is contrary to reported findings that children who speak isiZulu (Suzman, 1996), isiXhosa (Gxilishe, 2005) and Sesotho (Demuth, 1996), did not make any errors, rather they acquired their language gradually in line with the adult input. Older children did not make any object errors, but few made subject *mang* (who) errors and one subject *eng* (what) error. Younger children produced more object *mang* (who) than *eng* (what) questions. They did not produce grammatically well-formed subject questions. The older children produced object *mang* (who), subject *mang* (who) and object *eng* (what) questions, but did not produce subject *eng* (what) questions. This absence of subject *eng* (what) questions, despite the apparent understanding and use of these questions as refleced by high mean scores for comprehension (6.5), DELV production (5.5) and What Are They Asking cards (8.9) may reflect complexity of grammatical form and not the semantics of these questions. Conversely, the children performed better when asking or answering subject *mang* (who) questions though these questions had lower mean scores for comprehension (4.8), DELV production (1.4) and What Are They Asking cards (1.9).

CHAPTER 6

GENERAL DISCUSSION, CONCLUSIONS AND IMPLICATIONS

This study of the comprehension and production of *wh*-questions in Setswana supported the well-established notion that young children have acquired interrogative words by age three and that their knowledge of these questions continues to develop as the children mature. The three tasks used in his study, comprehension and production of the seven *wh*-questions as well as production and comprehension of subject and object *eng* (what) and *mang* (who) questions- produced valuable information that supported well established trends on this topic. The adaptation of an existing commercial test, the DELV and commercial therapy procedure What Are They Asking cards used here, remains for practical, financial and time constraints, the ideal manner for building cross-linguistic knowledge in the South African context for the foreseeable time.

The comprehension task using pictures from the DELV test to develop eight questions for each *wh*-word revealed maximum scores that ranged from 3 to 8 for five-year-old children, 3 to 7 for four-year-old children and 2 to 4 for three-year-old children. This revealed a robust data with an impressive developmental trend which was statistically significant, especially when comparing three- and four-year-olds and three-and five-year-old groups. There was a strong gender difference for some of the questions across the three age groups for the comprehension task. Three-year-olds showed a significant difference for *eng* (what), *jang* (how) and *leng* (when) questions. Four-year-olds showed a difference for *eng* (what) and *jang* (how) questions while five-year-olds showed a significant difference for *efe/ofe* (which) question. Three-year-old male participants obtained higher scores than the other two age groups for *goreng* (why) questions and higher scores than four-year-olds for *mang* (who) questions. Four-year-old obtained higher scores than five-year-olds for *kae* (where) questions. One male three-year-old participant answered *efe/ofe* (which) question while one female participant answered *jang* (how) question. Three-year- old female participants obtained higher score than four year olds for *eng* (what) questions and higher scores than five-ear-olds for *goreng* (why) questions.

Comparison of four and five-year-old children produced statistically significant differences for *kae* (where), *mang* (who) and *jang* (how) questions only. The easiest question was *eng*

(what), followed immediately by *kae* (where) and *mang* (who) and then *goreng* (why), the next three questions jang (how), *leng* (when) and *efe/ofe* (which), produced the lowest scores across the three age groups. Furthermore, failure to comprehend *when, how,* and *why* questions could be as a result of the difficulty of depicting concepts queried by these words. Answers to these questions are abstract and thus not easy to represent pictorially.

These findings agree with the reported observation in English that semantically, *what* and *where* questions develop earlier than *when*, *why* and *how* questions. *Wh*-words that function as modifiers of noun phrases (*whose*, *which*,) are acquired much later. Winzemer (1981) suggested that *what, where* and *who* (the *wh*-pronominal) are the simplest questions to understand, followed by *when, why* and *how* (*wh*-sentential). *Which* and *whose* (*wh*-adjectivals) sometimes called *wh*-determiners are considered most complex. *Wh*-sententials are more complex because the answer requires the child to specify (reason, manner, time) while *wh*-adjectivals are acquired last because they require the answer to specify something about an object constituent (Bloom et al., 1982; Owens, 2001; Rowland et al., 2003; Rowland et al., 2005). Even though Owens' (2001) sequence of acquisition for English is slightly different in that *what* and *where* questions are followed by *who*, *whose* and *which*, and finally, *when, how* and *why* questions. The differences noted in the chronology of acquisition of *wh*-questions in English seem to depend heavily on the methodology used to elicit data.

While the present research confirms earlier reports that normally developing children develop an understanding of information question forms early during childhood, these questions may not be equally easy to produce. The production task using DELV pictures revealed a similar developmental profile to that of the comprehension task for the first four questions: *eng* (what), *kae* (where), *mang* (who) and *goreng* (why). This seems to indicate that these children responded well to the pictures used in this test, even though the production task did not produce any complex questions; *leng* (when), *jang* (how) and *efe/ofe* (which) across the three age groups. This is in agreement with Demuth's (1996) naturalistic study of Sesotho speaking children which revealed that the children used more *eng* (what) and *kae* (where) questions by age two with very few *hobaneng* (why), *neng* (when) and *jwang* (how) questions. The absence of *leng* (when), *jang* (how) and *efe/ofe* (which) questions in the sample of this study, especially for four- and five-year-old children is a concern. But as reported above, these children demonstrated weak understanding of these questions as well.

The children were encouraged to ask as many questions as they could for each picture. They were free to use whatever question-word they felt was correct given the constrains of the descriptions they had been given about the picture. The maximum score for the four questions they produced ranged from 3 to 9 for *kae* (where), 8 to 9 for *eng* (what), 4 to 6 for *mang* (who) and 7 to 3 for *goreng* (why). The three-year- olds scored less than the five- year-olds. It is interesting to note that three-year-old children asked more *goreng* (why) questions than the older children. It would seem that younger children used more *why* questions probably as a replacement for *kae* (where) and/or *mang* (who) questions. Male participants asked more *eng* (what), *kae* (where) and *mang* (who) questions than female participants although this difference was not statistically significant for the three age groups across all the questions asked using the DELV task.

While the DELV task produced *eng* (what), followed by *kae* (where), *mang* (who) and *goreng*(why) questions across the three age groups, the second production task "What Are They Asking cards" produced more questions. There was a spread of all seven *wh*-questions with the exception of *leng* (when) questions which were not asked by three and four-year-old children. The three age groups asked more *goreng* (why) questions than *mang* (who) while four-year- old children asked more *goreng* (why) questions than five-year-old children. Paired sample t-test comparing total scores of the three and four-year-old revealed significant differences for *kae* (where), *mang* (who) and *eng* (what) questions at the 5% level, and between four and five- year-old children for *eng* (what) and *jang* (how) questions at the 5% level and very strongly significance at the 1% level for *efe/ofe* (which) questions. Comparison of three and five-year-old mean scores revealed no significant difference for *efe/ofe* (which) questions and a significant difference at 1% for the rest of the questions. Even though this task produced the most robust data with a spread of questions across the three age groups, when comparing male and female scores for six questions the results were no statistically significant and *jang* (how) question provided the only statistically significant result for four-year-olds.

Gender comparisons for the same task revealed that females were better than males at asking *kae* (where), *jang* (how) and *efe/ofe* (which) questions even though male participants produced more *eng* (what), *mang* (who) and *goreng* (why) questions. The differences between the genders were minimal for five-year-olds. A paired sample t-test revealed

significant differences for *efe/ofe* (which) and *jang* (how) questions for three-year-olds, while the rest of the questions showed no significant gender difference.

6.1 Influence of the Grammatical Constraints of this Language

The differences observed in the scores of the three groups of children across the seven questions could be due to the grammatical effects of the structure of this language. This grammatical difference is best explained by the findings of the comprehension and production of subject and object *eng* (what) and *mang* (who) questions. Zerbian (2006) reported that object *wh*-phrase remain in-situ in African languages while subject *wh*-phrase always undergo movement to the front of the sentence. Africa languages do not permit *wh*-words in subject position but rather use passives, relatives or a cleft construction to form subject questions (Demuth & Kline, 2006). This means that no question word can occur in subject position. In order to question the subject of a sentence, the subject must be moved and questioned as the object of a passive *by* phrase or as the object of a cleft construction (Zerbian, 2004). African languages allow asymmetry between object and subject *wh*-questions as with other languages (Demuth, 1995, Thwala, 2004). It is ungrammatical for subject *wh*-questions to be in-situ. This movement of subject *wh*-question to the front trigger use of morphological markers/structures while object *wh*-questions do not require additional syntactic structures. Subject *wh*-questions are therefore presumably more complex than object *wh*-questions in these languages.

However, despite these differences in the structure of subject and object questions, three-year-old children in this study made the most errors when answering object *mang* (who) questions, followed by subject *mang* (who) and object *eng* (what) questions. Four and five-year-olds made fairly small errors when answering subject questions and none when answering object questions. Conversely, three-year-olds asked more object *mang* (who) questions and fewer object *eng* (what) questions. Four-year-olds asked approximately the same number of object *mang* (who), *eng* (what) and subject *mang* (who) questions, but they did not ask subject *eng* (what) questions. Similarly, five-year-olds asked a fairly equal numbers of object *mang* (who) and *eng* (what) questions and fewer subject *mang* (who) questions. Thus younger children made a fairly equal numbers of subject and object errors when answering questions while all the children asked more object questions and some subject *mang* (who) questions. None of these children asked subject *eng* (what) questions.

Thus the grammatical structure of the language seem to influence performance of older children while the younger children seem have generalized difficulties with most questions except object *mang* (who), older children seem more sensitive to the grammatical constrain posed by subject questions. Complete absence of subject *eng* (what) questionsseems to indicate that this structure is grammatically more complex and difficult for all children.

The grammatical structure of *wh*-questions has been described for Ndebele, Sepedi, and Sesotho in the literature (Thwala, 2004; Zerbian, 2004; Demuth, 1995 respectively). The grammatical structure for Setswana questions is deduced from these explanations. Acquisition of *wh*-questions in Sesotho (Demuth (1995) has been presented in the literature using naturalistic data. The present study adds to this body of work by describing how children who speak Setswana understand and use *wh*-questions. The well-known asymmetry between object *wh*-questions and subject *wh*-questions has also been demonstrated by the participants of this study.

Worldwide the topic of *wh*-questions has been at the centre of language acquisition debates because of its pivotal role in explaining linguistic theories. Questions have been raised regarding how children learn these questions and how this knowledge emerges and develops. Information regarding milestones and the kind of linguistic knowledge children display at given points of development has been described. Different theories have been suggested to account for the differences that have been observed. Some researchers looked at the lexical properties and the position of the *wh*-word in the sentence, the influence of grammar and of the verb used, while others have looked at the influence of input, that is, do children copy what they hear, while some infer that human beings have a natural aptitude for understanding grammar. The findings of the present study add to these discussions. Theoretical implications regarding underlying strategies that children in this study may use to interpret and produce questions are discussed below.

The purpose of the present study was to investigate both linguistic and developmental aspect of information questions in Setswana. This study aimed to determine the specific areas of similarities and differences in the acquisition of *wh*-questions and what could be inferred from the emerging patterns for language learning. *Wh*-questions in African languages involve re-ordering of the elements in the sentence and positioning of the question word at the end of the sentence, except when asking *goreng* (why) question.

The unique morphosyntactic structure of *wh*-questions in this language poses challenging and interesting observations. There has not been any research to investigate the influence of syntax on how children learn these information questions. Neither is there literature on how children use the many morphological possibilities that constrain movement of the question-word to the front of the sentence and the rules governing questioning of the subject of the sentence. However, qualitative investigations of the questions produced by participants revealed that they only asked cleft subject *eng* (what) questions (*ke eng e-* it is what this). There is one example of a relativized *eng* (what) question (*ke eng ntho eo e tshwereng*/ it is what that you are holding). These questions were produced by five-year-old children, which seems to indicate that in formal testing situations younger children do not use these structures yet. Suzman (1997) suggests that at the beginning stages these morphological markers are rote learned and over-generalised. The findings of this study seem to contradict this observation. If strutures are rote learned they would have been present in the sample of the children tested.

However, the lack of clear patterning of results of younger children for both production and comprehension of *eng* (what) and *mang* (who) subject and object questions may be a reflection of this rote learning. Three-year-old children made more errors with object *eng* (what) and *mang* (who) questions while four-and five-year-olds made few errors when answering subject questions. Three-year-olds did not produce any subject question while four and five-year-olds did not ask *eng* (what) subject questions. However, because of the small sample size statistical comparisons were not done. Thus the above findings may be specific to these participants only and may not be applicable to other African languages. Nevertheless, the findings do have significant implications, as well as add to the literature interesting observations regarding whether subject *wh*-questions are easier than object wh-questions or vice versa. However, it is also important to disentangle syntactic issues from semantics and lexical issues involving the questions being investigated. The investigation of whether subject *mang* (who) and *eng* (what) questions are easier or more difficult than object *mang* (who) and *eng* (what) questions may be contaminated by the discrepancies in the children's general understanding and use of these questions as demonstrated by the differences in the mean scores for the two questions when comparing their DELV results.

While the participants of this study generally did not ask subject questions and also made more errors when answering object questions, Demuth & Kline (2006) report that 73% of

subject *wh*-questions directed at children are passives thus "providing ample opportunities for children to assimilate and create such constructions on their own" (p.388). The subject /object discrepancy described above may be due to the methodology used in the present study while Demuth was reporting from her natural observations while living among the Basotho. In addition to the subject /object effect, passives, adjuncts and clefts discussed above, relative clauses also play an important role in the formulation of *wh*-questions, the data of the present study revealed that the children used more clefts and adjuncts, few relative clauses and no passive structures . The controversial issue of topicalization, that is, the tendency of mapping topical information into subject position and new information into object position has important consequences for the children in this study. By focussing more on new information and less on topical information the children may miss the pragmatic communicative functions necessary for continuing the conversation. This might be what the research assistant was reacting to when she commented that the children did not show any "curiosity".

6.2 Theoretical Implications

The participants of the present study had difficulties answering questions that required an explanation. Whether this is because of the long syntactically-complex sentence that is required to answer a sentential question or whether it is because of the semantic of the question-word is not clear. The Role Reference Grammar (RRG) (Van Valin, 2005, 2007, 2011) theory recognizes both syntax and semantics aspects and acknowledges them as being equally important in understanding language development. Thus an interaction of the two systems in acquisition may be more important that has previously been acknowledged.

Regarding sentence processing, the RRG provides a theory that allows for direct mapping of syntax and semantics through an algorithm that takes into account the discourse and pragmatic rules specific to the language under investigation (Van Valin, 2007). It is the only linguistic theory that permits an analysis of the interaction of syntax, semantics and pragmatics. This is essential if one wants to explain the interplay of meaning, morphosyntactic form and communicative functions in the particular language. Analysing the communicative functions of grammatical and semantic structures plays an important role in this theory. The theory regards both language and grammar as systems and not in the traditional structuralist sense. This belief that grammatical structure can only be understood

and explained with reference to semantic and communicative functions distinguishes the RRG conception of language from other theories.

The theory allows for direct mapping or linking between the semantic representation of a sentence and its syntactic representation. It acknowledges the role played by cognition on language production and comprehension through processes such as acquisition, processing, production, interpretation and memorization of linguistic expressions. The RRG theory rejects the notion that grammar is radically arbitrary but rather that it is motivated semantically and pragmatically by the information that is available to the child in the speech to which s/he is exposed, that is, in put enables the child to construct grammar. It argues that learning of grammar is better conceptualised as a process of mapping form and function. However, while RRG shows that it is possible to have a rigorous, typologically-sensitive grammatical theory which takes syntax, semantics and pragmatics as central features, there is a paucity of empirical work to support this view. A revised schema of the concepts expressed by the RRG theory is given below.

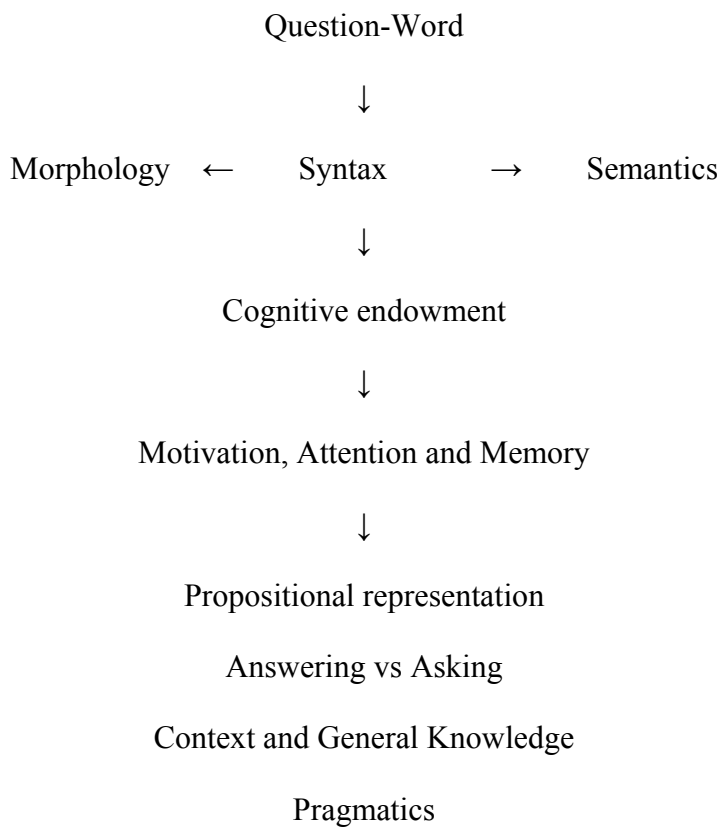


Figure 6.1 Modified organization of the RRG model highlighting the roles of motivation, memory, pragmatics and general context.

Relatively little attention has been given to the area of the relationship between motivation of the listener or speaker, the role of memory and grammatical knowledge when generating or answering questions. The RRG theory acknowledges the role of the person asking or answering questions, the processes that must be performed, consciously or unconsciously, in order to obtain an answer or pose a question. The effect memory may have on how questions are formulated, and, conversely, how the question is answered cannot be ignored. Both systems require the person to be alert and focus in order to hear the full question and to retrieve a suitable answer from memory.

Pragmatics is used to define language in context. It involves what is said, why it is said and for what purpose it is said. It refers to how language is used socially to achieve goals and it includes how communication is affected by different contexts and audiences. In its essence communication is a process of sharing intents and asking directed questions can be used to clarify these intentions. Appropriate social interaction involves the proper utilization of pragmatics and some reflection on the cultural considerations involved in guiding these interactions. Different cultures use language for different purposes and each culture has its own rules about how children are expected to participate in linguistic interaction. According to Taylor (1986), cited in Wiley, Gentry and Torres (2010, p.16) the clinical practice setting should be perceived as a social setting.

The present investigation reflects responses of children to *wh*-questions in an examiner-child dyad situation with the researcher asking questions which were depicted in pictures. In this situation the child is not called upon to process the structure of the questions independently of function of that question as s/he may be required to do during less structured spontaneous communicative interchanges. Parness and Amerman (1983, p.140) oserved that information regarding the importance of immediate versus nonimmediate referential sources as determiners of linguistic processing load suggests that manipulation of questioning might assist the child to cope with the demands of question answering and asking in certain situations. It was expected that using pictures to define the context for eliciting questions would assist the child to process the information.

6.3 Clinical Implications

The research assistant observed that "*most children are not used to asking questions and I feel that they are not as curious as a child should be and generally our children from the*

rural areas are not exposed to these kinds of activities from a toddler stage, they are not free to interact with adults".

Early on during data collection and transcription of the speech **sa**mples the research assistant was concerned that the children were not responding as was expected. She was aware that the children did not know some of these questions especially *leng* (when), *efe/ofe* (which) and *jang* (how) questions. The ability to ask *wh*-questions does not necessarily mean that the child has the ability to answer or understand the same *wh*-question when it is posed as shown by the results of this study. Accurate question comprehension is influenced by many factors. Comprehension may depend on how well one is paying attention, how easy it is to stay focused while listening, the degree of competing noise, and one's expectations about the message. All of these variables may have influenced the findings of this study.

The findings of the present study reflect an-interplay of all three aspects of communication, syntax, semantics and pragmatics. The participants of this study observed the key syntactic rules of the language, that is, they did not make any grammatical errors regarding the handling of subject questions. In fact, very few children asked subject questions, and those who did, asked cleft questions and very few complex relativized questions neither did they did use the passive structure to ask subject questions. Semantics of the question-word and syntactic requirements especially when answering *why, how, when* and *which* questions seem to play an important role in determining the sequence of acquisition for these questions. The same linguistic features appear to the influence how the children responded to these questions. The participants appeared skilled in asking and answering *what, where, who* questions, followed by *why* and *how* questions, with *when* and *which* questions being most difficult for all children.

The effect of the ease with which participants interacted with testing materials and the researcher and the research assistant also seem to have played a role in their responses. Even though the researcher and the research assistant tried to put the children at ease and to explain the testing procedure in detail, many children still seemed quite uncomfortable interacting in a playful informal manner with an adult figure. They appeared to lack experience in looking at a book with an adult figure. More concerning, as reflected by the research assistant's observations above, was the fact that some children did not show interest and/or curiosity in

the materials used. Thus the influence of motivation and prior experience cannot be ruled out when interpreting the findings of this research.

Language comprehension requires one to relate the message heard to the mental lexicon in order to interpret the proposition encoded by the words and their grammatical inflections. This information is interpreted within an environmental and a social perspective. Context is very important. Reliability of the assessment materials, sampling of participants and attempts at conducting the study in real life settings all played a significant role in the results of this study. The DELV test, though sometimes used with English speaking school-going children in this country, had never been used with preschool population. It was the first time that the test was used with a preschool non-English speaking children from peri-urban and rural communities. Children from rural backgrounds may not feel comfortable sharing a table with an adult and reading from the same book together. So the important selection criteria of using participants from rural backgrounds in an attempt to avoid possible influences of other languages in the language under investigation, had the unintended consequences in that a very small sample of the group were from truly monolingual backgrouds. However, detailed identification and description of participants regarding cultural and linguistic factors ensures that comparisons can be made when assessing children from similar backgrounds..

Specific interest in research on child language acquisition in the Southern African languages is growing among South African Linguists and Speech-Language Therapists, as well as among researchers in Europe and the United States. Studies have documented the structure of African languages and described how children learn the noun class system and some aspects of morphology specific to these languages. However, the documented information is still limited, especially for Speech and Language Therapists who need age-specific information to support clinical practice. Research is gradually building a body of information that may be used to support linguistically appropriate services for speech and language development and for appropriate assessments of children and adults who speak these languages. Language-specific normative data is critical for speech and language assessments as it facilitates valid judgments. Such norms are also valuable for educators as they need the information for identifying children who would need to be referred for early assessment and intervention in order to prevent development of speech, language and academic problems.

This study provides information on assessment materials which could be used by Psychologists, Linguists, Teachers and Speech-Language Therapists. The results of this study may seem difficult to interpret because they are presented as composite mean scores which may appear unrepresentative of the individual children tested. However, comparing individual children to the individual mean score for each question-word and looking at the patterns that have been documented for each age group provides valuable data that can be used to explain the performance of individual children and disentangle those who are normally developing from those who may need systematic assessment and invention. The study adds to the body of information that is necessary for preparing professionals to provide services that are responsive to the diverse needs of the children in this country. In order to ensure effectiveness of services provided to these children, culturally and linguistically appropriate professionals should use materials that have been tested on these populations in order to provide quality services.

The profession of Speech and Language Therapy is extremely concerned that attempts should be made to strive for use of culturally and linguistically appropriate service delivery models. The findings of this study provides information that is better than current approaches of using translated tests as informal probes, with no accompanying scores, when assessing children who speak languages other than English and Afrikaans. The findings of the present study contributed information that may be used when developing assessment materials specific for African languages. Furthermore, these findings have a wider application and may be used to provide a framework that can be used for exploring understanding and use of questions in other languages of a similar structure. The results of the comprehension and production of *wh*-questions in Setswana described revealed specific developmental hierarchies which seem to confirm developmental stages for acquisition and processing of these questions reported in the literature.

6.4 Limitations of the Study

No proposed research project is without limitations. Marshall (1999) states that there is no such thing as a perfectly designed study. This research project has a number of limitations. This project followed an elicitation methodology where pictures were used. Picture materials and decontextualized assessment procedures used may have been unfamiliar routines for these children. Also, data was collected by a trainee Speech Therapist and a qualified

therapist with many years of experience in testing young children and training students. While all attempts were made to keep data collection the same, it is important to acknowledge that the manner of interacting with the children or encouraging them to give the required responses may have be different.

The findings of this study may be applicable to all three-to-five-year old Setswana- speaking children raised in similar backgounds. Standard deviations across all tasks indicated that the groups were homogenous and the types of questions elicited and the answers provided by the children reflect that the assessment materials used were sensitive enough to produce robust data. However, it is acknowledged that elicited production while valuable in defining the context and the target the child is expected to give or produce, provides limited information that may not reflect the child's true knowledge. Analysis of language sample is only as good as the samples on which it is based. Two assessment procedures were used in order to maximize the size of the production data.

The children were not professionally assessed to determine their linguistic status and to establish baseline information regarding their communicative competencies for the present study. The children were selected by their teachers in accordance with the selection criteria. They were deemed good communicators in that social environment. However, the same teachers were interested to know whether participating in the study would identify children who may have developmental delays. This could indicate that the teachers were slightly unsure about the true satus of the children they selected, but information from parents' reports confirmed that the children were developing normally. Establishing baseline information regarding the children's cognitive skills, hearing and oral-motor abilities were thus not considered necessary.

The children's experiences and expectations regarding testing, in particular, interacting with an unfamiliar adult may may have constrained their spontaneity, however, the data elicited has been sufficient enough to reveal interesting developmental trends. The influence of the children's beliefs, customs and attitudes when interacting with an adult, that is, whether these children are used to asking adults questions in their everyday interactions, are important areas for further exploration.

6.5 Final Comments

The findings of this study adds to alternative assessment approaches including dynamic assessment and narrative assessment procedures, used to address the inherent cultural and linguistic bias when assessing children who do not speak mainstream languages. The possible effects of materials on results are also an important area of consideration. The children in this study seemed unfamiliar with picture books. They seemed to produce more complex language when interacting with their peers, hence they were specially selected by their teachers. They were said to be "quite verbal and communicative". However, in the presence of the researcher and the research assistant, the children seemed intimidated and uncomfortable. The complex interrelationship between children and adults in these communities is not yet fully understood. The influence of pictures when evaluating children from rural backgrounds also needs further exploration. The impact of culture and language on communication development and communication patterns are important areas for further investigation.

Evaluating children's strengths or weaknesses in comprehending and producing *wh*-questions have strong implications for education. This information is valuable for teachers who may adapt their general verbal interactions and instructions to suit the comprehension level of their children. An unintended positive consequence for schools who participated in this study was the awakening of the teachers' awareness regarding different forms of questions and how their children performed on these tasks. Many teachers reported that they were not aware that children's responses to questions vary depending on the type of question asked. However, they were curious to know how the test will aid in the identification of children with language delays and disorders. Some were also surprised by the behaviour of some of the children who they regarded as confident and verbal, when presented with picture materials and asked to respond to the questions asked. Stimulating teachers' interest in this topic, especially those teaching preschool children, and providing them with strategies for teaching *wh*-questions during class is an important area of development for further investigation.

Government policy is clear regarding use of mother-tongue languages in schools: children must be educated in their home language especially at preschool level (National Planning Commission, 2011). However, this policy is contested by parents who want their children to be introduced to English. This is a challenge for teaching and learning. The results of this

study indicate that question answering and asking can be taught in the home language and that this knowledge will transfer to other languages if teachers are given strategies for teaching these skills. This is especially urgent as the government is approaching the cut-off date of 2015 for achieving the goals of universal access to grade R education for all children (Millennium Development Goals, 2010). Increased access to good quality education, that is, seeing that children achieve expected language skills for their age and development level, and minimising the occurrence of communication disorders in early childhood, remain important public education strategies for promoting essential communicative interactions to maximise stimulation of children by their educators and caregivers.

The main purpose of this research was to assess whether children who speak Setswana use and understand information questions. The answer is definitively yes. The results of this study must be understood in this narrow sense. The assessment required a presence or absence of the required question-word. In spite of their age differences the children understood and used all seven question words. Their age differences adds an interesting feature, that is, chronological age and linguistic development play an important role in how these children use and understand the different question words.

Preliminary work on the description of the structure of *wh*-questions in Siswati (Thwala, 2004); Sepedi (Zerbian, 2004) and Sesotho (Demuth, 1996) has been reported in the literature. Acquisition of *wh*-questions in Sesotho (Demuth (1995) is also presented in the literature. The data from the present study is an addition to this development. The findings of this study provide information derived from elitation procedures using commercially available test and therapy materials. These findings confirmed reported trends on acquisition of *wh*-questions and add valuable obsevations to our understanding of how children learn these questions, particularly the relationship between syntax and semantics of questions in this language. Thefindings subject and object *mang* (who) and *eng* (what) questions in the present study provide an interesting perspective to the debate regarding the acquisition of these *wh*-questions.

The topic of *wh*-questions has been at the centre of language acquisition debates for decades because of its pivotal role in explaining linguistic theories. The RRG (Van Valin, 2005, 2007, 2011) provides a theory that allows for direct mapping of syntax and semantics through an algorithm that takes into account the discourse and pragmatic rules specific to the language

under investigation. The unique morphology and structure of *wh*-questions in African languages provides in interesting angle to this debate.

Finally, the study provides a valuable resource for language therapists and language teachers that can be use to evaluate children's knowledge of *wh*-questions in Setswana.

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APPENDIX 2A

Table 2.6 Sample of Sesotho questions from Demuth (1996).

Question	Form	Age		
		2.1	2.6	3
Yes/no		6	18	24
Yes/no subjunctive/permissive			1	13
Yes/no with question marker	Na	1	3	
Eng (what)	Verb +ng	2	5	2
Kae (where)	Kae	3	3	4
Mang (who)	Subject cleft - ke mang	2	2	1
Mang (who)	Object mang	1		
Hobaneng (why)	Verb+el+ng (tsamayelang)	1		2
Ya mang (whose)	Ya mang			1
Neng (when)	Neng			1
Kang (with what)	Kang			1
Jwang (how)	Jwang			1
Total no. of utterances		242	489	581

APPENDIX 4A

SPEECH PATHOLOGY AND AUDIOLOGY
School of Human & Community Development
Faculty of Humanities
University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4577 Fax: (011) 717 4572

Dear Principal

This a follow up to our telephone discussion regarding doing research at your school. I would like to thank you for granting permission for this research. As discussed, I am a PhD student at the University of the Witwatersrand, Johannesburg. My research study aims to investigate the development of Setswana questions in preschool children.

Class teachers will be asked to identify children whose home language is Setswana. I will also ask them to distribute some forms to the parents of the identified children and to complete a short questionnaire for each child that has been selected for the study. A letter asking parents for permission for their child to take part in this study will also be send home.

Please note that participation in this study is voluntary and that you can remove the children from the study at any time if you are not satisfied. I would also like to point out that the name of the school and those of the children will not be used when reporting the findings of the research.

I am willing to offer a workshop to the teachers on the findings of this research once the study is completed and to educate them about the importance of asking and understanding questions. If you would like to discuss any of these issues further you can contact me at 011 888 6282.

Thanking you for your cooperation and support.

Yours Faithfully

Maggie Mapaseka Tshule

Professor Yvonne Broom

Supervisor

APPENDIX 4 B

TEACHER'S REPORT

Please select children in your class who speak Setswana at home. The children you choose should have well-developed speech and language abilities, that is, you should not be concerned about their speech and language abilities.

Please complete this form for each of the children you have selected.

Name of the nursery/primary school: _____

_____

Class Teacher: _____

Name of the Child:_____

Date of Birth:_____Gender_____

Child's Home Language:_____

Language spoken at the school:_____

Does this child understand when spoken to like other children in your class?

_____

_____

Does this child speak like other children in your class?

_____

_____

What else can you tell me about this child:

_____

_____

Thank you for your support

Maggie Mapaseka Tshule

APPENDIX 4C

SPEECH PATHOLOGY AND AUDIOLOGY

School of Human & Community Development
Faculty of Humanities
University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4577 Fax: (011) 717 4572

Dear Parent/Guardian

My name is Maggie Mapaseka Tshule. I am a PhD student in the Department of Speech Pathology and Audiology at the University of the Witwatersrand, Johannesburg. I am doing research on the development of language abilities of children who speak Setswana as their mother tongue. The aim of this research is to investigate the children's use and understanding of Setswana questions.

I would like to invite your child to take part in my study. The research will take place at the nursery school. I will directly interact with each child and ask him/her questions while playing with toys. The study consist of two tests. The interaction with the child will take approximately 20-30 minutes per test. Your child's participation in this study would be greatly appreciated. Confidentiality will be preserved at all times. None of the children's names or their parents'/guardian's names will be used in the research report.

With your permission, the interaction with your child will be video- and tape recorded. A research assistant will audio and video record my interactions with the children. These tapes will be transcribed and analyzed for this research. The tapes and transcripts will not be shared with anyone else, but will be stored in a safe place at the Department of Speech Pathology and Audiology for further use in teaching. The transcription will not have your child's name on it.

Your child's participation in this research is totally voluntary. You may choose to withdraw your child from the research at any time if you are uncomfortable about anything arising from the research. If you do this, your child will not be prejudiced in any way.

If you agree to allow your child to participate in this research, would you please complete the attached forms and return them to the school tomorrow.

I am available in the evening at this number: 011 888 6282 to answer any questions you may have about this research.

Thank you for your cooperation.

Yours Truly,

Maggie Tshule (Mrs)

BA (Sp&H) therapy, M Ed (psych) Wits.

APPENDIX 4D

INFORMED CONSENT FORM

I _____ (Name and Surname) agree that my child can participate in this research project. The purpose and procedures of the study have been explained to me. I understand that my child's participation is voluntary and that I may withdraw him/her from the study at any time, without incurring any negative consequences. I understand that confidentiality will be maintained for all the information collected during the study.

Name and Surname of the Child:

Please answer Yes or No.

	Yes	No
Do you allow your child to take part in this research		
Do you give permission for your child to be video recorded		
Do you give permission for your child to be audio recorded		
Do you give permission for your child's tape to be stored at the university		

Signature:

Date:

I have explained the purpose and procedures of the study as well as the rights of the research participants. I agree with the conditions mentioned in the Information Letter to parents and Consent Form and undertake to adhere to them.

Name of Researcher: _____

Date: _____

Signature: _____

APPENDIX 4 C - Setswana Translation

SPEECH PATHOLOGY AND AUDIOLOGY

School of Human & Community Development
Faculty of Humanities
University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4577 Fax: (011) 717 4572

Motsadi

Leina la me ke Maggie Mapaseka Tshule. Ke moithute wa PhD ko Depatmenteng ya Speech Pathology le Audiology ko Univesiting ya Witwatersrand, Johannesburg. Ke dira dipatlisiso ka loleme lwa Setswana. Ke batla go itse gore bana ba ba buang Setswana a ba itse go botsa gotsa go araba dipotso.

Ke kopa gore o letlelle ngwana wa gago go tsaya karolo mo dipatlisisong tse. Ke tla kopana le ngwana ko sekolong. Mo dipatlisisong tse ke dirisa dibuka le ditoys go rotloetsa bana go buwa. Go tla tsaya ngwana mongwe ura e lengwe go fetsa ditlhatlhobo tsotlhe, fela re tla tsaya lebaka morago ga metsetso e masomepedi go ikhutsa. Ngwana wa gago ga a kitla a gapelediwa go tsaya karolo fa a sa batle. Leina la gagwe ga le kitla le dirisiwa fa ke kwala repoto kgotsa ke bua ka dipholo tsa dipatlisiso tse.

Ke kopa tetla go gatisa dipuisano tsame le ngwana wa gago. Di tape tse di tla bolokiwa ko univesiting, gape di ka dirisiwa go ruta baithuti ba Speech Therapy. Ke tla dirisana le moithuti was Speech Therapy go gobokanya dipatlisiso tse. Ke na le dingwaga tse dintsi ke dira le bana.

Go tsaya karolo mo dipatlisisong tse ga go patelediwe. Ngwana mongwe le mongwe a ka tlogela go tsaya karolo mo dipatlisisong fa a sa rate, mme se ga se kitla se mo senyeletsa mosekolong.

Fa o dumela gore ngwana wa gago a tseye karolo mo dipatlisisong tse ke kopa gore o ntlatsetse foromo e, o e busetse sekolong.

Fa o na le dipotso o ka o ka letsa mogale mo 011 888 6282 go buisana le nna.

Ke lebogela go berekisana mmogo lewena

Kgotso,

Maggie Tshule (Mrs)
BA (Sp&H) therapy, M Ed (psych); Wits.

APPENDIX 4 C - Setswana Translation

FOROMO YA KITSISO LE GO KOPA TUMELLO

Nna _____ (Leina le sefane) ke dumela go re ngwana wa me a tseye karolo mo dipatlisisong tse. Ke tlhaloganya mabaka le mekgwa e tla dirisiwang mo dipatlisisong tse. Ke tlhaloganya go re ngwanake a ka tlogela fa a sa rate le gore leina la gagwe ga le kitla le dirisiwa mo repotong tsa dipatlisiso tse.

Leina la ngwana le sefane:

Araba Ee kgotsa Nyaa.

	Ee	Nyaa
O dumela gore ngwana wa gago a tseye karolo mo dipatlisisog tse		
O dumela gore ngwana wa gago a gatisiwe ka khamera		
O dumela gore lentswe la ngwana wa gago le gatisiwe		
O dumela gore ditape tsa ngwana wag ago di dirsiwe ko univesiting go ruta baithuti		

Signature:

Date:

I have explained the purpose and procedures of the study as well as the rights of the research participants. I agree with the conditions mentioned in the Information Letter to parents and Consent Form and undertake to adhere to them.

Name of Researcher: _____

Date: _____

Signature: _____

APPENDIX 4 E

PARENT REPORT

PLEASE COMPLETE THIS FORM AND RETURN IT TO THE SCHOOL.

(Information provided will be treated with strict confidentiality).

Dear Parent

SECTION A

Child's Name and Surname _____

Date of Birth:_____Gender_____

Your Relationship to the Child (eg. Mother/father/guardian)

_____

Language Spoken by Mother:_____

Language Spoken by Father:_____

Other Languages Spoken at Home:_____

Language/s spoken at the School:_____

In what language do you communicate at home_____

Who is the regular caregiver for your child and what is this person's home language

_____

How many people live in your home?_____

How many : Adults _____Children:_____

SECTION B

Please tick the question that you believe gives an acceptable description of your child.

	YES	NO
1. Are you worried about how your child understands his/her home language?		
2. Are you worried about your child's ability to speak his/her home language?		
3. Are you worried about your child's hearing?		
4. Is your child speaking nearly like children his/her own age?		
5. Can you understand everything when he/she speaks to you?		
6. Is your child able to understand when you give him/her instructions?		
7. Has your child ever suffered from ear infection?		
8. Has your child been treated for ear infection?		
9. Has your child suffered from diarrhea, running stomach, gastroenteritis?		
10.Has you child been treated for any of the above stomach ailments?		
11. Is there anyone in your family with a speaking problem?		
12. Is there anyone in your family who suffers from a hearing problem?		
13. Has your child ever been tested by a Speech Therapist?		
14. Has your child ever been tested by a Psychologist		
15. Does your child suffer any serious psychological problem?		

SECTION C

Please describe any concerns you may have with your child

Thank you.

Maggie Tshule

APPENDIX 4 E - Setswana Translation

REPOTO YA MOTSADI

KE KOPA O TLATSE FOROMO E MME O E BUSETSE KWA SEKOLONG.

(Information provided will be treated with strict confidentiality).

Motsadi yoo rategang

SECTION A

Leina le Sefane sa ngwana_____

Ngwaga le letsatsi la matsalo:_____Bong_____

O tsalana yang le ngwana yoo

Mme o bua sekae:_____

Rre o bua sekae:_____

Ke diteme dife tse di buing mo gae:_____

Ke diteme dife tse di buiwang mo sekolong:_____

Le bua sekae mo ntlong:_____

Ke mang o tlokomelang ngwana yoo o gae:

_____

Motho yoo o bua sekae_____

Ke batho ba bake ba nnang mo gae:_____

Gagolo:_____Bana:_____

SECTION B

Tlhopha potso e buang ka ngwana wa gago.

	Ee	Nyaa
1. A ngwana wa gago o bua puo e buiwang mo gae sentle?		
2. A ngwana wa gago o tlhaloganya puo ya mo gae sentle?		
3. A ngwana wa gago o utlwa sentle?		
4. A ngwana wa gago o bua jaaka bana ba lekanang le ena ka dijara?		
5. A o ya motlhalogangya faa bua le wena?		
6. A ngwana yo o a tlhaloganya fa o mo roma?		
7. A ngwna yo o kile a tshwengwa ke ditsebe?		
8. A ngwana o kile a ya kwa nyakeng go tlhatlhoba ditsebe?		
9. A ngwna yo o kile a tshwarwa ke bolwetse ba go berekiwa ke mala?		
10.A ngwana yo o kile a fiwa ditlhare tsa malwetse are buwileng ka one fa godimo?		
11. Are go na le mongwe mo bathong ba kwaeno o nang le bothata ba go bua?		
12.A go na le motho wa kwaeno yo o nang le bothata ba go utlwa?		
13. A ngwana yo o kile a tlhatlhobiwa ke Speech Therapist?		
14. A ngwana yo o kile a tlhatlhobiwa ke Psychologist?		
15.A ngwana yo o na le bolewtse ba tlhaloganyo?		

SECTION C

Tlhalosa fa go na le sengwe se se gotswenyang ka ngwna yoo

Ke ya leboga.

Maggie Tshule

APPENDIX 4 F

Languages spoken in the home

				Additional Home Language	No of children/adults in the home	
	Mother	Father	Home language	Languages	Children	Adults
1	Setswana	Sesotho	Setswana/Sesotho	English	3	4
2	isiZulu	Setswana	Setswana	English	3	5
3	Setswana	Sepedi	Setswana/Sepedi	Sepedi	1	2
4	Sesotho	Setswana	Setswana	English	2	3
5	Setswana	Sesotho	Setswana/Sesotho	-	2	2
6	Sesotho	Setswana	Setswana/Sesotho	-	4	3
7	isiZulu	Setswana	Setswana	Sotho/zulu	2	3
8	Setswana	isiZulu	Setswana/isiZulu	English	2	2
9	Setswana	isiZulu	Setswana/isiZulu	Swazi/Eng	2	1
10	Sesotho	Setswana	Setswana	English	3	4
11	isiXhosa	Setswana	Setswana/isXhosa	English	1	3
12	Setswana	-	Setswana	isiZulu	2	3
13	Setswana	isiZulu	Setswana/isiZulu	Sesotho	4	8
14	Setswana	Sesotho	Setswana/Sesotho	Sepedi	3	3
15	Sepedi	Setswana	Setswana	Sepedi	3	4
16	Setswana	Setswana	Setswana	Eng/Afri	1	2
17	Setswana	Setswana	Setswana	Sesotho	2	2
18	Setswana	Setswana	Setswana	Setswana	1	3
20	Setswana	isiZulu	Setswana/isiZulu	IsiZulu/Eng	2	1
21	Setswana	isiShangane	Setswana/Shangane	Sotho/Eng	4	2
22	Setswana	Setswana	Setswana	Zulu/Sotho	2	2
23	Setswana	isiZulu	Setswana/isZulu	Sotho/Zulu	2	2

				Additional Home Language	No of children/adults in the home	
	Mother	Father	Home language	Languages	Children	Adults
24	Setswana	isiZulu	Setswana/isiZulu	Zulu/Sotho/Eng	2	1
25	Setswana	Setswana	Setswana	Sotho/Zulu/Eng	2	3
26	Setswana	isiXhosa	Setswana/isixhosa	Zulu	2	3
27	Sepedi	Setswana	Setswana	Sesotho	8	6
28	Sesotho	Setswana	Setswana	sesotho	2	2
29	isiZulu	Setswana	Setswana/isiZulu	English	3	2
30	Setswana	Sesotho	Setswana/Sesotho	Sesotho	1	2
31	Setswana	Ndebele	Setswana/ndebele	Ndebele	3	2
32	isiSwazi	Setswana	Setswana	Swazi/Sepedi	4	2
33	Setswana	-	Setswana	Ndebele	3	1
34	Setswana	-	Setswana	Sesotho/Afr	4	1
35	Setswana	-	Setswana	Eng/ isiZulu	3	1
36	Setswana	-	Setswana	Sesotho	2	1
37	Setswana	-	Setswana	Sepedi	3	1
38	Setswana	-	Setswana	Sepedi	3	1
39	Setswana	Portuguese	Setswana/English	English	1	2
40	Sepedi	Setswana	Setswana	English	1	2
41	Sesotho	Setswana	Setswana	Sepedi	6	3
42	Setswana	isiZulu	Setswana/isiZulu	Sepedi	2	3
43	Sesotho	Setswana	Setswana	Eng/Sesotho	4	3
44	Setswana	isiNdebele	Setswana/isiNdebele	Setswana	5	2
45	isiShangane	Setswana	Setswana	isiShangane	1	2
46	Setswana	Sesotho	Setswana	English	3	4
47	isiZulu	Setswana	Setswana	English	3	5

				Additional Home Language	No of children/adults in the home	
	Mother	Father	Home language	Languages	Children	Adults
48	Setswana	Sepedi	Setswana/Sepedi	Sepedi	1	2
49	Sesotho	Setswana	Setswana	English	2	3
50	Setswana	Sesotho	Setswana/Sesotho	-	2	2
51	Sesotho	Setswana	Setswana	-	4	3
52	isiZulu	Setswana	Setswana	Sotho/zulu	2	3
53	Setswana	isiZulu	Setswana/isiZulu	English	2	2
54	Setswana	isiZulu	Setswana/isizulu	Swazi/Eng	2	1
55	Sesotho	Setswana	Setswana	English	3	4
56	isiXhosa	Setswana	Setswana	English	1	3
57	Setswana	-	Setswana	isiZulu	2	3
58	Setswana	isiZulu	Setswana/isiZulu	Sesotho	4	8
59	Setswana	Sesotho	Setswana/Sesotho	Sepedi	3	3
60	Sepedi	Setswana	Setswana	Sepedi	3	4
61	Setswana	Setswana	Setswana	Eng/Afri	1	2
62	Setswana	Setswana	Setswana	Sesotho	2	2
63	Setswana	Setswana	Setswana	Setswana	1	3
64	Setswana	isiZulu	Setswana/isiZulu	IsiZulu/Eng	2	1
65	Setswana	isiShangane	Setswana/isiShangane	Sesotho/Eng	4	2
66	Setswana	Setswana	Setswana	Zulu/Sotho	2	2
67	Setswana	isiZulu	Setswana/isiZulu	Sesotho/Zulu	2	2
68	Setswana	isiZulu	Setswana/isiZulu	Zulu/Sotho/Eng	2	1
69	Setswana	Setswana	Setswana	Sotho/Zulu/Eng	2	3
70	Setswana	isiXhosa	Setswana/isiXhosa	Zulu	2	3
71	Sepedi	Setswana	Setswana	Sesotho	8	6

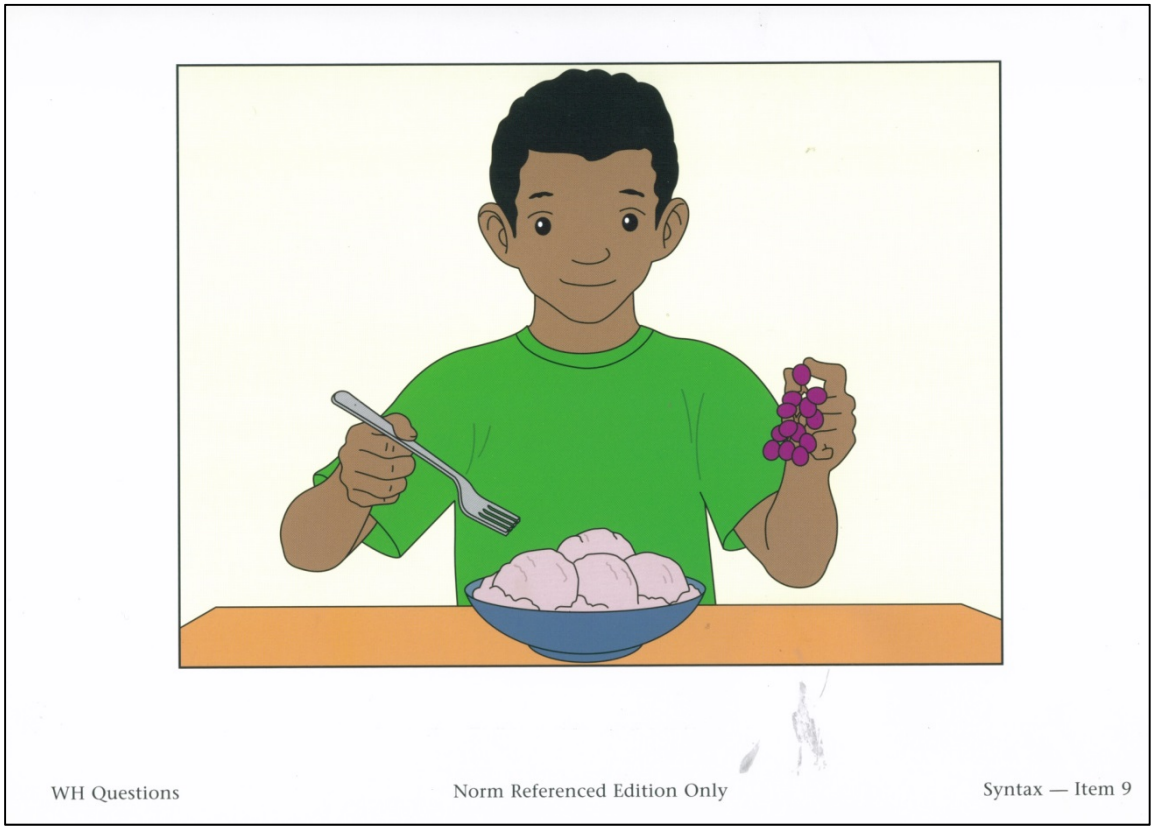
				Additional Home Language	No of children/adults in the home	
	Mother	Father	Home language	Languages	Children	Adults
72	Sesotho	Setswana	Setswana	Sesotho	2	2
74	Setswana	Sesotho	Setswana/sesotho	Sesotho	1	2
75	isiZulu	Setswana	Setswana	Sepedi	3	2
76	Setswana	IsiShangane	Setswana/isiShangane	Sesotho	1	2
77	Setswana	Setswana	Setswana	Afri/Eng	2	1
78	Venda	Setswana	Setswana	Venda	2	3
79	Setswana	isiZulu	Setswana/isiZulu	isiZulu	3	1
80	Setswana	Setswana	Setswana	isiSwati/Sepedi	3	1
81	isiSwazi	Setswana	Setswana	isiSwazi	5	2
82	Setswana	Setswana	Setswana	Setswana	3	2
83	Setswana	isiZulu	Setswana/isizulu	isiZulu/Eng	1	1
84	isiVenda	Setswana	Setswana	isiVenda/Eng	2	2
85	isiNdebele	Setswana	Setswana	isiNdebele	4	2
86	Setswana	isiZulu	Setswana/isiZulu	Sesotho/Zulu	3	2
87	Setswana	isiSwati	Setswana	isiSwati/Eng	3	4
88	Sesotho	Setswana	Setswana	Sesotho	4	3
89	Setswana	Sesotho	Setswana/Sesotho	English	3	4
90	isiZulu	Setswana	Setswana	English	3	5
91	Setswana	Sepedi	Setswana/Sepedi	Sepedi	1	2
92	Sesotho	Setswana	Setswana	English	2	3
94	Setswana	Sesotho	Setswana/Sesotho	-	2	2
95	Sesotho	Setswana	Setswana	-	4	3
96	isiZulu	Setswana	Setswana	Sotho/zulu	2	3
97	Setswana	isiZulu	Setswan/isiZulu	English	2	2

				Additional Home Language	No of children/adults in the home	
	Mother	Father	Home language	Languages	Children	Adults
98	Setswana	isiZulu	Setswana	Swazi/Eng	2	1
99	Sesotho	Setswana	Setswana	English	3	4
100	isiXhosa	Setswana	Setswana	English	1	3
101	Setswana	-	Setswana	isiZulu	2	3
102	Setswana	isiZulu	Setswana/isiZulu	Sesotho	4	8
103	Setswana	Sesotho	Setswana/Sesotho	Sepedi	3	3
104	Sepedi	Setswana	Setswana	Sepedi	3	4
105	Setswana	Setswana	Setswana	Eng/Afri	1	2
106	Setswana	Setswana	Setswana	Sesotho	2	2
107	Setswana	Setswana	Setswana	Setswana	1	3
108	Setswana	isiZulu	Setswana/isiZulu	IsiZulu/Eng	2	1
109	Setswana	isiShangane	Setswana/Shangane	Sotho/Eng	4	2
110	Setswana	Setswana	Setswana	Zulu/Sotho	2	2
112	Setswana	isiZulu	Setswana/isiZulu	Sotho/Zulu	2	2
113	Setswana	isiZulu	Setswana	Zulu/Sotho/E	2	1
114	Setswana	Setswana	Setswana	Sotho/Zulu/E	2	3
115	Setswana	isiXhosa	Setswana/isiXhosa	Zulu	2	3
116	Sepedi	Setswana	Setswana	Sesotho	8	6
117	Sesotho	Setswana	Setswana	sesotho	2	2
118	isiZulu	Setswana	Setswana	English	3	2
119	Setswana	Sesotho	Setswana	Sesotho	1	2
120	Setswana	isiNdebele	Setswana/isiNdebele	Ndebele	3	2
121	isiSwazi	Setswana	Setswana	Swazi/Sepedi	4	2
122	Setswana	-	Setswana	Ndebele	3	1

				Additional Home Language	No of children/adults in the home	
	Mother	Father	Home language	Languages	Children	Adults
123	Setswana	-	Setswana	Sesotho/Afr	4	1
124	Setswana	-	Setswana	Eng/ isiZulu	3	1
125	Setswana	-	Setswana	Sesotho	2	1
126	Setswana	-	Setswana	Sepedi	3	1
127	Setswana	-	Setswana	Sepedi	3	1
128	Setswana	Portuguese	Setswana/English	English	1	2
129	Sepedi	Setswana	Setswana	English	1	2
130	Sesotho	Setswana	Setswana	Sepedi	6	3
131	Setswana	isiZulu	Setswana/isiZulu	Sepedi	2	3
132	Sesotho	Setswana	Setswana	Eng/Sesotho	4	3
133	Setswana	isiNdebele	Setswana/isiNdebele	Setswana	5	2
134	isiShangane	Setswana	Setswana	isiShangane	1	2

APPENDIX 4 G

DELV Comprehension Picture



APPENDIX 4 H



DELV production pictures

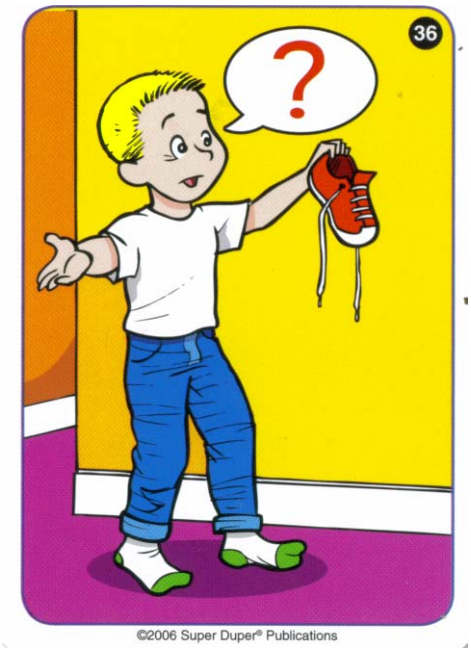


APPENDIX 4 I

What Are They asking Cards



OR



APPENDIX 4 J

Subject and Object Questions



APPENDIX 4 K

Ethics clearance certificate

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON MEDICAL)
H120536 Tshule

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER H120536**
PROJECT TITLE	Comprehension and production of information questions by pre-school Setswana speaking children
INVESTIGATOR(S)	Ms M Tshule
SCHOOL/DEPARTMENT	Human and Community Development
DATE CONSIDERED	18 May 2012
DECISION OF THE COMMITTEE	Approved Unconditionally
EXPIRY DATE	31 May 2014
DATE 12 July 2012	**CHAIRPERSON** (Professor T Milani)

cc: Prof. Y Bloom

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

Signature 23/10/2012 **Date**

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

APPENDIX 5 A

Paired sample t-test comparing comprehension results of three and four-year-olds

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi	T value	Pr>T
Where kae	3	30	4.1333	1.2243	2	6	-4.40	<.0001**
	4	32	5.5000	1.2181	3	8		
	Diff (1-2)		-1.3667	1.2211				
What eng	3	30	4.1000	1.2959	1	6	-6.42	<.0001**
	4	32	6.4688	1.5859	2	8		
	Diff (1-2)		-2.3688	1.4530				
Who mang	3	30	3.4000	1.4762	1	6	-3.03	0.0036*
	4	32	4.5313	1.488	1	7		
	Diff (1-2)		-1.1313	1.4672				
Why goreng	3	30	2.2667	0.9072	0	4	-5.61	<.0001**
	4	32	4.0938	1.5525	1	8		
	Diff (1-2)		-1.8271	1.2818				
How jang	3	30	1.5333	1.0417	0	4	-3.55	0.0008**
	4	32	2.5313	1.1635	0	5		
	Diff (1-2)		-0.9979	1.1063				
When leng	3	30	1.3667	1.1592	0	4	-4.26	<.0001**
	4	32	2.7188	1.3255	0	5		
	Diff (1-2)		-1.3521	1.2479				
Which Efe/ofe	3	30	1.9333	1.1121	0	4	-4.26	<.0001**
	4	32	2.5938	1.1319	0	4		
	Diff (1-2)		-0.6604	1.1224				

**significant at 1% , *significant at 5%

Paired sample t-test comparing comprehension results of four and five-year-olds

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi	T value	Pr>T
Where kae	4	32	5.0000	1.2181	3	8	-2.87	0.0056*
	5	31	6.3226	1.0452	4	8		
	Diff (1-2)		-0.8226	1.1364				
What eng	4	32	6.4688	1.5859	2	9	-2.54	0.0137
	5	31	7.3548	1.1416	5	9		
	Diff (1-2)		-0.8861	1.3853				
Who mabg	4	32	4.5313	1.4588	1	7	-3.69	0.0005**
	5	31	5.6774	0.9447	4	7		
	Diff (1-2)		-1.1462	1.2330				
Why goreng	4	32	4.0938	1.1013	1	8	-0.58	0.5654
	5	31	4.2903	1.3496	3	7		
	Diff (1-2)		-0.1966	1.2818				
How jang	4	32	2.5313	1.1635	0	5	-3.66	0.0005*
	5	31	3.6452	1.2530	2	6		
	Diff (1-2)		-1.1139	1.2083				
When leng	4	32	2.7188	1.3255	0	5	0.63	0.5328
	5	31	2.5161	1.2348	0	5		
	Diff (1-2)		0.2026	1.2817				
Which Efe/ofe	4	32	2.5938	1.1319	0	4	-2.88	0.0055*
	5	31	3.3871	1.0544	2	6		
	Diff (1-2)		-0.7933	1.0945				

** significant at 1% * significant at 5%

Paired sample t-test comparing comprehension resulst of three and five- year- olds

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi	T value	Pr>T
Where kae	3	30	4.133	1.2243	2	6	-7.52	<.0001**
	5	31	6.3226	1.0452	4	8		
	Diff (1-2)		-2.1892	1.1368				
What eng	3	30	4.1000	1.2959	1	6	-10.42	<0.0001**
	5	31	7.3548	1.1416	5	9		
	Diff (1-2)		-3.8861	1.2199				
Who mang	3	30	3.4000	1.4762	1	6	-7.20	<0.0001**
	5	31	5.6774	0.9447	4	7		
	Diff (1-2)		-2.2774	1.2349				
Why goreng	3	30	2.2667	0.9072	0	4	-7.82	<0.0001**
	5	31	4.2903	1.3496	3	7		
	Diff (1-2)		-2.0237	1.0106				
How jang	3	30	1.5333	1.0417	0	4	-7.15	<0.0001**
	5	31	3.6452	1.2530	2	6		
	Diff (1-2)		-2.1118	1.1539				
When leng	3	30	1.3667	1.1592	0	4	-3.75	0.0004*
	5	31	2.5161	1.2348	0	5		
	Diff (1-2)		-1.1495	1.1982				
Which Efe/ofe	3	30	1.9333	1.1121	0	4	-5.42	<0.0001**
	5	31	3.3871	1.0544	2	6		
	Diff (1-2)		-1.4538	1.0832				

** significant at 1% * Significant at 5%

APPENDIX 5 B

t-test gender comparison of mean scores for the comprehension task of the three age groups

THREE YEAR OLDS

Question	Gender	N	Mean	Std. Dev	Mini	Maxi	T value	Pr > t
Where/kae	F	15	4.3333	1.1127	3	6	0.89	0.3802
	M	15	3.9333	1.3345	2	6	0.89	0.3804
What/eng	F	15	3.6000	1.0556	1	5	-2.26	0.0320*
	M	15	4.6000	1.3522	1	6	-2.26	0.0324*
Who/mang	F	15	3.0000	1.2536	1	5	-1.52	0.1405
	M	15	3.8000	1.6125	1	6	-1.52	0.1411
Why/goreng	F	15	2.4000	0.9103	1	4	0.80	0.4304
	M	15	2.1333	0.9155	0	4	0.80	0.4304
How/jang	F	15	1.0667	0.7037	0	2	-2.71	0.0114*
	M	15	2.0000	1.1339	0	4	-2.71	0.0124*
When/leng	F	15	0.8667	0.8338	0	2	-2.58	0.0153*
	M	15	1.8667	1.2459	0	4	-2.58	0.0162*
Which/efe/ofe	F	15	1.7333	1.0328	0	3	-0.98	0.3333
	M	15	2.1333	1.1872	0	4	-0.98	0.3335

*Significant at 5% for *what, how*, and *when* questions

FOUR YEAR OLDS

Question	Gender	N	Mean	Std. Dev	Mini	Maxi	T value	Pr > t
Where/kae	F	16	5.4375	1.2633	4	8	-0.29	0.7769
	M	16	5.5625	1.2093	3	7	-0.29	0.7769
What/eng	F	16	5.5000	1.4606	2	7	-4.34	0.0002*
	M	16	7.4375	1.0308	6	9	-4.34	0.0002*
Who/mang	F	16	4.1250	15864	1	6	-1.62	0.1166
	M	16	4.9375	1.2366	3	7	-1.62	0.1172
Why/goreng	F	16	4.1875	1.8697	1	8	0.34	0.7387
	M	16	4.0000	1.2111	2	6	0.34	0.7391
How/jang	F	16	2.0000	1.0954	0	3	-2.87	0.0075*
	M	16	3.0625	0.9979	1	5	-2.87	0.0075*
When/leng	F	16	2.3125	1.3022	0	4	-1.79	0.0828
	M	16	3.1250	1.2583	1	5	-1.79	0.0828
Which/efe/ofe	F	16	2.6250	1.1475	0	4	0.15	0.8789
	M	16	2.5625	1.1529	0	4	0.15	0.8789

*significant at 5% for *what* and *how* questions

FIVE YEAR OLDS

Question	Gender	N	Mean	Std. Dev	Mini	Maxi	T value	Pr > t
Where/kae	F	15	6.2667	1.0328	4	8	-0.28	0.7785
	M	16	6.3750	1.0878	5	8	-0.28	0.7785
What/eng	F	15	7.3333	1.1127	6	6	-0.10	0.92110
	M	16	7.3750	1.2042	5	9	-0.10	0.9209
Who/mang	F	15	5.7333	0.9612	4	7	0.31	0.7556
	M	16	5.6250	0.9574	4	7	0.31	0.7556
Why/goreng	F	15	4.5333	1.1872	1	4	1.20	0.2406
	M	16	4.0625	0.9979	3	7	1.19	0.2437
How/jang	F	15	3.8667	1.1255	2	5	0.95	0.3492
	M	16	3.4375	1.3647	2	6	0.96	0.3463
When/leng	F	15	2.6667	1.2910	0	5	0.65	0.5202
	M	16	2.3750	1.2042	0	4	0.65	0.5213
Which/efe/ofe	F	15	3.8667	0.9155	2	5	2.70	0.0116*
	M	16	2.9375	0.9979	2	6	2.70	0.0114*

*significant at 5% for *which* question

APPENDIX 5 C

Paired sample t-test comparing production results of three and four-year-olds when DELV pictures were used.

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi	T value	Pr>T
Where	3	26	1.2308	1.1422	0	3	-6.05	<.0001**
	4	27	3.4815	1.3530	0	6		
	Diff (1-2)		-2.2507	1.2211				
What	3	26	5.4231	2.0430	0	8	0.35	0.7274
	4	27	5.2593	1.2888	2	8		
	Diff (1-2)		0.1633	1.7008				
Who	3	26	1.2692	1.0792	0	4	-1.11	0.2735
	4	27	1.5926	1.0473	0	4		
	Diff (1-2)		-0.3234	1.0631				
Why	3	26	0.9615	2.1444	0	7	-0.25	0.8035
	4	27	1.0741	0.9168	0	3		
	Diff (1-2)		-0.1125	1.6379				
How	3	26	0.0385	0.1961	0	1	1.02	0.3128
	4	27	0	0	0	0		
	Diff (1-2)		0.0385	0.1373				
When	3	26	0	0	0	0		
	4	27	0	0	0	0		
	Diff (1-2)		0	0				
Which	3	26	0.385	0.1961	0	1	1.02	0.3128
	4	27	0	0	0	0		
	Diff (1-2)		0.0385	0.1373				

** significant

Paired sample t-test comparing production results of four and five-year- olds when DELV pictures were used.

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi	T value	Pr>T
Where	4	26	3.4815	1.5285	0	6	0.86	0.3951
	5	27	3.1923	0.8010	2	5		
	Diff (1-2)		0.2892	1.2270				
What	4	26	5.2593	1.2888	2	8	-1.92	0.0609
	5	27	5.9231	1.2304	4	9		
	Diff (1-2)		-0.6638	1.2605				
Who	4	26	1.5926	1.0473	0	4	0.44	0.6645
	5	27	1.4615	1.1395	0	6		
	Diff (1-2)		0.1311	1.0935				
Why	4	26	1.0741	0.9168	0	3	1.22	0.2297
	5	27	0.7692	0.9081	0	3		
	Diff (1-2)		0.3048	0.9125				
How	4	26	0	0	0	0	0	0
	5	27	0	0	0	0		
	Diff (1-2)		0	0				
When	4	26	0	0	0	0	0	0
	5	27	0	0	0	0		
	Diff (1-2)		0	0				
Which	4	26	0	0	0	0	0	0
	5	27	0	0	0	0		
	Diff (1-2)		0	0				

Paired sample t-test comparing production results of three and five-year-olds when DELV pictures were used.

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi	T value	Pr>T
Where	3	26	1.2308	1.1422	0	3	-7.17	<0.0001**
	5	27	3.1923	0.8010	2	5		
	Diff (1-2)		-1.9615	0.9864				
What	3	26	5.4231	2.0430	0	8	-1.07	0.2902
	5	27	5.9231	1.2304	4	9		
	Diff (1-2)		-0.5000	1.6864				
Who	3	26	1.2692	1.0792	0	4	-0.62	0.5349
	5	27	1.4615	1.1395	0	6		
	Diff (1-2)		-0.1923	1.1097				
Why	3	26	0.9615	2.1444	0	7	0.42	0.6755
	5	27	0.7692	0.9081	0	3		
	Diff (1-2)		0.1923	1.6467				
How	3	26	0.0385	0.1961	0	1	1.00	0.3221
	5	27	0	0	0	0		
	Diff (1-2)		0.0385	0.1387				
When	3	26	0	0	0	0	0	0
	5	27	0	0	0	0		
	Diff (1-2)		0	0				
Which	3	26	0.385	0.1961	0	1	1.00	0.3221
	5	27	0	0	0	0		
	Diff (1-2)		0.0385	0.1387				

** significant at 1%

APPENDIX 5 D

GENDER COMPARISON DELV PRODUCTION TASK

THREE YEAR OLDS

Question	Gender	N	Mean	Std. Dev	Mini	Maxi	T value	Pr > t
Kae Where	F	15	1.20000	1.0823	0	3	-0.16	0.8704
	M	11	1.2727	1.2721	0	3	-0.15	0.8798
Eng What	F	15	5.6000	1.5492	2	8	0.51	0.6161
	M	11	5.1818	2.6389	0	8	0.47	0.6454
Mang Who	F	15	1.2000	1.0823	0	4	-0.38	0.7107
	M	11	1.3636	1.1201	0	4	-0.37	0.7126
Goreng Why	F	15	0.8000	1.7809	0	6	-0.44	0.6630
	M	11	1.1818	2.6389	0	7	-0.42	0.6831
Jang How	F	15	0.0667	0.2582	0	1	0.85	0.4028
	M	11	0	0	0	0	0	0
Leng When	F	15	0	0	0	0	0	0
	M	11	0	0	0	0	0	0
Efe/ofe Which	F	15	0	0	0	0	-1.18	0.2509
	M	11	0.0909	0.3015	0	1	-1.00	0.3409

FOUR YEAR OLDS

Question	Gender	N	Mean	Std. Dev	Mini	Maxi	T value	Pr > t
Kae Where	F	14	3.1429	1.7478	0	6	-1.20	0.2395
	M	13	3.8462	1.2142	2	6	-1.22	0.2342
Eng What	F	14	5.3571	1.2157	4	8	0.40	0.6905
	M	13	5.1538	1.4051	2	7	0.40	0.6922
Mang Who	F	14	1.6429	1.0082	0	4	0.25	0.8515
	M	13	1.5385	1.1266	0	3	0.25	0.8024
Goreng Why	F	14	1.2143	0.2143	0	3	0.82	0.4203
	M	13	0.9231	0.2878	0	3	0.82	0.4255
Jang How	F	14	0	0	0	0	0	0
	M	13	0	0	0	0	0	0
Leng When	F	14	0	0	0	0	0	0
	M	13	0	0	0	0	0	0
Efe/ofe Which	F	14	0	0	0	0	0	0
	M	13	0	0	0	0	0	0

FIVE YEAR OLDS

Question	Gender	N	Mean	Std. Dev	Mini	Maxi	T value	Pr > t
Kae Where	F	15	3.2000	0.8619	2	5	0.06	0.9558
	M	11	3.1818	0.7508	2	4	0.06	0.9548
Eng What	F	15	5.7333	1.3870	4	9	-0.92	0.3692
	M	11	6.1818	0.9816	4	7	-0.97	0.3440
Mang Who	F	15	1.1333	0.6399	0	2	-1.79	0.0863
	M	11	1.9091	1.5136	1	6	-1.60	0.1347
Goreng Why	F	15	0.6000	0.7368	0	2	-1.12	0.2759
	M	11	1.0000	0.0954	0	3	-1.05	0.3092
Jang How	F	15	0	0	0	0	0	0
	M	11	0	0	0	0	0	0
Leng When	F	15	0	0	0	0	0	0
	M	11	0	0	0	0	0	0
Efe/ofe Which	F	15	0	0	0	0	0	0
	M	11	0	0	0	0	0	0

APPENDIX 5 E

Paired sample t-test comparing production results of three and four-year-olds when "what are they asking" cards were used.

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi	T value	Pr>T
Kae Where	3	26	2.6538	2.6373	0	9	-3.17	0.0026**
	4	28	5.2143	3.2473	0	13		
	Diff (1-2)		-2.5604	2.9697				
Eng What	3	26	6.7692	3.7662	0	17	-1.60	0.1146
	4	28	8.4286	3.8242	1	16		
	Diff (1-2)		-1.6593	3.7964				
Mang Why	3	26	1.0385	1.1831	0	7	-2.59	0.0124**
	4	28	2.3929	1.9197	0	9		
	Diff (1-2)		-1.3544	1.0631				
Goreng why	3	26	2.9615	2.8211	0	11	-1.84	0.0711
	4	28	5.1429	5.3866	0	18		
	Diff (1-2)		-2.1813	4.3465				
Jang How	3	26	0.1923	0.4915	0	2	-1.90	0.0636
	4	28	0.5357	0.7927	0	3		
	Diff (1-2)		-0.3434	0.6651				
Leng When	3	26	0	0	0	0	-0.96	0.3400
	4	28	0.0357	0.1890	0	1		
	Diff (1-2)		0.0357	0.1362				
Efe/ofe which	3	26	0.1154	0.3258	0	1	-2.26	0.0283**
	4	28	0.4286	0.6341	0	2		
	Diff (1-2)		0.3132	0.5097				

* significant at 5%

Paired sample t-test comparing production results of four and five-year-olds when"what are they asking" cards were used.

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi	T value	Pr>T
Kae Where	4	28	5.2143	3.2473	0	13	-0.80	0.4297
	5	27	5.8148	2.2367	2	11		
	Diff (1-2)		-0.6005	2.7975				
Eng What	4	28	8.4286	3.8242	1	16	-3.10	0.0031**
	5	27	11.1481	2.5223	4	15		
	Diff (1-2)		-2.7196	3.2513				
Mang Who	4	28	2.3929	2.1831	0	9	0.12	0.9037
	5	27	2.3333	1.3301	0	6		
	Diff (1-2)		0.0595	1.8154				
Goreng Why	4	28	5.1429	5.3866	0	18	0.70	0.4865
	5	27	4.2963	3.2795	0	13		
	Diff (1-2)		0.8466	4.4786				
Jang How	4	28	0.5357	0.7927	0	3	-2.52	0.0149*
	5	27	1.2963	1.3816	0	5		
	Diff (1-2)		-0.7606	1.1209				
Leng When	4	28	0.03570	0.18900	0	1	-1.52	0.1343
	5	27	0.1852	0.4833	0	2		
	Diff (1-2)		-0.1495	0.1362				
Efe/ofe which	4	28	0.4286	0.6341	0	2	-5.22	<0.0001**
	5	27	1.7407	1.1633	0	4		
	Diff (1-2)		-1.3122	0.9321				

** significant at 1% *significant at 5%

Paired sample t-test comparing production results of three and five-year-olds when"what are they asking" cards were used.

Questions	Age	N	Mean	Std. Dev.	Mini	Maxi	T value	Pr>T
Kae Where	3	26	2.6538	2.6373	0	9	-4.71	<0.0001**
	5	27	5.8148	2.2367	2	11		
	Diff (1-2)		-3.1610	2.4413				
Eng What	3	26	6.7692	3.7662	0	17	-4.99	<0.0001**
	5	27	11.1481	2.5223	4	15		
	Diff (1-2)		-4.3789	3.1932				
Mang Who	3	26	1.0385	1.1831	0	7	-3.22	0.0022*
	5	27	2.3333	1.3301	0	6		
	Diff (1-2)		-1.2949	1.4617				
Goreng why	3	26	2.9615	2.8211	0	11	-1.59	0.1190
	5	27	4.2963	3.2795	0	13		
	Diff (1-2)		-1.3348	3.0634				
Jang How	3	26	0.1923	0.4915	0	2	-3.85	0.0003*
	5	27	1.2963	1.3816	0	5		
	Diff (1-2)		-1.1040	1.0448				
Leng When	3	26	0	0	0	0	-1.95	0.0563*
	5	27	0.1852	0.4833	0	2		
	Diff (1-2)		-0.1852	0.3451				
Ofe/efe which	3	26	0.1154	0.3258	0	1	-6.87	<0.0001**
	5	27	1.7407	1.1633	0	4		
	Diff (1-2)		-1.6254	0.8614				

** significant at 1% * significant at 5%

APPENDIX 5 F

ANOVA comparison of DELV comprehension and production and "what are they asking" production tasks

Comprehension Task			F Value	Pr > F	
DC1	where/kae	DC1	27.40	<.0001	**
DC2	what/eng	DC2	46.76	<.0001	**
DC3	who/mang	DC3	22.82	<.0001	**
DC4	why/goreng	DC4	25.28	<.0001	**
DC5	how/jang	DC5	25.43	<.0001	**
DC6	when/leng	DC6	10.52	<.0001	**
DC7	which/efe	DC7	13.36	<.0001	**
Production Task –DELV					
DP1	DP1	kae/where	27.33	<.0001	**
DP2	DP2	eng/what	1.29	0.2812	
DP3	DP3	mang/who	0.59	0.5570	
DP4	DP4	goreng/why	0.30	0.7396	
DP5	DP5	jang/how	1.02	0.3656	
DP6	DP6	when/leng	0	0	
DP7	DP7	efe/ofe/which	1.02	0.3656	
Production Tasks – Cards					
CP1	CP1	kae/where	9.86	0.0002	*
CP2	CP2	eng/what	11.08	<.0001	**
CP3	CP3	mang/who	5.10	0.0083	*
CP4	CP4	goreng/why	2.01	0.1415	
CP5	CP5	jang/how	9.14	0.0003	*
CP6	CP6	leng/when	2.87	0.0630	*
CP7	CP7	efe/ofe/which	31.91	<.0001	**

** Significant at 1% * 5%

APPENDIX 5 G

Gender comparison of “what are they asking cards” results of the three age groups

THREE YEAR OLDS

Question	Gender	N	Mean	Std. Dev	Mini	Maxi	T value	Pr > t
Kae/where	F	13	2.7692	2.6190	0	9	0.22	0.8287
	M	13	2.5385	2.7573	0	9	0.22	0.8287
Eng/what	F	13	5.6154	3.3050	0	11	-1.61	0.1202
	M	13	7.9231	3.9678	3	17	-1.61	0.1206
Mang/who	F	13	1.3077	1.1821	0	3	0.86	0.3980
	M	13	0.7692	1.9215	0	7	0.86	0.3997
Goreng/why	F	13	2.6154	2.5670	0	8	-0.62	0.5425
	M	13	3.3077	3.1194	0	11	-0.62	0.5427
Jang/how	F	13	0.3077	0.6304	0	2	1.21	0.2388
	M	13	0.0769	0.2774	0	1	1.21	0.2441
Leng/when	F	13	0	0	0	0	0	0
	M	13	0	0	0	0	0	0
efe/ofe/which	F	13	0.2308	0.4385	0	1	1.90	0.0699*
	M	13	0	0	0	0	1.90	0.0821

FOUR YEAR OLDS

Question	Gender	N	Mean	Std. Dev	Mini	Maxi	T value	Pr > t
Kae/where	F	15	8.3333	4.0119	1	16	0.79	0.4388
	M	13	8.5385	3.7553	1	13	0.79	0.4345
Eng/what	F	15	1.7333	1.4376	0	5	-0.14	0.8906
	M	13	3.1538	2.6723	3	9	-0.14	0.8900
Mang/who	F	15	1.7333	1.4376	0	5	-1.79	0.0859
	M	13	3.1533	2.6723	0	9	-1.71	0.1039
Goreng/why	F	15	3.7333	4.6670	0	18	-1.52	0.1398
	M	13	6.7692	5.8759	0	17	-1.50	0.1478
Jang/how	F	15	0.8000	0.9411	0	3	2.00	0.0564*
	M	13	0.2308	0.4385	0	1	2.09	0.0489*
Leng/when	F	15	0.0667	0.2582	0	1	0.93	0.3617
	M	13	0	0	0	0	1.00	0.3343
efe/ofe/which	F	15	0.4667	0.6399	0	2	0.34	0.7397
	M	13	0.3846	0.6504	0	2	0.34	0.7401

FIVE YEAR OLDS

Question	Gender	N	Mean	Std. Dev	Mini	Maxi	T value	Pr > t
Kae/ where	F	14	5.5714	1.5046	2	8	-0.58	0.5676
	M	13	6.0769	2.8712	2	11	-0.57	0.5780
Eng/what	F	14	11.3571	2.6489	6	15	0.44	0.6638
	M	13	10.9231	2.4651	4	13	0.44	0.6630
Mang/who	F	14	2.1429	0.8644	1	4	-0.77	0.4508
	M	13	2.5385	1.7134	0	6	0.75	0.4640
Goreng/why	F	14	4.8571	3.2071	1	13	0.92	0.3667
	M	13	3.6923	3.3760	0	13	0.92	0.3677
Jang/how	F	14	1.2857	1.2666	0	3	-0.04	0.9680
	M	13	1.3077	1.5484	0	5	-0.04	0.9683
Leng/when	F	14	0.1429	0.5345	0	2	-0.47	0.6459
	M	13	0.2303	0.4385	0	1	-0.47	0.6435
efe/ofe/which	F	14	2.0000	1.0377	0	4	1.21	0.2366
	M	13	1.4615	1.2659	0	4	1.20	0.2409