CHAPTER FOUR

ANALYSIS OF DATA

4.1 Introduction

The objectives of this research were to examine Form One students' writing by identifying the spelling errors, classifying the errors and determining the frequency of errors in each category. In addition to this, students were interviewed to check on their metalinguistic competencies in clarifying their spelling errors. Hence, the spelling errors will be related to the spelling development stages of children. The analysis would be based on the following research questions:

a. What type of spelling errors do Malaysian Form One school children generally make?
b. What is the frequency of the error types?
c. Do students' explanation of particular spelling pattern support their spelling errors?
d. What are the spelling development stages that these students are in?

In identifying the spelling errors and their reasons for such errors, these errors were compared across the classes in Form One to see the frequency of spelling

errors and to determine the most common error type. Students' spelling errors went through another process of verification by asking the students to explain their errors.

4.2 Analysis Of Errors

4.2.1 Overall Spelling Errors Made

The percentage of spelling errors was 5.2 % out of the total 16,507 words analysed that amounted to 860 spelling errors. They were detected from 276 written samples of 92 students from four different classes. The total errors identified from each class are stated in table 3.

Table 3
Total Samples

Classes	Students	Samples	Total words	Errors	Percentage
1 Tabah	24	72	4023	366	9.1
1 Inovasi	24	72	2763	189	6.8
1 Sabar	21	63	3703	169	4.6
1 Maju	23	69	6018	36	0.6
Total	92	276	16507	860	**5.2**

4.2.2 Spelling Error Types

Having identified the spelling errors, the errors were classified into sixteen categories. These sixteen categories were type of errors students generally make and these categories of errors were 'Phonetic', 'Semi phonetic', 'Double consonant', 'Vowel Substitution', Insertion of letter', 'Omission of Silent letter', 'Compounding', Omission of Pronounced words', 'Vowel Pattern Rule', Homonym', Consonant Substitution', 'Reversal of letters', 'Affix', 'Plurals, Possessives and Contraction', 'Pronunciation' and 'Bahasa Melayu'. (Refer to appendix 5 for more details.)

From the analysis, the spelling errors were identified and classified into sixteen categories of errors that students generally make. In accordance to that, the frequency of spelling errors was determined. Table 4 contains the categories and percentage of errors that can illustrate the classification of spelling errors with the frequency.

Table 4
Spelling Categories and Percentages of Errors

Category	Percentage (%)
Phonetic	13
Semi phonetic	11.6
Double consonant	9.4
Vowel substitution	7.6
Insertion of a letter	7.6
Omission of a silent Letter	6.6
Compounding	5.7
Omission of pronounced letter	4.9
Vowel pattern rule	4.9
Homonym	4.5
Consonant substitution	4.3
Affix	4.1
Reversal of a letter	4.1
Plurals, Possessive and Contraction	3.5
Words that cannot be configured	3.5
Pronunciation	2.6
Bahasa Melayu	2.1
Total	**100%**

About 13 % of the spelling errors here were mostly 'phonetic' errors. A total of 112 errors out of 860 spelling errors were from this type of errors. Students

spelled the words as how they sounded for example 'haus' for the word 'house', 'noti' for 'naughty, 'mo' for 'more', 'si' for 'she' and 'laik' for 'like' (refer to appendix 6 for more examples).

The second in the list of highest type of spelling errors was 'semi phonetic'. About 11.6% errors were from this type of spelling errors that represent 100 errors of the overall spelling errors. This kind of spelling errors occurred because students were still using the relationship of sound- letter or phoneme – grapheme. The only consolation was that, students were not relying heavily on the correspondence of phoneme- grapheme but just using some sounds to 'figure out' the unknown spelling of words. Students used several letters to represent the sounds of words heard. The difference between 'phonetic' and 'semi phonetic' was that the latter did not need to have all the letters to represent the sound heard for example 'tarifide' for the word 'terrified', 'besids' for 'besides', 'riht' for 'right' and 'concoured' for 'concurred'. 'Semi phonetic' errors were spelling errors using more proper spelling with inclusion of some invented letters.

The third type of spelling error was 'double consonant' which occupied 9.4% of the spelling errors from four classes. About 81 errors of the overall spelling errors were from this type of errors. 'Double consonant' spelling errors were when students doubled a consonant when it was not needed for example 'untill' for 'until', 'anggry' for angry' and 'genttle' for 'gentle' or students failed to double a consonant when needed for example 'succed' for 'succeed', 'coffe' for 'coffee' and 'hobies' for 'hobbies'

Students were aware of letters and knew some of the letters but they were unsure of the quantity of consonant. This category was usually a confusion, students faced when confronted by words with double consonant for example double 'll' in the word 'full' but not in 'wonderful', 'beautiful' or double 'mm' in 'swimming' but not in 'timing' or confused whether to spell two consonants for words like 'succeed', 'writing' and others. This confusion is quite common for language beginners as their understanding of the target language is still very preliminary.

Fourth highest spelling errors were from the categories of 'vowel substitution' and 'insertion of a letter'. About 7.6 % of spelling errors were from these error types. This kind of spelling errors represented 66 errors from the overall errors. Examples of 'vowel substitution errors were 'footboll' for 'football', 'fevourite' for 'favourite', 'mather' for 'mother', 'reng' for 'rang', 'unforgateble' for 'unforgetable' and others. Here students substituted one vowel for another. They may even substitute a vowel for consonant or to represent the schwa sound like stracturs (structures).

'Insertion of a letter' were errors where students inserted a letter which was not needed for example the letter 'n' in the word 'monther' for 'mother', letter 'd' in 'thirdteen' for 'thirteen', letter 'r' in 'bercause' for 'because' or letter 'e' in 'spened' for 'spend'.

The fifth highest spelling errors were from the category of 'omission of silent letter'. About 6.6 % of the overall spelling errors were discovered from this category that represented 57 spelling errors. This type of errors occurred because students omitted silent letters that were not heard in the pronunciation of the words. This once again suggested that students relied on sound symbol in their spellings. Examples of spelling errors from this error type were 'climed' for 'climbed', 'secon' for 'second', 'cen' for 'cent', 'frend' for 'friend' and etc.

Next highest spelling errors were from the category of 'compounding'. About 49 errors were from this type of spelling errors that occupied 5.7 % of the overall spelling errors. These errors signified that the concept of word boundaries was not fully elaborated. Students separated compound words for example 'all ready' for 'already', 'gentle man' for 'gentleman', 'a nother' for 'another', 'foot ball' for 'football' or combined words which were not compound words like 'alot' for 'a lot', 'rootbeer' for 'root beer' and etc.

'Omission of pronounced' errors and 'vowel pattern rule' were the two error types that represented 4.9 % from the total spelling errors that tantamount to 42 errors from each error type. 'Omission of pronounced' errors occurred because students omitted letter/s that was/were pronounced for example 'library' for 'library' where letter 'r' was omitted, letter 't' was omitted in 'fooball' for 'football', letters 're' were omitted from 'sectery' for 'secretary'.

'Vowel pattern rule' was another type of spelling error where students used wrong vowel digraph for example 'aut' for 'out', 'classroem' for 'classroom', 'borght' for 'bought' or omitted silent 'e' for example 'besids' for 'besides'.

'Homonym' was another kind of interesting error where students used wrong homonym for the meaning intended for example, 'no' was used instead of 'know', 'buy' was used instead of 'by', 'hear' for 'here' and 'fool' for 'full'. About 39 errors were from this type that represented 4.5 % of the total spelling errors.

The eighth highest spelling errors were from the 'consonant substitution' that had 37 overall errors. It was 4.3 % of the total spelling errors. These errors occurred when students substituted one consonant for another for example 'nane' for 'name', 'choises' for 'choices', 'spisy' for 'spicy' or a consonant was substituted for a vowel for example 'fell' for 'feel'.

Ninth highest spelling errors were from 'affix' and 'reversal of a letter' where these errors occupied 35 errors out of total errors that represented 4.1 % of the errors. 'Affix' errors occurred when students used the wrong prefix of suffix for example 'tradisinal' for 'traditional', 'talless' for 'tallest', 'schooles' for 'schools', 'equity' for 'equally' and etc. 'Reversal of a letter' errors were done by students when students reversed letters in words for example 'trun' for 'turn', 'medle' for 'medal', 'plya' for 'play' and etc.

Next highest spelling errors were from 'Plurals, Possessive and Contractions' where students omitted apostrophe in possessives for example 'sisters' for 'sister's', 'birds' for 'bird's' and etc. Students tended to add apostrophe in plurals or contractions for example 'stripe's' for 'stripes', 'rabbit's' for 'rabbits', 'din't' for 'didn't' and etc. There were 30 errors of this type with a percentage of 3.5 out of the total 860 errors.

Words that cannot be configured occupied 3.5 % from the overall errors. These words cannot be figured out at all. 'Pronunciation' was an uncommon error that only occupied 22 errors or 2.6 % of the total errors. Even then, these errors were still made by students when students shorten or lengthen words, substituted graphemes or shorten suffixes for example 'fathe' for 'father', 'intresting' for 'interesting' and etc.

The lowest 2.1 % spelling errors were 'Bahasa Melayu' where students were influenced by second language which was Bahasa Melayu and confused themselves with the spelling when the pronunciation of the words representing the items were similar for example 'sirap' for 'syrup', 'ais' for 'ice', 'pensil'or 'pencil' and etc.

The categories of spelling errors were then ranked from the frequently occurring to the least in descending order as shown in figure 2. Here, the most common category of spelling errors is obvious and the frequency too clearly stated.

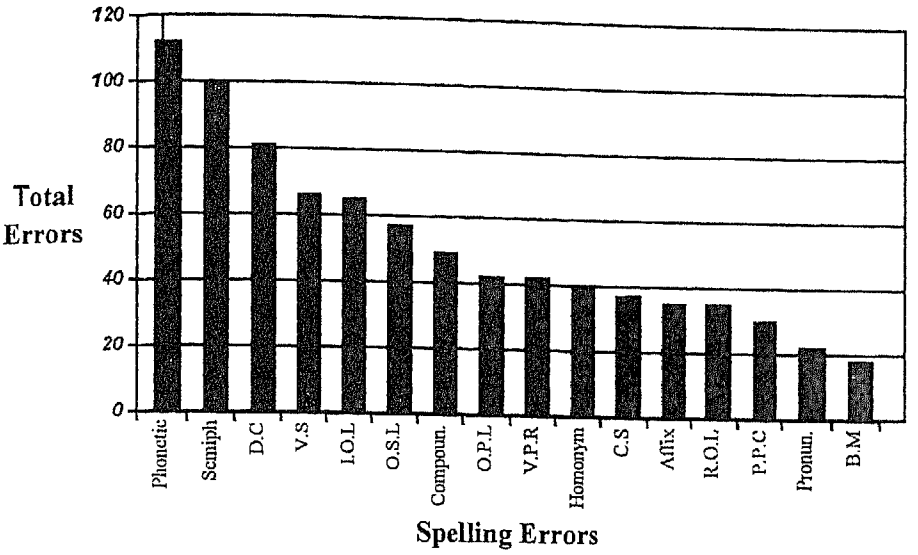

Figure 2
Frequency of Spelling Errors

Key words used in the chart

O.P.L - Omission of Pronounced letter	V.P.R- Vowel Pattern Rule
R.O.L - Reversal of a letter	Pronun.- Pronunciation
I.O.L – Insertion of a letter	Semiph. – Semiphonetic
D.C – Double Consonant	C.S – Consonant Substitution
Compou.- Compounding	O.S.L – Omission of Silent Letter
P.P.C – Plurals, Possesssives and contractions	B.M – Bahasa Melayu

4.3 Spelling Development Stages

The spelling development stages of these children were revealed from the analysis of students' spelling errors such as spelling errors, stages of spelling development, metalinguistic competencies and cognitive stages.

4.3.1 Analysis of Spelling Errors

About 112 words were spelt wrongly under the category of 'phonetic' and they covered 13 % of the overall percentage of spelling errors. 'Phonetic errors' were the first in ranking of highest spelling errors compared to all the other spelling errors. Second highest spelling errors were from the category of Semi Phonetic that accounted to 100 words or 11.6 % of the overall errors. Third in the placing was Double Consonant with 81 errors, about 9.4 % of the total errors. The fourth highest spelling errors were from Vowel Substitution.

From this data, Phonetic, Semi Phonetic, Double Consonant and Vowel Consonant ranked as the first four highest categories of spelling errors. This finding showed that students were using sound symbol relationship largely to spell. Students were spelling words according to how the words were sounded for example 'nait' for 'night', 'difical' for 'difficult' and others. These were phonetic errors that has the highest type of spelling errors from the overall errors. Semi phonetic errors implied that students were also using several letters chosen phonetically in their spelling though not relying totally on sound symbol alone for example 'riht' for 'right', strat for 'straight' and etc. In addition to this, students were unsure of certain usages of vowels and consonants and easily confused between these two, for example usage of 'o' and 'a' in 'football' where students had written 'footboll', 'mather' for 'mother' or vowel 'i' omitted from 'direction' and replaced with 'e'. It was written as 'deretion'. However, students

were exploring other aspects of spellings and not totally dependent on phonetics to spell.

Double Consonant and Vowel Substitution errors occupied third and fourth highest ranking in spelling errors. Students were unsure of the quantity of consonants for example 'untill', 'suceed' or even 'anggry'. They were confused with the consonants and did not know when to or not to double the consonants.

They substituted vowels to consonants and vice versa for example in 'steight', consonant 'r' was replaced by 'e' and etc. These students omitted schwa sounds and replaced with vowels for example in 'stracturs'. They replaced diagraph with single sounds for example 'au' in 'naughty' to 'o' as 'noti', 'ou' to 'o' as in 'fevorate'. Confusion was obvious in the usage of diagraph such as 'au' to 'ou' for example 'house' to 'haus', 'ea' to 'i' as in 'defiting' and etc. Silent 'e' too was omitted for example 'stol' for 'stole' or silent 't' as in 'shartes' for 'shortest'. Students were very confused with vowels, consonants, schwa sounds, diagraphs and other features in spelling.

This confusion arose because students were still in the initial stage of spelling development where they clung to sound symbol relationships to spell. They were just exploring other possibilities of spelling conventions. So here, students used phonemes, as means of spelling with the enlargement of other syntactic features such as vowels, consonants, schwa and diagraphs though the usage of these features were not concretized.

The findings too revealed that students were not sure of spelling rules. Students used one vowel for another or used incorrect vowel to substitute schwa sounds or even replaced vowel for a consonant. More spelling errors were due to the confusion in the usage of vowels than consonants. These findings correlated to Read's (1975) study of spelling errors that children basically have problems in the usage of vowels than consonants, omit schwa sounds with vowels and use single vowel to represent diagraph in their initial stage of spelling development.

This study too, signified that these students were using grapho- phonic information in their spelling. Generally, they relied on the phoneme – grapheme relationship and when these children encountered a sound for which there was no ready letter name match used, the system of spelling logic would be used. This system was based primarily to the general rules of language usage and how sounds were formed in the mouth when opened because there are only 26 letters in the alphabet but almost twice that many phonemes or sound units. Adding to this, since English orthography is not phonemically regular, it created many spelling errors too.

Furthermore, spelling is encoding a familiar and meaningful sound into a strange and unpredictable code. As long as these students cling on to the sound of the message rather than the code, the sounds comprising the word, not the elements of the code, one cannot possibly write the word in code (Margaret, 1967). In brief, spelling errors are unavoidable as long as sound symbols are used as the main criterion to spell.

These students too, were aware that writing was related to the sounds of speech. Here, the 'glottographic theory' was strong enough to replace the 'semasiographic system'. A 'glottographic theory' is based on the sounds of speech (Sampson, 1985). The findings showed that these students began to shift their attention from what writing looked like to how writing was related to the sounds of speech. Here students did not focus on the number of letters to be included in spelling the word but more to the sound of the word itself, for example, 'library' has three syllables and the child concentrated not on numerals and wrote any three letters but more to the sound symbol relationship and perhaps spell 'laibrari' in accordance to the sounds of the word and also familiarising with the use of vowels. Here the child was focusing on the sounds of the word. 'Semasiographic system' is based on written numeral in which writing represents meaning and can be pronounced 'one, two, three and others (Sampson, 1985).

Based on the data collected, students were in phonetic stage where phonemic features became the basis of their spellings but they too ventured further into the development of next stage of spelling as students were using other spelling conventions. This stage was called the transitional stage of spelling development. Thus, students were in between the stages of phonetic and transitional.

4.3.2 Analysis Of The Stages Of Spelling Development

Students' spelling errors signified that students were in between the stages of phonetic and transitional according to the 'Stages of Spelling Development' by Gentry (1978). Some of the symptoms mentioned by Gentry (1978) were important to support the facts that these students were between the two stages of spelling development, phonetic and transitional stages. The explanations of the symptoms are as follows.

i. The phonetic stage

The phonetic stage was when the students demonstrated spelling strategies based on the phonological representation of the word (Read, 1986, & Treiman, 1993). Children at this stage have held the concept of word firmly. They use a letter or group of letters to represent every speech sound that they hear in a word thus developing a letter name strategy. Read (1975) discovered that children at this stage spelled by the phonemic feature that was emphasized in each letter as it was named in the alphabet of their language.

Martin and Miller (2001), had listed few familiar developmental spellings at phonetic stage and they coincided with the findings from this study; the letter names of the vowels such as 'i' and 'o' representing the vowel sound, 'enimies' for 'enemies', 'deretion' for 'direction' 'ofter' for 'after', 'footboll' for 'football' and 'tollest' for 'tallest'. Pre- consonantal nasals were omitted for example 'joing' for 'jogging', 'desined' for 'designed', 'srat' for 'straight' and 'gettle' for

'gentle'. The morphological endings on words such as the past tense and the comparative form 'er' were represented in the phonological form for example 'coved' for 'covered', 'tierd' for 'tired' and 'attekr' for 'attacker'. Much of the letter formation at this stage was still formative and there were a variety of reversal confusion displayed for example 'medle' for 'medal', 'entre' for 'enter', 'cired' for 'cried' and 'promies' for 'promise'.

Partially recalled exceptional spellings such as 'libray' for 'library', 'bercause' for 'because', 'desingn' for 'design' and 'enimies' for 'enemies' were also found in this study. There may be instances of inconsistency in the phonetic spelling such as 'faviroute', 'faviorite', 'favaurite' for 'favourite', 'class roon', 'class rom', 'clasroom' for 'classroom' and 'stecffrom', 'staffrom', stafrom' for 'staffroom'.

ii. Transitional stage

Students also showed signs of spelling development as in the transitional stage. This was obvious as students progressed more towards transitional stage, they used markers or silent letters which were often a faulty one for example 'besids' for besides where 'e' was silent and not replaced, 'strips' for stripes where once again 'e' was silent and only replaced with 's' and 'favorite' for favourite where letter 'u' was silent and only replaced by 'o'. At this stage, a word was no longer confined to concrete linear matching of letters to sounds, instead, a pattern began to function relationally (Henderson, 1972). It was the relationship among the letters in each word that indicated the pronunciation for example 'because' was

spelt by combining 'be + cows' which was paralleled to the pronunciation. There was a pattern followed here by the students. These students used previous knowledge of words to form a new unknown word. Another example will be 'fathe' which was again another combination of sounds 'fa + the' thus produced 'fathe' where the 'r' was silent. Another example that showed children were using certain pattern when spelling unknown words based on their phonology knowledge was 'thirdteen' which was a combination of 'third + teen'. This was the rationale behind this formation of word and children did not come to an understanding that letter 'd' in 'third' had to be dropped when combining with another word to produce 'thirteen'.

Although the transition stage from phonetic to transitional showed that there was still much phonetic influence in spelling, students followed English orthography's basic convention to a certain extent for example 'responsibilite', 'brather' etc. Students too, added morphological in addition to phonics in spellings for example 'stracturs', 'concoured', 'swiming' and etc.

There was evidence of the emergence of visually retained forms of the spelled word. That was particularly shown in the spelling of exceptional word forms that were often more frequently occurring words for example ' junction', 'money', 'playing' and 'afternoon'. Here children would have used the strategies suggested by Radebaugh (1985):

a. memorized words

b. meaning was visualized

c. whole word was visualized

d. used small words within

Students might have included all appropriate letters in a word but might have reversed some of the them for example 'trun', 'friend' or 'entre' and etc. Students used all alternative spellings for the same sounds but did not fully understand the conditions governing the use. Students used more correctly spelled words.

iii. Between stages

The conclusion is that students were between the stages of phonetic and transitional in their spelling development. They had objectified word as a stable object. They could see letters and words as something concrete. They were able to discern and match letters to the phonemic elements in a consistent direction. This achievement involved a considerable level of abstraction. Conceptually, on the other hand, the letter name stage was noticeably mechanical and concrete: word matches word, letter matches sound left to right. At these stages, when children were burdened by homographs, many high frequency words which were 'to the minds' eye' spelled alike and syntactic features in spelling such as vowels, diagraphs, consonants, a lot of confusion arose and could be challenging to beginners (Henderson, 1972).

Due to this, children fumbled through words, hence made many spelling errors. This was because children between stages had not concretised the English

orthography but relied more on sound – symbol relationships. Children in between the stages of 'phonetic and transitional' need to have vast experience with spelling words before they were able to see beyond phoneme grapheme correspondences.

In contrast to that, the findings too revealed that there was little evidence of random spelling errors in this study. The errors that occurred here were consistent. The spelling pattern sequence suggested that students in between the stages of phonetic- transitional seemed to have developed a highly sophisticated knowledge of English phonology. They were acutely aware of the characterization of English sounds and had established a hierarchy of these characteristics with which to base their initial spelling of English words. Their phonology were relatively consistent indicating that they may be building a set of internalized rules with which to deal with the system of English orthography. Students knew how sounds were articulated and gradually used that knowledge in their early spelling attempts.

Children appeared to proceed through many of these spelling patterns sequences at different rates. Some children would pass through the initial step of a particular sequence more rapidly than others while other children would appear to skip an initial step as though they were more advanced in spelling. It was found, however that the sequence of steps for the spelling patterns examined appeared contrast for most children. According to Henderson (1972), the characteristics of children's spelling errors lead themselves to grouping by

developmental stages. It was these that reflected a progressive differentiation of orthographic knowledge.

4.4 Interviews

Interviews were held after analysing the errors to examine students' metacognitive awareness of the spelling strategies they used in their spelling. This was to double - check the accuracy of the classification of the errors into the categories.

4.4.1 Spelling Strategies

11 students from each class were interviewed at random. 3 misspelled words from each student's writing were used in the questioning. Students' spelling errors were classified first before the interview and after the interview students' responses were compared to the classification of errors for accuracy.

During the interviews these students explained the strategies they used in spelling words. About 132 misspelled words were used in this interview. Students' explanations were then examined as to the strategy they used for their spelling errors. Interviews helped to check on students' metalinguistic abilities to support their misspelled words. This was to ensure whether students have any logical explanations about their usage of the letters in spelling certain words.

Students' explanations were classified to five strategies recommended by Hitchcock 's (1989). Examples of spelling errors using the strategies were as follows:

a. phonetic – Examples were 'noughty ' for naughty, 'responsibilite' for responsibility, 'haus' for house and 'unforgateble' for unforgettable.

b. strategic –Examples were 'an' for and, 'breakfirst' for breakfast, 'thirdteen ' for thirteen and 'wonderfull' for wonderful.

c. correction - Examples were 'si' for is, 'yo' for go, 'trun' for turn and 'fridy' for friday.

d. denial – Examples were 'joging' for jogging, 'because' for because, 'swimming' for swimming and 'foot ball' for football.

e. Unknown –Examples were 'ambixtion' for ambition, 'monther' for monster, 'souvineirs' for souvenoir and 'baiting' for biting

4.4.2 Analysis Of The Spelling Strategies

The strategies used by the students while answering and reasoning their spelling errors were analysed and the total number of times the strategies used are shown in table 5.

Table 5

Total Strategies Of Spelling Errors

No	Strategy	Total	%
1.	Phonetic	43	32.6
2.	Deny	30	22.7
3.	Unknown	27	20.5
4.	Strategic	23	17.4
5.	Self – correct	9	6.8
	Total	132	100

'Phonetic' strategy was widely used by students to explain their spelling errors. A total of 43 spelling errors were explained using this strategy.

Second highest strategy used to explain students' errors was 'deny' where students denied making any spelling errors though their words were misspelled. These students did not see any mistake in their spelling. According to them, their words were correctly spelled and unaware of their spelling errors. The students used this strategy to explain 30 misspelled words.

Third highest strategy was 'unknown' where students were unsure of their spelling. This strategy was used to reason out 27 misspelled words. Here students were not sure of spelling. They did not know the correct spelling.

Next strategy used was 'strategic' which was used to explain 23 misspelled words. The last strategy was self - correct. About 9 errors were explained using this strategy.

The interviews were to ascertain the accuracy of classification of errors. The random interviews indicated that a total of 10 words were classified in the wrong categories.

The first seven words were:

a. libray to librari
b. si to is
c. nane to name
d. trun to turn
e. very to every
f. fridy to Friday
g. yo to go

These words were all self corrected by children after probing them in the interview, as they knew immediately that the words written by them were incorrect and they came out with alternatives. Even then, the word 'libray' was changed to 'librari' that once again showed the 'phonetic error' and categorized to phonetic from 'omission of a pronounced letter'.

The other three words that were in the wrong categories were:

a. 'faviroute' from the category of 'reversal of a letter' to phonetic because during the interview when the child was asked to pronounce, the word was pronounced phonetically as 'faviroute' so the error was not because of reversal of a letter but due to error in phonetics.

b. 'adluts' from the category of reversal of a letter to semi phonetic because during the interview, the child said the word 'adult' began with 'a' and was not sure of the spelling so the child assumed that the spelling was as how it was spelt based on sound symbol relationship.

c. 'classroon' from the category of consonant substitution to phonetic because during the interview , the child pronounced the word 'classroom' as 'classroon' and after repeatedly asked to pronounce, the same kind of pronunciation was given. So this error was definitely not due to consonant substitution but because of phonetic reason.

The random interview indicated that only a small number of words were in the wrong categories and these words did not disrupt the classification of other errors.

4.4.3 Metalinguistic Competencies

The analysis of strategies used in the interview obviously stated that students had their own reasons for coming out with particular words and their explanation varied according to the type of errors. They had their own reasons to support their spelling errors. The most common strategy used to explain the spelling errors was phonetic. This strategy once again indicated that students relied more on sound symbol to spell thus producing spelling errors for words that did not correspond to phoneme grapheme.

As for metalinguistic competencies, students explained their errors mainly from the 'phonetic' strategy. The second highest strategy used to explain their spelling errors was 'denial' where students were contended they had spelled the words correctly and could not see any other options.

The next highest strategy used was 'unknown', which showed that students were unable to give reasons for their spelling errors. These were the three strategies used widely by students to explain their misspelling. Once again, this reflected that students sounded out words in segments or as a whole that portrayed their dependence on the sound – symbol relationship to reason out their spelling. Students were not that creative to use other strategies to explain their misspelling or even use 'strategic strategy' widely. Students either did not see the errors in their spellings or they did not know the real spelling. Hence students were at the

phonetic stage in the spelling development as children were using phonetic as main reasons to explain their spelling errors. These children did not see anything wrong in their spelling and they did not have any alternative spelling to explain their spelling errors.

4.4.4 Cognitive stage

Children's response in the interview suggested the cognitive level they were in. Firstly, students portrayed that they were relying on sound symbol relationship and they tried the same method in spelling all the words thus producing spelling errors. These students were aware of letters but only their respective letter name. The name of the letters became the single most dominantly used feature to spell. These children failed to understand that the same sound could be written in many ways. If clues were given in an unknown word that had to be spelt, they were given in the sound but the same sound can be written in many ways. The known meaningful sound had to be written in an unknown way (Margaret, 1967).

Secondly, these children too were using some thinking skills to explain their spelling errors. The usage of 'strategic' strategy in explaining their errors was an interesting revelation about children's metalinguistic abilities where words like 'thirdteen' was spelt by combining 'third' to 'teen' or even word like 'breakfast' was spelt as 'breakfirst' using a strategic explanation with addition of sound symbol clues. Children dissected the word 'breakfast' into two divisions and they were 'break' and 'first'. This strategic way of thinking explained students'

advancement in thinking to solve the problem of unknown spelling. Students were using other spelling strategies than the sound symbol solely and spelling strategies were related to Piaget's concept of 'decentration'.

These two revelations described that these students were in between the preoperational stages and concrete operational stages. According to Piaget (1973), preoperational children tend to focus on only one aspect of the problem and their centered thinking often make them to overlook other's perspective and focus on one aspect of a problem. This vision caused spelling errors because of their focus on phoneme - grapheme relationship solely. These children were being egocentric. This stage was called 'centration', one of the primary characteristics of children at the preoperational level in which 'centering' on a single most dominant character of an object. This centering caused many real objects to be perceived as one-dimensional.

Students' inability to perceive other salient features of objects seemed to have been reflected in the extremely conscious use of the letter- name strategy or the most common spelling errors from the phonetic reasoning. This phonetic strategy was used 43 times to reason out their spelling errors. This was the highest strategy used to explain their misspelling. Students' reasoning corresponded to the phonetic stage of spelling development where sound symbol became the most dominantly used method to spell words; 112 phonetic errors. Spellers selected letters on the basis of sound, without regard for appropriate English letter sequence or other conventions (Hitchcock, 1989). Once again as

the level of spelling development and cognitive development were significantly related (Zutell, 1979), the phonetic stage of spelling development and the concept of centration in preoperational using phonetic reasoning in the interview indicated that these students were largely at the stage of phonetic in their spelling development.

The usage of 'strategic' strategy 23 times to reason their spelling errors revealed that these children were using mental operation for the first time to solve problems. Mental operation here was referring to strategies and rules that make thinking more systematic and more powerful (Kail, 1998). This correlated to the 'transitional stage' of spelling development where children started focusing on more than one objects. Spellers used alternative spellings for the same sounds but did not fully understand the conditions governing the use (Hitchcock, 1989). But this strategy was the fourth highest strategy used out of five strategies in explaining students' errors. Thus this finding showed that students were only at the verge of entering concrete operation stage as these students did not use this strategy extensively to explain their spelling errors.

In addition to that, according to Elkind (1965), children must be able to group the concept that letters have an ordinal property (their position in the alphabet) and cardinal property (their name) that one letter may represent different sounds and that the same sound can be represented by more than one letter. Further more the nature of English orthography is so irregular and can be confusing to the children who are just at the verge of entering concrete operation. Children could only

deal with letters as a conceptual level until they had attained the levels of thought which allowed them to consider more than one dimension of the letter (Elkind, 1965) but this concept was not stable among the students in this study.

The findings from the interviews too implied that these children were unaware of rules of English orthography and Chomsky (1970) hypothesized that children do not know everything about the rules that govern the pronunciation of English words. Children could not understand the phonological and the morphophonemical theories that underlie the structure of English orthography.

However, repeated exposure to written words, will allow these children to gradually learn to internalize enough information about similarly spelled words that may have different pronunciation. Children will link this information about similar words to the lexical representation that correspond closely to words that have similar lexical representation but different pronunciation.

In brief, as 'letter' is a complex logical construction that requires concrete operation for its full elaboration, the students in this study did not fully achieve this level. They were still experimenting sounds and words. They were just at the verge of entering the concrete operational stage. Children progressed through development stages as they learned to spell. It correlated with the stages of cognitive development (Piaget, 1967). Children were progressing slowly but steadily from the stage of preoperational to concrete operational. As the level of spelling development and cognitive development were significantly related, these

cognitive stages corresponded between spelling development stages of 'Phonetic' and 'Transitional'.

The findings suggested that students were still at preliminary stage in spelling. As, children's knowledge about written word is acquired systematically, developmentally and gradually, they will subsequently construct tentative rules based on their knowledge and apply those rules to the spelling of words. However, the acquisition process is too complex to be limited to serial learning or word memorization.