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**Dedicated to His Majesty the Fourth Druk Gyalpo on
the occasion of His 60th Birth Anniversary**

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Investing spelling errors of classes 7 and 8 students in Bhutan who study English as a second language

Tshering Tshomo¹, Ugyen Choden², Thinley³ and Kezang Sherab⁴

Abstract

English language (the lingua franca of the world) has been adopted as a medium of instruction in schools and universities ever since Bhutan started modern education system in the early 1960s. However, in recent years, there has been a general perception that the standard of English has been deteriorating. One of the ways to understand and determine students' standard of English is to perform error analysis (EA) of their language performance. EA is vital to determine the learning progress and carry out necessary treatments for further improvement of the students. While it is beyond the scope of this study to examine all aspects of language errors of the students, this study carried out a spelling error investigation of classes seven and eight (N= 160) students. A total of 160 handwritten essays of 160 students were collected for analysis. The information was collected and analysed following the error analysis procedure of Ellis and Barkhuizen (2009). The errors from the written essays were then grouped into six categories: omission, insertion and substitution, transposition, homophone and confusable, pronunciation, and grapheme substitution. Findings demonstrate that the highest percentage of errors was committed on insertion and substitution category (32%) and the least was committed in transposition category (6%). Bhutanese students committed errors for frequently used words either by omitting or inserting letters. Recommendations for supporting students with their spelling difficulties and for further research are provided.

Keywords:

English standard, language skills, spelling error, ESL (English as a second language), error analysis

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Introduction

English has been introduced as the medium of instruction in the Bhutanese schools as it is the lingua franca of the world (El-Dakhs, & Mitchell, 2011; Sherab, 2013). Bhutanese children start learning all the subjects in English right from their first year (age 6) in school except Dzongkha (the national language) and Environmental Studies (Sherab, 2013). Therefore, it is important that children become proficient in the English language which includes four basic skills: reading, speaking, listening, and writing. According to El-Dakhs and Mitchell (2011, p. 2), "an essential component of this proficiency is improving one's ability to communicate via writing since it is crucial to effective communication and essential to employment in today's world." Communication skills represent a kind of individual one is. Language is the most essential medium to communicate one's thoughts, needs, desires, and feelings. Cook (2003, p. 3) rightly argues that "Language is at the heart of human life. Without it, many of our most important activities are inconceivable." In Bhutan, the English language is not only used as a medium of instruction in schools and universities but also widely used as an official language across the nation and for everyday communication (both verbally and in written form).

Despite all these facts, the standard of English has been always a concern for the education stakeholders (CERD, 2002; MoE, 2014; REC, 2009). A recent evaluation of the entire school English curriculum recommended a major review of the existing English curriculum (Sherab, Dorji, Lhendup, Tshering, Zangmo, & Tshering, 2017). This is an indication that there are issues related to the English curriculum and the standard of English in the Bhutanese schools. Some of the pertinent issues identified were issues related to grammar teaching, choice of texts, assessment, teacher preparation and size of the curriculum amongst others. While there is no research conducted in the Bhutanese context, anecdotal evidence indicates that writing in general and spelling errors in particular are a common problem amongst Bhutanese students. Research elsewhere has shown that poor spelling can be detrimental to the overall quality of writing (Dadzie & Bosiwah, 2015; Fagerberg, 2006; El-Dakhs, & Mitchell, 2011) which can lead to miscommunication. Therefore,

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this study was designed to examine students' communication skill through writing mainly focused on understanding their spelling proficiency. Making use of a correct spelling is important for effective communication as a misspelt word is likely to convey a wrong message (Fagerberg, 2006). However, it is not an easy task for non-native writers to use a correct form of grammar and spellings. It is evident to make errors not only in the use of language but also in spelling. Corder (1981) defines errors as systematic and ever-occurring, and mistakes as being unsystematic, ever-occurring, and irregular although distinguishing the two sets in actual practice is not so straightforward or easy.

Makings errors by the learners is a sign of learning. According to scholars such as Corder (1981), Cook (1997), and Ellis and Barkuizen (2009), errors are considered as the positive sign of learning. Furthermore, Corder (1981) maintains that the learner's errors are important to teachers, researchers, and students in three ways: they show teachers what the students have learned and have not learned; they provide a purpose for the researchers to further investigate how the languages are learned; and they enable the students to learn the rules of the target language after obtaining the feedbacks on their errors. According to Darus and Subramaniam (2009, p. 487), error analysis is a "linguistic study that focuses on the errors learners make". English is a second language for all Bhutanese students and it is inevitable that learners are bound to make errors. Existing literature recognise that learning a second language is often a challenging experience (Darus & Subramaniam, 2009). What is more important is identifying the difficulties students face and supporting them to experience success and meaningful second language learning.

According to Al-Saudi (2013), analyzing errors helps in learning the cognitive process learners use to receive information from the target language through their performances. Thus, Al-Saudi (2013, p. 100) asserts that the "error analysis mainly focuses on the correlation between learners' errors and understanding the underlying process of second language acquisition." Therefore, Saville- Troke (2006) emphasise on the importance of focusing on learners' errors not as bad habits to be eradicated but as sources of insight into the learning processes. Although it is crucial for second

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language users to write with spelling accuracy, there is still a limited number of researches on this matter (Cook, 1997). It is important to understand that knowing and analyzing spelling errors is one of the crucial techniques to improve spelling proficiency that will contribute to writing proficiency. Therefore, the purpose of this study was to explore and analyze the kind of spelling errors made by the ESL learners particularly focused on students of classes seven and eight in one of the schools in Bhutan.

Research Question

Thus, this research aimed to seek answers to the following research questions:

- What kind of spelling errors is commonly made by the Bhutanese students?
- Why do Bhutanese students make the categorized kind of spelling errors?
- How can ESL teachers in Bhutan help their students minimize spelling errors?

The significance of the study

This study is of immense significance as it is the first of its kind in the Bhutanese context that aimed to explore and analyse students' spelling errors. As school teachers and teacher educators, with an average teaching experience of more than fifteen years, the researchers have experienced that spelling errors are a common problem amongst the Bhutanese students both at the school and university levels. Writing with correct spelling is one of the effective forms of communication. If this issue is not addressed at the earliest, it can lead to poor writing skill and further deteriorate the standard of English. While there are studies in the international context, there is no study on the nature of spelling errors in the Bhutanese context. Therefore, this study intends to reveal the kinds of common spelling errors Bhutanese students make and provide insights into ways and means to support them with spelling difficulties. This study also hopes to create awareness amongst the English teachers and students the importance of writing with correct spelling. Addressing such an important component of language would go a long way in improving the standard of English and hence the quality of education in Bhutan.

Literature Review

Error analysis is a “linguistic study that focuses on the errors learners make” (Darus & Subramaniam, 2009, p. 487). Ellis and Barkhuizen (2009, p. 51) assert, “error analysis consists of a set of procedures for identifying, describing and explaining learner errors.” According to these authors, errors can appear in two forms: in comprehension and in production. Comprehension errors are hard to analyze since it is impossible to detect its linguistic source of errors. Therefore, error analysis of the students’ language can be investigated or examined only through students’ writing and speech productions.

Existing literature indicates that there are two kinds of errors – performance errors and competence errors (Touchie, 1986). Errors made by students while doing the task in haste or when they are exhausted or out of sheer carelessness with the given task are performance errors. On the other hand, competence errors reflect inadequate learning, which is a serious error. The distinction between the two aligns with the concept of mistake and error of Ellis (1997). Furthermore, Touchie (1986) and Ellis and Barkhuizen (2009) present two major sources of errors: interlingual and intralingual. According to this language related error, students tend to transfer their first language rules to the second language and prefer to use simple forms rather than complex forms.

For Jensen (1962), spelling a word is putting letters in its proper order. It is vital to put letters in proper order to avoid errors. Spelling is one essential subskill in the language since it is the tool which helps learners to write effectively and accurately. Dobie (1986) maintains that the study of spelling errors dates back to as far as 1767. During this time, the American polymath Benjamin Franklin, who was also the statesman, inventor, scientist, postmaster and diplomat invented six phonetic alphabets to overcome the orthographic confusion to help with the spelling problems of his countrymen (Dobie, 1986). Although spelling errors seem minor, neither parents and teachers nor the general public were able to ignore them in learner’s writing (Allred 1984).

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Spelling English words correctly is difficult and even natives face such difficulties given the current technological development in which spelling could be autocorrected. They misspell commonly and frequently used words too. Existing literature indicates that the English words are filled with homonyms, inflections, foreign words, and consonant alterations which confuse even educated and intelligent Americans (Dobie, 1986). This shows that students take time to internalize some frequently appearing words (Cook, 1997).

Several studies have been carried out with students of various nationalities at different grade levels starting from elementary to undergraduates. For instance, Jenson (1962) investigated spelling errors according to letter position of 7-, 9-, and 11 words amongst students of grade eight, ten, and junior college freshmen respectively. The study claimed that some errors in spelling words are because of phonetical difficulties. Students make errors when words are difficult to pronounce. Research has shown that this was also a problem for students in Ghana (Dadzie & Bosiwah, 2015). Therefore, a wrong pronunciation of words is one major reason for making errors. Would this be similar with the Bhutanese students? In the absence of any study, it is uncertain if Bhutanese students also commit spelling errors due to pronunciation difficulties. This study intends to fill in the existing gap in terms of spelling errors in the Bhutanese context.

Kreiner, Schnakenberg, Green, Costello, and McClin (2002) conducted an experimental study to investigate a correlation between intellectual ability and spelling ability. Eighty-two college students participated in their study. Three version of a 308-word essay was constructed. The first version had no spelling errors, the second version had four phonological errors and the third version had four typographical errors. The participants used a 10-centimetre graph to rate the author of the essay. It was found out that the spelling errors influenced the way readers perceive the ability of writers. In addition, readers attribute spelling errors to poor writing ability but may not attribute towards writers' level of cognitive abilities. In contrast, Dobie (1786) opines that a writer's intellectual ability is judged based on the accuracy of their spelling ability.

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Dich and Pederson (2013) inquired whether the characteristics of first language orthography has an influence on the mechanisms of spelling English words. The study was conducted with graduate and undergraduate students whose native languages were Danish, Italian, Russian and English. These students followed the same mechanism of learning their native language for spelling English words. Their study claims that students transfer their L1 spelling strategies in spelling English words as their L2. These students grouped the letters and syllables of English words like the way they would do for their L1.

The study of 94 EFL University students speaking Arabic found that students with higher language proficiency level were likely to produce accurate spelling of words (Al-Busaidi & Al-Saqqaf, 2015). Also, students were found internalizing pronunciation of the words and as a result, they face more problems in spelling the words with longer vowel than words with a shorter vowel. They also inserted vowels in between the consonants. Although students frequently used some words, they were found misspelling them. Students were aware of the sound of the words but not their forms. This is an indication that the students' mother tongue can interfere in spelling the words. The way students perceive the phonemes will influence both the spelling and pronunciation of the words.

Similarly, investigations of spelling errors with university students by Albalawi (2016), Al-Oudat (2017), and Ahmed (2017) revealed that most foreign and second language learners commit errors related to three different categories, namely insertion, substitution, and omission. They confirmed that students follow their pronunciation to spell the words. In addition, Arabic orthography is different from that of English and this confuses students. Moreover, students' L1 interference attributes towards committing spelling errors in L2 since the two languages have different linguistic features.

Scholars like Richards (1971), Saville-Troike (2006) and Ellis and Barkhuizen (2009) assert that children learn second language like acquiring their first language. They follow their rules and development sequences of the language in a systematic manner. This interference of native language creates errors in language production

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which is termed *Interlanguage*. Errors committed through this process could be due to fossilization of rules, items and subsystems of the language. These interlanguage errors are the cause of:

1. Interference or language transfer

Learners use features of language they know in learning a new language. Interference errors are noticed mostly in pronunciation, morphology, syntax, vocabulary and meaning. Students might omit plural 's' for English morphology if the language they know does not have its plural forms.

2. Overgeneralization

Students tend to use their prior strategies of learning language in new language learning. These strategies are considered helpful in learning factual information about the language. However, it would not be applicable in learning the systematic rules of the languages when the languages cannot have similar analogies. This could mislead the students and create errors. One common example for overgeneralization is 'comed' for came, 'goed' for went and 'singed' for sang.

3. Social aspect

Learners might prefer to use the words or structure of language in the way it is used in their native language. In the process of doing so, because of its inapplicability, errors might be committed. For instance, Bhutanese students might write '*I USA going*' for *I am going to USA* since they say like the previous one in their native language.

On the other hand, students could commit errors in hurry or when tired though they know the words correctly. Such errors are called performance errors. If given a time, learners would be able to correct these errors themselves.

From the existing literature presented above, we can conclude that most of the spelling errors are caused by interference of first language, pronunciation difficulties, fossilization, teachers' inadequate knowledge to teach the words (Dobie, 1986), students' wrong hypothesis on the word, and inconsistent teachers' feedback (Alfaki,2015). Are these causes of spelling errors applicable to the Bhutanese context?

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What would be some of the main issues associated with the Bhutanese students' spelling errors? Till date, nothing is known about the Bhutanese students' spelling errors. Therefore, this study was designed to explore and understand the nature of Bhutanese students' spelling errors and find out solutions to address the issue.

Methods and Materials

This study investigates the types and nature of spelling errors made by the students of classes seven and eight at one lower secondary school in Bhutan. The study was grounded on a quantitative approach with a census survey (Cohen, Manion, & Morrison, 2011) of the entire students (N=160) studying in classes seven and eight during the academic year 2018 in the sample school. This is the school where the Principal author worked and taught English to all these students. The identification of the school is not revealed for ethical reasons. Misspelt words were collected from the 200-300 words essay written by classes seven (n=91) and eight (n= 69) students of the sample school.

In order to collect the samples, analyze, and discuss them, the procedural error analysis of Ellis and Barkhuizen (2009) have been adopted as presented below:

1. Collection of a sample of learner's language;
2. Identification of errors;
3. Description of errors; and
4. Explanation of errors

Bhutanese students have to write two English papers for their English examination: English I and English II. The paper I consist of Writing and Language where students have to write an essay, a letter, and grammar exercises. On the other hand, paper II is about Reading and Literature where students have to respond to objective and subjective questions after reading three given genres: short story, essay, and poetry. The short story is a seen text, which students have already studied in the class but essay and poetry are unseen texts (texts that they did not study in the class).

For this study, samples of the misspelt words were collected from a descriptive essay written by the students of classes seven and eight for their English paper I. They

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wrote a descriptive essay in 200-300 words on one of the topics from the three given choices. Students are already aware of writing essays as it is one of the major activities that happen in their English lessons. For this research purposes, the students were asked to write descriptive essays on the spot. It was a kind of demand writing where students had to respond to a given prompt. Students did not know that their writing would be used for research purpose. It was done intentionally to collect their freely produced samples.

All the essays were examined for only the spelling errors made by the students and other aspects of the language were ignored for the research purposes. After having marked the misspelt words of the students in their essays, they were recorded against students' names in a table. Finally, the misspelt words were paired with their correct version of the spelling.

All the misspelt words were grouped into six categories of errors. These categories of errors have been adapted from Cook (1997) to make it relevant to the current study. The types of errors committed, their explanation and a few examples for each category are given in Table 1:

Table 1: Types of errors

Sl. no	Types of errors	Meaning	Example
1	Omission errors	Omitted a letter	<i>Planed</i> for planned
2	Insertion and substitution errors	Inserted a letter and substituted one letter with another	<i>Wonderfull</i> for wonderful; and <i>Nactor</i> for nector
3	Transposition errors	Transposition of two consecutive letters	<i>Fornt</i> for front
4	Homophone and Confusable errors	Homophone words and words with similar spelling or pronunciation	<i>Mane</i> for main <i>Their</i> for there <i>Movement</i> for moment
5	Pronunciation errors	Spelling according to sound of the letter	<i>Notty</i> for naughty
6	Grapheme substitution errors	Multiple changes to the word	<i>Edital</i> for edible

Note: The consolidated frequency and percentage of spellings errors occurred in 160 students' essay writing for each category is reflected in Table 2

Findings

The misspelt words encountered in the works of 160 students of classes seven and eight were grouped into six categories: omission, insertion and substitution, transposition, homophone and confusable, pronunciation, and grapheme substitution. Consolidated frequency and percentage of misspelt words are presented in Figure 1. A detailed description of the findings for each category is also presented.

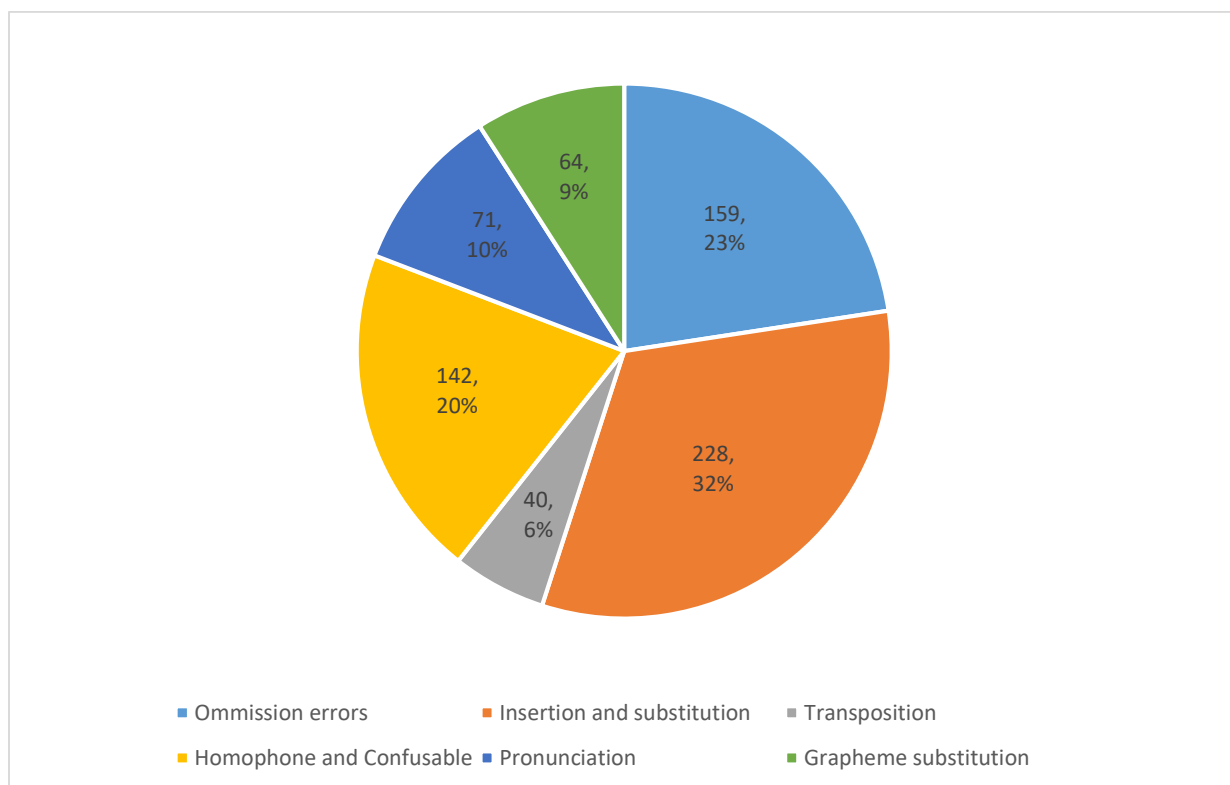


Figure 1: Frequency and percentage of spelling errors

Omission errors

Omission errors are committed when a letter or two is missing from the word. As shown in Figure 1, the second highest errors are committed in this category with 159 times out of 704 (23%). Students have omitted a letter or two from the words (shown in *Italics*). For instance, *libary* for library; *essy* for essay; *happly* for happily; and *phyco* for psycho. Students have mostly omitted letters such as ‘e’, double letters and end letters of the word. For example, *varities* for varieties, *experince* for

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experience, *medicins* for medicines, *personaly* for personally, *attractive* for attractive, *planed* for planned, *swiming* for swimming, *notic* for notice, *wit* for with, *femal* for female, *mor* for more, and *invit* for invite.

While it was beyond the scope of this study to determine the cause, it can be tentatively assumed that students could have committed such kind of errors in sheer-carelessness or in hurry. They could have been in hurry to complete the task or been lazy to write all the letters for the word. This is something that needs to be further explored.

Insertion and substitution errors

Students commit insertion and substitution errors when they either add or substitute one or two inappropriate letters in the word. The participants committed the highest number of errors in this category (32%). Some examples of this errors are: *between* for between; *mechine* for machine; *ruleing* for ruling; *childrens* for children; *trys* for tries; *comming* for coming; *rukar* for ruler; *thankfull* for thankful; *gackal* for Jackal and *genious* for genius.

They have misspelt the particular word by either inserting or substituting inappropriate letters since they had no clear idea on when consonants and vowel need to be added before adding suffixes. When a one-syllable word ends in a consonant with one vowel before it, the consonant is doubled before adding a suffix or ending beginning with a vowel- e.g., running.

Also, students could have been confused about replacing 'i' for 'y' in some words that end with letter 'y' with suffixes. When a root word ends in 'y' preceded by a consonant, the 'y' is changed to 'i' in adding suffixes and endings unless the ending or suffix begins with 'i'. These students did not know how to substitute 'i' for 'y' in writing the past form and adverb of the verb ending with 'y'. For example, '*happily*' for happily, and '*studyed*' for studied.

As shown by the existing literature, some words could have been misspelt because of their pronunciation. They mispronounce the words and in the process misspell the word. For instance, students mispronounce the words assembly as

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'*assambly*' and fellow as '*fallow*'. This is most probably the influence of their local accent. However, there needs to be more research to understand clearly the nature of such language difficulties.

Transposition errors

Transposition errors are those spelling errors when nearby letters are replaced by one another. This category of error has the least spelling errors (6%) that these group of students committed. Most of the frequently transposed letters were 'i' and 'e'. For instance: *freind* for friend, *recieve* for receive and *deis* for dies. Another transposed error occurred for those words containing letter 'e' and followed or preceded by other letters. For example, *fretile* for fertile, *musuem* for museum, *dose* for does, and *mystrey* for mystery. Some of the transposition errors were committed for words that contain letters 'i' preceded or followed by other letters. For example, *viocce* for voice, *frist* for first, *afriad* for afraid and *silience* for silence. Findings from this study contend that students seem to commit transposition errors for those words with vowels in the centre of the words. This could be because students are confused with the order and sound of the vowels.

Homophone and Confusable errors

Homophone and confusable errors are committed when homophones are used in wrong context or words that look alike are used, though they vary in pronunciation and spelling. There are lots of homophonic words in English. Also, there are words that look alike but they are pronounced and spelt differently. Most students get confused with these words. Findings from this study highlight that 20% of the spelling errors committed by students fall under this category.

Most of the students who participated in this study showed confusion over homophones like *their* and *there*, *whether* and *weather*, *man* and *main*, *Rome* and *roam*, *piece* and *peace*, *rich* and *reach*, and *meat* and *meet*. Similarly, this study also supports the view that students commit errors in spelling words that look and sound similar. Some examples of such issues from their writing were - *where* for *were* 'fell

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for *feel*, *wall* for *well*, *bride* for *bright*, *these* for *this*, *principle* for *principal*, *through* for *though*, *hear* for *here*, *angle* for *angel*, *grant* for *grand*, *spend* for *spent*, *batch* for *badge*, *plug* for *pluck*, *sit* for *seat*, *mode* for *mood*, *save* and *safe*, *baby sister* for *babysitter*, and *boar* for *bore*.

It is apparent from the findings of this study that students commit such errors in high frequency for simple words like *their* for *there*. This shows that they do not have enough knowledge about spelling rules, especially for homophonic words. Since the words sound similar, they land up using the wrong word though. Some words like *angle* and *angel* look similar since they have similar letters. It is likely that students visualize them as same and retrieve from their visual memory with an error.

Pronunciation errors

When students are not sure about the spelling of the word, they spell it following the sound of the letters. Some example from this study are: *notty* for *naughty*, *dout* for *doubt*, *gurd* for *guard*, *peaseful* for *peaceful*, *senseable* for *sensible*, *tample* for *temple*, *besy* for *busy*, *peaparing* for *preparing*, *ruff* for *rough*, *jungal* for *jungle*, *knowlage* for *knowledge*, *skaf* for *scarf*, *riting* for *writing*, *dequrate* for *decorate*, *alvest* for *always*, *piknik* for *picnic*, *selabreath* for *celebrate*, *aunkal* for *uncle*, *untys* for *aunties*, *edable* for *edible*, and *moal* for *mall*.

Findings showed that ten per cent of the spelling errors falls into this category. Students commit such kind of errors since they are unaware of orthographical rules of the words. This is an indication that they are aware of the sound but not the spellings. According to Touchie (1986), such pronunciation errors are a result of fossilization. They persist for a long period of time and are difficult to avoid.

Grapheme substitution errors

Grapheme substitution errors are committed when words are written with two or more letters mistakenly though it has a basic sense of the word's spelling. The misspelt word does not look like the target word because the graphemes are either in disorder or substituted by wrong graphemes. In the current study, the grapheme

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substitution errors can be noticed in the following examples: *poplation* for population, *tolite* for toilet, *instact* for instead, *whoal* for whole, *styday* for study, *knoke* for knock, *asip* for as if, *loctted* for located, *shankrela* for shangrila, *expote* for explore, *artificion* for artificial, *turtoil* for turtle, *froids* for fruits, and *edital* for edible.

Findings assert that nine per cent of the spelling errors in the current study was committed in this category. Students tend to commit such kind of errors due to overgeneralization, mispronunciation or ignorance of rules. They overgeneralize the letters in the word or pronounce the words their way or ignore phonic, morphological, and orthographical rules since they try to match the word pattern from their visual memory. However, such findings need to be authenticated with more in-depth studies that employ both quantitative and qualitative perspectives.

Discussion

Findings of this study corroborate with prior studies of Al-Busaidi and Al-Saqqaf (2015) and Albalawi (2016), as most students committed errors in insertion and substitution category. This could be the result of the way students internalize the pronunciation of the words. Findings contend that Bhutanese students also make more spelling errors with most frequently used words. This is an indication that they could have been aware of the sound of the words but not their forms. It is important that both the teachers and students should be aware that English spelling does not convey just the pronunciation but a great deal of information too.

Pronunciations do not always determine or are not an important aspect of spelling the words (Allred, 1984). Nevertheless, the findings of this study suggest that Bhutanese students use pronunciations to spell. They spell the words according to the way they pronounce them. One cause of spelling errors for them is the mispronunciation of the words. For instance, they pronounce *religious* as *relageous*, *disturb* as *distope*, *picnic* as *pecnik*, *improve* as *inprove*, and *start* as *stard* and accordingly spell the words. The way students pronounce the words matters a lot in spelling the words correctly. However, such findings have to be further validated with more in-depth information by employing other methods of data collection. One

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important suggestion would be to talk to these students to find out their lived experiences and also understand their perceptions through a survey.

The findings of this study also confirm earlier study of Solati (2014) that showed mother language inferences in pronouncing and spelling English words. Furthermore, the existing literature indicates that spelling errors can be committed because of first language interference namely interlingual and intralingual (Ellis & Barkhuizen, 2009).

The other important information about spelling words is not only about knowledge of phonology, but also orthography, meaning, morphology and semantic functions. As indicated by Dobie (1986), Bhutanese students' inability to spell simple and common words could be lack of training for language teachers to teach spellings to students. Teacher's knowledge about the words will help their students in learning both the words and retrieve them correctly whenever needed. The errors committed by the Bhutanese students affirm that they do not have enough knowledge about the words they have used and also that they are not aware of spelling rules. This has implications for teacher education programmes. It is important that both pre-service and in-service teachers are adequately trained to teach spelling efficiently.

Looking at the spelling errors committed by the students in this study, it is clear that they have written the initial letters correctly for almost all the words. The common errors committed by the students are associated with the letters in the middle of the words. This finding aligns well with that of the earlier findings of Jensen (1962) that students mostly commit errors with the middle letters of the word though they correctly write the first letters. Such findings highlight that students have the word in their memory but not the order of the letters. Therefore, it can be concluded that errors related to omission, transposition, and confusion can be attributed to students' lack of knowledge of orthography rules.

In the meanwhile, the errors like *studyed*, *happly*, and *childrens* could be the result of students' grammar knowledge. In English, the same word has different forms for different contexts. For instance, past tense of *study* changes to *studied* by replacing

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'y' with 'i' and plural of *child* is *children* not '*childrens*'. Hence, it is important that teachers provide more insight into the semantic functions of the words.

Also, according to Touchie (1986) students' tendency to hypothesizing false concept of the target language and applying them thinking it is right, leads to more errors. Therefore, as a teacher, one needs to investigate the errors of students and correct as soon as possible before students conceptualize the wrong concept and reach the fossilization stage.

Conclusion

This study provides insights into the spelling errors of classes seven and eight students from one school in Bhutan for the first time ever. Although the findings cannot be generalised to all the Bhutanese students, other schools and teachers can make connections to their own context and support their students minimise spelling errors to make their writings effective and informative. Findings from this study suggest that students commit errors for high frequency or dominion words although they start learning English from the first year of school. Therefore, such finding calls for the attention of the English teachers to take prompt and necessary actions. Teachers need to be aware that different students have different abilities. Considering the differences, teachers can help their students by exploring and explaining the kind of errors they commit. Errors can be explained by determining their sources in order to account for why they were made (Ellis & Barkhuizen, 2009).

Findings from this study recommend some strategies that can help Bhutanese students overcome their spelling challenges. Since most students spell words in accordance to their pronunciation of the words, teachers should teach them to apply phonics appropriately. Therefore, teachers should teach students to pronounce the words correctly along with enough listening skill to practice the words.

Students acquire new words on a daily basis, but if they do not see it frequently, there is a high chance of fading the word from their memory. Thus, teachers should continuously develop the kind of visual memory that enhances spelling ability. Along with visualization, teachers could provide the etymology of the words. In addition, to

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avoid homophonic, morphological and semantic confusions, teachers could provide extra knowledge on the words.

It would be useful if all English teachers spend about 15 minutes in a day or 60-70 minutes in a week as spelling period or for spelling where students learn the form of words, their history and functions to provide meaningful writing experiences. Then make students meaningfully use the words they have learned in their own writing and speaking.

For future studies, researchers could find a better way to determine the students' spelling errors is through consultation with students by sharing their inferences on the errors made. Also, it would be interesting to study the correlation of spelling errors between Dzongkha and English words. The findings of the latter could further validate if errors occur because of interlingual and intralingual interferences. Studies could be also conducted to see if there is spelling error differences in terms of gender, the location of the school, and parental background. Finally, to help improve the standard of English in the schools, there is plenty of opportunities to conduct error analyses of the students' English language. Such effort by the teachers and other stakeholders would go a long way in uplifting the standard of English in the Bhutanese schools, thereby contributing to the overall quality of education in Bhutan.

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Modelling on the Correctness of the Letter Formation and Consistency in Writing for Promoting Legible Handwriting: An Action Research with Class IV Students

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Abstract

This action research is a result of our observations made with regard to students' handwriting disorder during our six months teaching practicum. Students' handwriting disorder was one of the challenges which raised our concern and felt an immediate need to carry out an action research to assist students to develop effective and readable handwriting. The analysis on the baseline data gathered from teachers (n=2) and observation made among class four students (n=40) confirmed prevalence of handwriting disorder in the sample school. One of the reasons for this issue was that the teachers did not provide adequate importance to their students' handwriting development. As an intervention to the problem, we modelled various aspects of proper handwriting development through letter formation, proper spacing, and use of alignment during writing activities and this and they were made to practice for about a month (n=4). During the post intervention, the four students improved their handwriting. However, we also realised that there is a need for us to verify the impact of other factors like lengthy writing tasks assigned to students, paper position, and pencil pressure on handwriting legibility in the future.

Keywords: modelled writing, handwriting legibility, letter formation, consistency, alignment, spacing, Class IV students, action research.

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Introduction

Handwriting plays an important role in a student's education. There is evidence to show that the quality of students' handwriting is one of the key aspects of school performance (Cornhill & Case-Smith, 1996; Feder & Majnemer, 2007; Volman, Schendel, & Jongmans, 2006). To highlight the importance of students' handwriting, Cornhill and Case-Smith (1996, p. 732) state, "handwriting is required in testing situations for most academic subjects, the legibility of a child's handwriting is critical to demonstrating what he or she has learned about that subject." It is even more important for primary school students as they are in their foundation years. There is lack of research on Bhutanese students' handwriting skill. However, our experiences show that the primary school students have handwriting disorders. In other countries, students with handwriting disorders are referred to an occupational therapist for remedial services (Benbow, 1995; Oliver, 1990; Reisman, 1993, cited in Cornhill & Case-Smith, 1996; Erhardt & Meade, 2005; McCarroll & Fletcher, 2017). Unfortunately, we do not have occupational therapist in Bhutanese schools. So, it is the teachers who may need to help children with this problem. So for this, our action research was designed to support students with poor handwriting skill.

Action research is one of the most significant and effective ways for finding relevant solutions for the problems faced by the practitioners. According to Ferrance, (2000, p. 2):

Action research is not problem-solving in the sense of trying to find out what is wrong, but rather a quest for knowledge about how to improve. Action research is not about doing research on or about people, or finding all available information on a topic looking for the correct answer. It involves people working to improve their skills, techniques, and strategies.

Teachers usually conduct action research in order to improve the quality of teaching and learning (Grundy, 1995; Maxwell, 2003; Kemmis & McTaggart, 2005; Sherab,

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2013). As student teachers, we were interested to find possible solutions to help our students improve their handwriting.

Bain (2000) rightly mentions that handwriting should be used as an instrument of written language rather than, ignoring it in the primary grades. As teachers to be, we observed that students are not given adequate attention to their handwriting during the class. Such practice has to be retraced, so that every teacher and student can understand the role of handwriting. Therefore, considering the intensity of students' handwriting disorder, this action research was designed to support Class IV students improve their handwriting by modeling writing on the correctness of the letter formation and consistency in writing.

Reconnaissance

Grundy (1995, p.13) says that reconnaissance is a stage where the researcher can move to and fro for a while “between reflection and collecting evidence.” Reconnaissance phase of the action research is important as it helps to clearly understand the issue and know what to focus on. The two important components of reconnaissance are situational analysis and literature review (Maxwell, 2013).

Situational Analysis

During our teaching practice, we taught subjects like Science, Mathematics, and English. We found our students' handwriting neither legible nor presentable with no letter alignment and uniformity between spaces. Some letters were slanted while the others were straight overlapping the letters, thus losing legibility. Two separate or different words looked like a single word giving different meaning or appearing meaningless. Furthermore, when the students were made to write on the chalk board, the letter formations were observed to be incorrect, although this is less utilized and more difficult than the pen and paper writing.

Their illegible writing not only became challenging for them but also for us as we neither could read their writing nor recognize the letters. We observed some students even had difficulty in reading their own handwriting. With all these challenges, giving comments and feedback for the errors was time consuming. At

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times, we awarded low grades in their performance during the written assessment which could question our authenticity on assessment. It was a concern not only for us but also for the rest of the teachers in the school.

However, with lack of actions taken to overcome this challenge, we felt our study could be an immediate need to support our students. Students perform better if only more effort were put into the task (Bain, 2000). If not, handwriting disorder can lead to the child's learning disabilities and also affect their self-esteem (Cornhill & Case-Smith, 1996; Feder & Majnemer, 2007). Hence, we blended the common problem of ours to one topic as a team to address the issue of poor handwriting skill among our students. We thought of helping our students overcome and correct this error before they graduate the primary education in order to avoid problems with their writing in future. While there are many reasons for students' handwriting problem such as the poor visual-motor integration and deficit in fine motor coordination (Volman, Schendel, & Jongmans, 2006). With the experiences and observations made, we felt that it was the teacher's lack of attention which resulted to students' handwriting disorder in the school. So, this action research was designed to support students with handwriting difficulties.

Barriers to student's handwriting disorder

Existing literature maintains that teachers should be largely responsible for students' learning (Sherab, 2013). During our six months of teaching practicum, we hardly saw teachers allocating activity time for students to practice their handwriting. They were least concerned when their children did overwrite upon the incorrect writings, hence losing legibility. During our primary school days, we remember teachers demonstrating how to write letters on the chalk board. Furthermore, our teachers always made us maintain and practice writing in our handwriting book. Indeed, we vividly remember how our teachers made us practice writing the line, 'A quick brown fox jumps over the lazy dog' repeatedly. Such emphasis is seldom provided by the teachers now-a-days. As a result, children might feel handwriting is dispensable in academic learning. Existing literature suggests that the children can produce qualitative handwriting if trained properly and correctly while they are in

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their primary school (Feder & Majnemer, 2007; Graham, Beringer, Abbott & Whitaker, 1997 cited in Frijters, 2014). If not, it will be difficult to change the child's handwriting at a later stage once they are used to certain ways of writing. This is all about building a sound foundation when children are in their formative years. Therefore, this action research explored and implemented strategies for helping children write legible handwriting.

Literature review

According to Bain (2000) handwriting disorder refers to issues related to students' letter alignments and formation, legibility, and speed. 'Dysgraphia' and inadequate writing practice are the key factors for handwriting disorder (Johnson & Myklebust (1967 cited in Bain, 2000). Another factor is the unconventional grip of a pencil that is comprehensively discussed by Jolly and Gentaz (2014). "Dysgraphia is a disorder resulting from a disturbance in visual-motor integration" (Johnson & Myklebust, 1967 cited in Bain, 2000, p.79). The child with this type of involvement has neither a visual nor a motor defect but the child cannot transit visual information to the motor system. Students experiencing such difficulties are unable to copy.

There is evidence to show that poor handwriting skill affects students from carrying out quality higher order academic work like story composition or paying attention to the spelling or grammar (Dinehart, 2014; Feder & Majnemer, 2007; Jolly & Gentaz, 2014). Laziness is the main reason for an unsustainability of the students' attention. Similarly, during our teaching practicum, we observed students writing carelessly without attention right from the first class of the day. Logsdon (2016) also argues that student's attention are driven away because of the carelessness and laziness while writing. Children get frustrated when putting an effort for longer period. So, it is understood that we must be aware and adopt strategies to help our students work on their attentional disorders. During an experiment on a 11 years old boy in United States of America, Bain (2000, p.91) found that the legibility decreased with the increase on the length of task. Children during their formative years take longer time to write which distracts their attention. It is also revealed that they sometimes overwrite and are too lazy to erase which leads to poor handwriting. Hence, we

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realized that students must be provided with short writing tasks but the frequency must be maintained.

Children in kindergarten till third grade produced significantly more accurate and readable handwriting when they are trained with perceptual prompts for writing letter forms (Hayes, 2014). As stated by Graham, et. al. (2008) modeling is one of the instructional procedures teachers have been using to help students develop good handwriting skill. Thus, the impact of modeling and making them practice has to be emphasized, which we hardly did in the past assuming our students can write.

There is also evidence to show that the unconventional grip of a pencil leads to the handwriting disorder (Bain, 2000; Temur, 2011). It was interesting for us to observe our students holding pencil in various forms. According to Temur, (2011) there are dynamic tripod and quadruped grips, and index finger touching thumb and interdigital grips. These dynamic grips affected tremendously in writing speed and legibility. For instance, Bain's (2000) study on a 11 year old boy called Mort in America found that the child's thumb was tucked underneath his index finger exerting excessive pressure while writing. During the process, he faced difficulty in writing curved letters such as *c, o, y, and s* and flag letters such as *b, o, w, and v*, hence leading to poor and unreadable handwriting. Similarly, we observed Bhutanese students holding their pencil in different ways. Thus, we wanted to know if the unconventional grip of pencil had any impact on the Bhutanese students like Bain and Temur found in their studies in different contexts.

Temur (2011) suggests to adopt a particular grip called tripod grip than the other grips because the thumb and index fingers holding the pencil is supported by the middle finger giving stability and comfort to the writers. Furthermore, Roux (2009-2017) also insists on using gripper around the pencil while writing. He found out that the use of the gripper helps children from getting tired and carry out writing task with ease.

Literature indicates that students' handwriting development in the schools as well as during the pre-school days is not provided required attention (Bain, 2000). Even in the Bhutanese schools, the similar observation was made during our teaching

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practice where teachers did not give time to the students to practice their handwriting. Their focus was on completing the syllabus. Earlier research in the Bhutanese context has also shown that teachers often neglect important aspects of education in a rush for content coverage and performance in the examination (Maxwell, 2008; REC, 2009; Sherab & Dorji, 2013). Such practices are likely to negatively impact the overall quality of education which needs to be addressed. However, this is something that is beyond the scope of this study.

Therefore, this action research was designed to look at the causes of poor English handwriting of Class IV students and come up with relevant intervention programme to support students improve their handwriting. However, it was beyond the scope of this action research to attend to all the possible factors identified. We wanted to particularly focus on handwriting proficiency: correctness of letter formation and alignment, and inconsistency in writing to support handwriting improvements of Class IV students.

Research question

Does modelled and corrective writing of correct letter formation, spacing, and grip improve legible handwriting for Class IV students?

Sub-questions

1. Does unconventional grip have impact on handwriting legibility?
2. Would uneven spaces between the words contribute to poor handwriting? and
3. Does modeling a correct letter formation help improve legibility of students' handwriting?

Action plan

This section is about how and when baseline data, intervention and post intervention data were collected. First, we sought permission to conduct action research from the school authority as well as the concerned English teachers and students with the help of our project module tutor.

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Second, in order to confirm the issue of handwriting problem, we collected baseline data by interviewing Class IV English teachers (n=2) and observing Class IV students' handwriting (n=40). The baseline data collection took place from 19-27 March 2017. The observations and the judgments made during the action research were inadequate. We had to keep evidence of what occurred, how worthy it was and provided further planning. We collected evidence by recording the interviews which were transcribed later. We even gathered some samples of written works of the selected students in the form of hard copy and captured some pictures of them. We finally decoded and segregated the required data by the 1st of April.

Third, after observing students' handwriting, we selected students (n=4) with illegible handwriting as our participants for this action research. Before the baseline data collection, we prepared some interview questions, observation sheets, and selected a paragraph from their English text book to collect the participants' handwriting samples by letting them copy it. Similarly, before we implemented the interventions, we printed the letter formation guide, handwriting guidelines, and other minor things we needed for the intervention.

Forth, we implemented our intervention programme for the whole month of April. We began with the post intervention data collection by the first week of May. The post intervention data were analyzed and then compared them with the baseline data to prepare the final report.

Baseline Data

The analysis of the baseline data collected from the teachers through interviews and students through observation confirmed that more than 70% of Class IV B students had problem with their handwriting. We observed that the student participants were competing with each other to be the fastest writer and seemed to place no concern for how their writing looked. Moreover, during an interview, one of the teacher participants (Teacher B) reported that, "we do not give separate time for handwriting practice because we emphasize more on syllabus completion." This depicted that both the teachers and the students paid less attention on handwriting.

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According to Teacher participant A, the sudden transition from using only pencil in Class 3 to using pen while in Class 4 is one of the factors for the poor handwriting. However, from our observation on students' handwriting, some of the major factors affecting their poor handwriting were the lack of awareness amongst the students in regard to correct letter formation, letter alignment, spacing and inconsistent letter size. These factors are further discussed in the following sections under the themes: letter formation, letter alignment, spacing, and letter size.

During our observations, we found that the unconventional pencil grip had no association with the handwriting legibility amongst the participants. Some student participants wrote with a tripod grip while others used quadruped grip. It rather depended on the individual's writing habit developed since their early schools days. As long as the writer is comfortable with their habituated grip, the way they held their pencil had no association on their writing legibility. However, the issue of pencil grip is something that merits further investigation.

Handwriting Proficiency: Letter formation and alignment

Students being aware of the correct letter formations while writing is an important factor contributing to their good handwriting, thus for the baseline data we made a special observation on the way the participants formed their letters. The process of forming the letters were however unsatisfactory and inappropriate as the participants mostly wrote letters like *e*, *f*, *d*, *p*, *a*, *b*, *k*, *g*, *t*, and *o* incorrectly with various length of stem. For example, the small alphabet 'f' was written in numerous forms; some started stem from bottom, some with cursive font, some with 'f' on base line and some stem appeared below the base line and some with mid dash first, then crossing the stem over it. Some students even wrote the letter 't' like plus sign without a curve at the bottom, some like opposite 'f' with and without curve at the bottom. Dash in the middle was sometimes at the top of the stem and sometimes almost touching the bottom curve. Similarly, rest of the small letters were written incorrectly resulting in poor handwriting and losing the presentation of the written script.

Graham, et. al., (2007) in one of their survey reports of primary grades in United States also found alphabets like *b*, *q*, *d*, *k*, *g*, and *p* were problematic while writing.

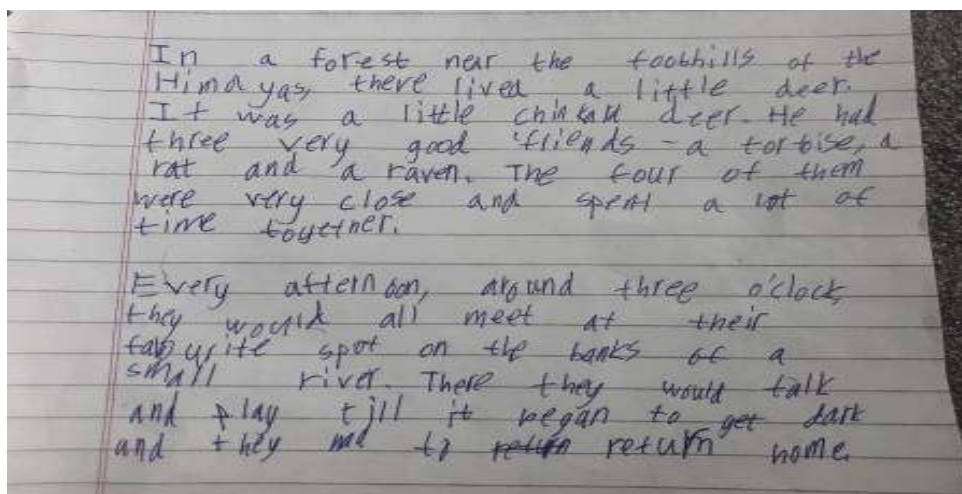
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Findings from this research confirmed that some of these letters mentioned were also a problem with the Bhutanese children. This made us realize that children who are beginners in writing are directly asked for mere writing in order to make them recognize, read and write the alphabets rather than stressing the correct formation of writing the letters.

The teachers in the school have been emphasizing on emergent literacy and not on producing presentable and thriving handwriting. Existing literature maintains that a child must be taught to begin with vertical strokes (2 years), then with horizontal strokes (2 and 6 months), circles (3 years) and followed by oblique in learning to print the letters (Feder & Majnemer, 2007). Their ability to copy geometric forms is seen as an indication of writing readiness in the young children. The readiness level will aid children learn proper letter formation owing to their developed motor skill.

Inconsistency in writing

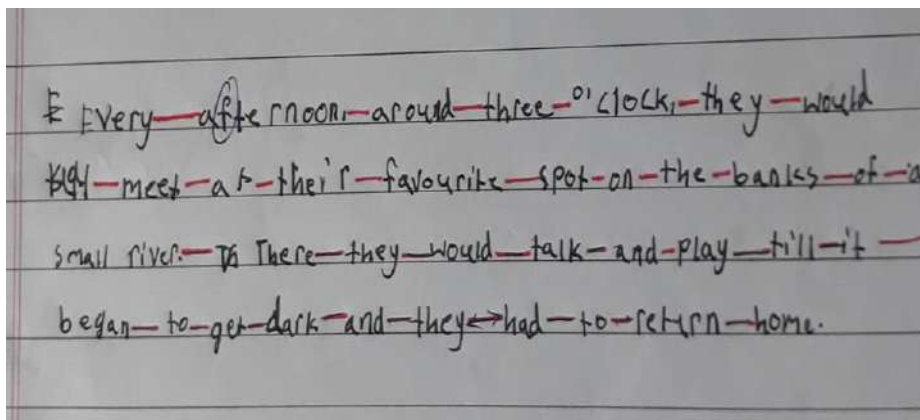
Inconsistency in the spaces between the words and letters; writing on the base line and the letter sizes is also another factor contributing towards poor handwriting. Given below are the written samples from the baseline data collected. All four participants during our baseline data collection had problem maintaining consistency in their writing. Some wrote below, over and on the line with various letter sizes while some had uneven or no spaces between the words and letters (see Sample 1 and 2 below). Although their handwriting was readable, the above-mentioned factors were



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disintegrating the presentation of their hand-written task. Such writings are likely to discourage readers from completing the reading.

Sample 1: Inconsistency in writing on the base line



Sample 2: Inconsistency in spaces between the words

Intervention strategies

The following intervention strategies were implemented in response to the findings from the analysis of the baseline data.

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Letter formation

As scheduled in our action plan, we commenced with the intervention on 3rd April, 2018. We divided the participants into three groups and were provided with the letter formation guide (see Figure 1) and handwriting guideline (see Figure 2)

Figure 1: Letter formation Guide line



sheet as given below.

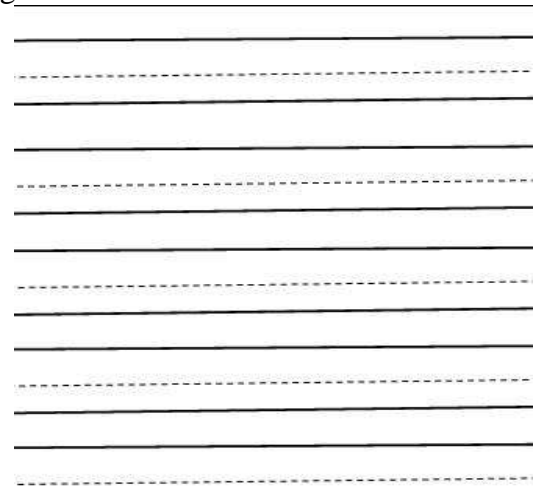


Figure 2: Handwriting Guideline

We modelled the correct formation of each letter by following the numbers directed on the letter formation guide. For example; they were asked to draw a small circle ‘o’ and a small cut beside it to write ‘a’. They continued writing in the same manner on a handwriting guideline sheet provided in surplus. Then they were asked to practice on their own for a week.

Consistency in writing

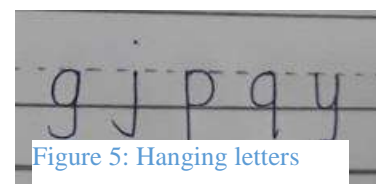
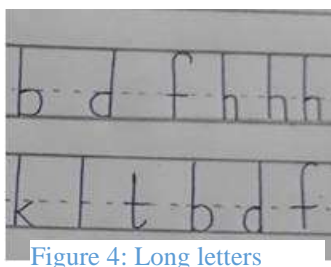
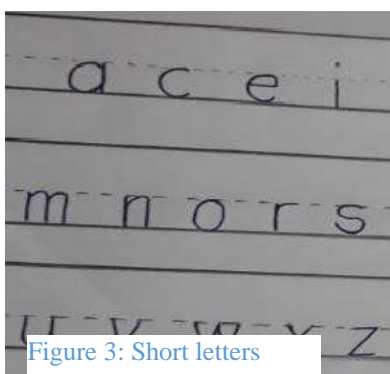
The second intervention was on maintaining consistency in writing. The first thing that we worked on was on the consistency of the space between the letters and words. The same sized pencils were provided to the participants to maintain the evenness of the spaces between the words. They were asked to write a sentence, ‘A quick brown fox jumps over the lazy dog’ and the pencil was placed in between every word as and when they were writing a word.

Secondly, we worked on writing consistently on the base line. Regarding this, we modeled on how to write appropriately using the base line on the handwriting guidelines sheet. The handwriting guidelines sheet consisted of 3 lines: two bold lines on the top and bottom with a thin dotted line in the middle. We modeled them to write

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short letters like *a, c, e, i, m, n, o, r, s, u, v, w, x* and *z* within the dotted line and the bottom line. Similarly, tall letters like *b, d, f, h, k, l*, and *t* to be written within the two bold lines. The hanging letters like *g, j, p, q*, and *y* were written on the upper half within the dotted line and the lower part to be hanged below the base line.

The description on writing the above letters using the baselines on the handwriting guidelines sheet is attached below (see Figures 3, 4 and 5). The participants were asked to maintain letter size as and when they wrote the letters within the required dotted and bold lines. We asked them to write a sentence on the given sheet by applying the interventions that we prepared.



Case Study Observation

Although three of us worked with different participants to model the same strategies, we still had similar observations. Our observations on the intervention for the handwriting proficiency were as follows:

1. participants were forming the letters correctly and maintaining the spaces in between the words accurately;
2. participants were being conscious and could write well under our guidance;
3. participants displayed differences between their handwriting written in their exercise book and on the guidelines sheet; and
4. participants could write well when they were given enough time.

Comparison of Baseline Data with Post Intervention Data

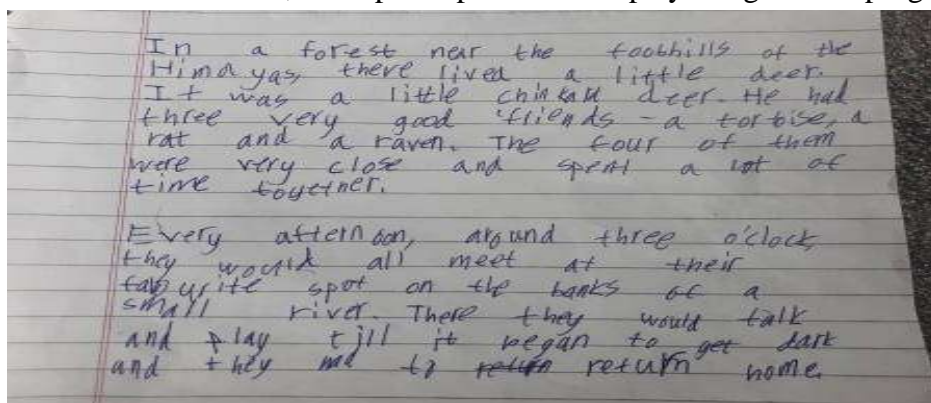
Beginning the last week of April, we gathered the post intervention data using the same observation sheet used for baseline data collection. In order to maintain the confidentiality, student participants (n=4) are referred to as participant 1, 2, 3, 4 and teacher participants as Teacher A and Teacher B.

Letter formation and alignment

We modeled letter formations as strategies for our intervention with the four participants. During the post intervention data collection, we observed a difference in the student participants' letter formation. It was observed that the participants wrote the letters like *e, f, d, p, a, b, k, g, t* and *o* correctly which were written incorrectly as shown by the baseline data. For example, the letter 't' that the participants wrote incorrectly before the intervention was found to be written correctly. After the intervention, students could write the stem first with the curve at the bottom and the dots in the middle of the stem. Similarly, the rest of the letters mentioned above were also written in precise form.

Consistency in writing

Findings from this action research showed that the participants had developed consistency regarding the letter and word spacing, size and writing on the base line compared to the baseline data. The Figures 6 and 7 below show the improvement of participant 1 in writing the letters and words on the base line. We observed that this participant earlier either wrote above or below and at times on the base line. After the intervention, it was noticed the participant maintained consistency in writing on the base line. Furthermore, other participants also displayed significant progress in terms



of letter space and size

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consistency. The Figures 8 and 9 exhibit the even spacing between the words by participant 4 after the intervention where earlier the participant had difficulty in maintaining the uniform spaces between the words.

Figure 6: Baseline data showing inconsistent writing on the base line by participant 1

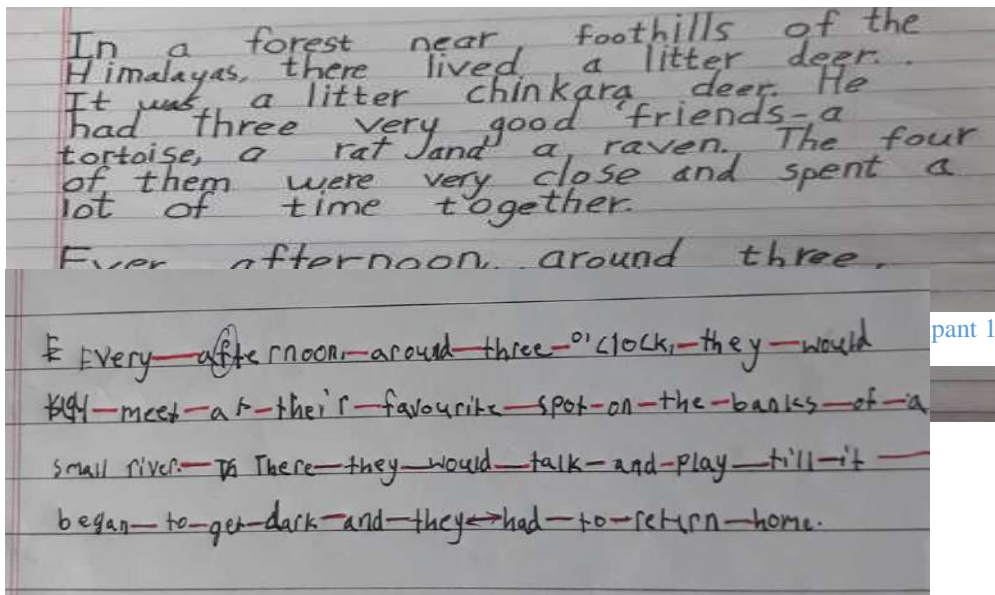


Figure 8: Baseline data showing inconsistent word spacing by Participant 4

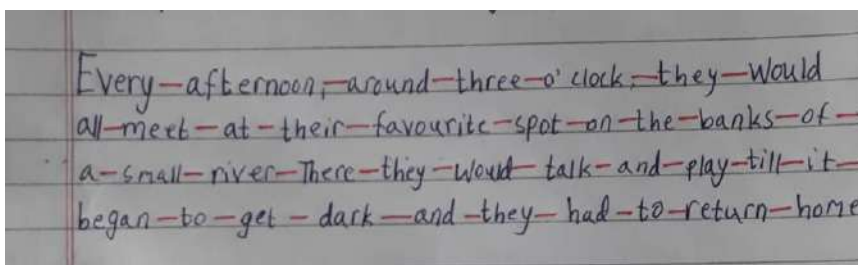


Figure 9: Post intervention data showing consistent word spacing by Participant 4

Findings and Discussion

This action research revealed that handwriting should receive primary attention in schools to improve handwriting legibility of students. It is of great concern that teachers do not emphasize the development of handwriting skills at the expense of the focus on the syllabus. This concern would lead to a serious issue if the teachers in others schools have similar practice. Nonetheless, from this action research, we found that the students are able to progress with their handwriting development when teachers provide focus and attention on the letter formation, spacing, size, and alignment. Hence, this action research implies that the teachers need to strategize and find time to help students work on their handwriting like they do with other skill development in teaching English.

Findings of this action research corroborated the earlier findings of Graham, et. al., (2008) that handwriting legibility is mainly affected by letter formation and alignment, and inconsistency in writing in terms of space between letters and words, letter size and letter alignment on the base line. This was due to lack of awareness on how each letter should be formed. In the beginning, when we collected the baseline data, it was found the participants lacked awareness on how the letters were formed. However, after the intervention, we witnessed appreciable improvement in the handwriting legibility of our students. Consequently, we also concluded that lack of awareness on the mentioned factors also impacted the writing legibility of the students.

However, it is interesting to note, unlike Bain and Temur's findings, the way Bhutanese students held their pencil had no impact on their handwriting legibility. It was observed that the participants writing with both quadric-pod and tri-pod had legible handwriting. This showed that the grip does not matter but the habit adapted for writing from an early age. It is likely that the habit that has been developed over

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time provides the writer with comfort which consequently contributes to legible handwriting.

Results from this action research have practical implications for teachers and teacher educators. It is imperative that teacher education colleges adequately train pre-service teachers to deal with handwriting disorders in the schools and teachers in schools provide more instructional time to support their students develop good handwriting skill.

Conclusion

This action research provides insights into the importance of students' handwriting and the teacher's role in lieu of occupational therapist. Students need to learn how to write legible handwriting right from their primary education. Although there is lack of research, it has been observed that the quality of Bhutanese students' handwriting is poor. Keeping this in mind, this action research was designed to support Class IV students to write legible handwriting by modeling writing on the correctness of the letter formation and consistency in writing. Within a short period of time, Class IV students were able to bring a lot of improvement in their quality of handwriting. Therefore, these intervention strategies (letter formation and consistency in writing) could be also used by school teachers, especially in the primary schools.

We could improve the handwriting legibility of our students pertaining to certain factors through our action research. Yet, we could not verify on how other factors like the length of the writing tasks, paper position and pencil pressure are the barriers for the handwriting legibility. Therefore, our next action research cycle will be to address these issues to further help our students improve their quality of handwriting.

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The Impact of Motivation on Student's Academic Achievement and Learning Outcomes in Mathematics - An Action Research

Ugyen phuntsho¹

Abstract

The purpose of this study was to examine the student's achievement in learning outcome in mathematics by determining their motivation level towards learning mathematics. The study further delved into the varieties of reinforcements as the most motivating factors in learning mathematics. This study was carried out with 18 class IV students of Tongtophey Primary School, Trongsa *dzongkhag*. The data for both baseline and post intervention were gathered using closed format survey questionnaire that broadly categorized the topic under three motivational domains: interest in learning mathematics, usefulness of learning mathematics and reinforcement in learning mathematics. In addition to the survey questionnaire, observation of students' work and documentation of their progress were also used as the tools to collect the data. The application of intervention strategies lasted for eight consecutive weeks. Descriptive statistics was used to analyze the data. The findings indicated that students' motivation towards learning mathematics was mostly influenced by reinforcements such as awarding marks, certificates, and written comments on their work sample. The findings also observed a significant difference in the students' motivation towards learning mathematics in the post intervention that ultimately determined student's achievement in learning mathematics.

Key words: Student, Motivation, achievement, learning outcome, mathematics, reinforcement

¹ Teacher, Tongtophey Primary School, Trongsa.

Introduction

Learning mathematics has always been tough for the students in Bhutanese classroom. Generally, many Bhutanese students who have had firsthand experience of learning mathematics in the Bhutanese classroom hold the disbelief that mathematics is either boring or challenging which has even resulted to parents' acceptance and toleration of low performance in mathematics (Drukpa, 2015). This trait of disbelief is likely to have negative correlation in the sense that students will not gain from learning experience and are at risk of failing in life ahead. It was observed that the students' level of motivation and interest tends to fall in learning mathematics that ultimately results in low achievement in mathematics. The problem has become apparent particularly after having known the level of students' interest and standard of learning mathematics in our classroom. Discussion with critical friend and other colleagues also revealed that students' lack of motivation impedes in achieving the learning outcomes in mathematics. For instance, a study by Lhamo (2009) indicated that a significant number of Bhutanese students tend to be suffering from a low self-esteem in learning. On the contrary, motivation as suggested by Pajares (1996) leads to a high self-esteem, indicating a clear predictor of students' academic performance in mathematics (Alliman-Brissett and Turner, 2010; Mousoulides and Philippou, 2005). A study by Gvendir (2013) found that students should have high motivation in order to achieve a high standard of mathematical education. Moreover, studies (e.g. Hannula 2006; Middleton and Spanias 1999; Singh, Granville, and Dika 2002) have also established that the key role in mathematics education is student motivation and that mathematical achievement is related to both intrinsic and extrinsic motivational factors.

With the accustomed notion that mathematics is either boring or tough for Bhutanese students deeply rooted in student's psyche, even the academically sound students were observed to be performing significantly low in the subject. The mathematics achievement of class VI students conducted by the National Education Assessment

(2003), Ministry of Education (MoE), for example, demonstrated students' performance to be "disappointingly low". The problem has become apparent especially for children with low motivation in learning mathematics.

Thus, as an immediate and practical solution to the problems, this action research was conducted with an aim to determine if motivation influences students' learning in mathematics. This study embraced a variety of reinforcement strategies and mathematical game as intervention strategies to motivate students' learning in mathematics. It also looked at how these reinforcement strategies help students in motivating and achieving learning outcomes in mathematics.

Reconnaissance

In order to execute this action research, the researcher adopted the steps proposed by Maxwell (2003), i.e. situational analysis, competence and literature review. These three components provide an overview of the realities of the situations, competences of the people involved, and link it with the review of literature (Maxwell, 2003).

Situational Analysis

Tongtophey Primary School under Langthel *gewog* is located 59 km away from Trongsa town towards Zhemgang. It was established in 2005 and the school has six catchment areas with 67 students (30 males and 37 females). Most of the students come from low educational background parents. The school has six teachers (three males and three females). The class size is approximately 7 - 20 students per class. It was generally found that the students in this school performed disappointingly low in mathematics as compared to other subjects. Moreover, the students were found less motivated in learning mathematics. Somehow the school was also reported to be ranked 368 out of more than 400 schools in the country in the School Performance Management System report by Education Monitoring and Support Division [EMSD] (2015). As reported in the school Student Progress Report, the pass percentage of the student in mathematics was 76.4 percent.

This action research was carried out with 18 (10 males and eight females) class VI students enrolled in the school. One critical friend was involved in a series of three self-reflective cycles involving planning of change; observing what occurs; reflecting, and then planning for further actions. As Maxwell (2003) pointed out, it was necessary to avoid “too close to the action” (p.4). English was used as the medium of instructions during teaching and learning of mathematics.

Literature Review

Mathematics Learning Standard in Bhutan

According to Annual Status of Students Learning (ASSL) study that was conducted by the Education Initiatives and the REC in 2008, 2010 and 2011, “the level of learning of classes IV, VI and VIII students in Bhutan were found to be lower than that of average international level”. This is in comparison to international benchmark such as Trends in Mathematics and Science Study (TIMSS) and Program for International Student Assessment (PISA) (ASSL 2008, p.24; ASSL 2010, p.27; ASSL 2011, p.24). The National Education Assessment (2003) study on benchmark of Bhutanese student’s achievement in numeracy and literacy conducted by MoE also demonstrated that the mathematics achievement of class VI students to be “disappointingly low” even with the “academically better of children performing poorly” (p.89).

The study conducted by REC and the iDiscoveri Education, India (2009) concluded that a “big gap between the current and the desired state in quality of outcomes and the process exists” with many students “performing below expectation of their grade level on both basic and advance academic skills and basic communication skills and analytical skills” (p.7). Further the report also highlights that a “majority of the students are not gaining from the learning experience and are at risk in failing ahead” (p.50). However, the lack of implementation supports to schools, inadequate content knowledge and intellectual preparedness of teachers and lack of resources among others were revealed as the major causes to the above problems (p.54-55).

Motivation and Mathematics

Motivation is a complex psychological construct that attempts to explain behavior and the effort applied in different activities (Watters & Ginns, 2000). Motivation involves extrinsic rewards that occur outside the learner's control and intrinsic goals in their desire to achieve a particular target. While physical reward, punishment, social pressure, higher social expectations, homework, and classroom competition are items of extrinsic motivation (Moore, 2001). Intrinsic motivation includes factors such as attitude, interest, value, needs, and the desire to become competent (Moore, 2001; Pintrich and De Groot, 1990). In extrinsic motivation, environment is the central controlling mechanism and the person's motivation is regulated by the outside rewarding mechanisms that s/he considers as a reward (Newstrom and Davis, 2002; Wu, 2003). However, intrinsic motivation is regulated by individual himself. A person is intrinsically motivated to perform action by the feelings or the action itself in doing the activity (Deci, 1972).

In learning mathematics, mathematics can be arduous but motivation can energize children to invest the effort and utilize the strategies necessary to be successful (Froiland, Oros, Smith, and Hirschert, 2012). Many researchers (e.g. Gelman and Greeno, 1989; Hannula, 2006; Middleton and Spanias, 1999; Singh, Granville, and Dika, 2002; Walker and Guzdial, 1999) have also revealed that in mathematics education, student motivation plays a key role and mathematical achievement is related to both intrinsic and extrinsic motivational factors.

A study by Lepper and Henderlong (2000) indicate that the intrinsically motivated students are not discouraged by more complex problems and they spend more time on tasks, tend to be more persistent, and are confident in using different or more challenging strategies to solve mathematical problems. Moreover, intrinsically motivated students are more likely than their peers to use effective mathematics strategies such as estimating, visualizing, and checking (Montague, 1992). However, study by Middleton, Littlefield, and Lehrer (1992) found that students' intrinsic

motivation to learn mathematics is highly influenced by the strategies and tasks designed by the teachers.

Moreover, most of the social-cognitive models of motivation assume that students' motivation is influenced by classrooms interactions, activities, reinforcement practices and culture (Pintrich, 2003). Therefore, the teacher's instructional practice has a crucial role in facilitating students' motivation. The relation between different aspects of teachers' instructional practices and students' motivation in mathematics is quite strong. Specifically, the use of reinforcement strategies in the lesson can be motivating factor for managing student behavior and maximizing the learning outcome. Programmed instructions can be used to make reinforcements effective (Skinner, 1968). In addition to other strategies in classroom teaching, having good strategies of reinforcement can attract the attention and boost the interest of the students in learning (Newcomer, 2009). Therefore, it is important that teacher must make instruction interesting using various strategies and materials. That way, it will make the learning of mathematics not only interesting, it will be engaging, investigative and adventurous and motivating.

Research Question

- 1) What is the students' motivation level in learning mathematics?
- 2) How can we motivate students in achieving learning outcomes in mathematics?
- 3) What strategies can we use in motivating the students in learning mathematics?
- 4) How can we use these stimulating strategies to motivate our students in learning mathematics?

Research Methodology and Design

This action research study which involved class VI students used a mixed method approach to collect the data by employing a set of intervention strategies. The students' motivation level in learning mathematics was examined by observing the class. Furthermore, the eight Likert-type items questionnaires categorized under three motivational domains namely interest in learning mathematics, reinforcement in learning mathematics and usefulness of learning mathematics were used. The responses in the questionnaires were gathered both during baseline data collection and post-intervention. The observation of student's daily work sample was documented to check how students progressed in achieving learning outcomes. In general, this study employed a combination of documentation, participant observations and questionnaires. It was done since integration of the tools from both the approach was useful in better understanding the impact of motivation in students' achieving learning outcomes in mathematics (Güvendir, 2013).

Data Analysis

The quantitative data from both baseline and post intervention were supported by data gathered from observations of student's work sample and documentation of the progress included in descriptive statistics. The figures obtained were represented into relevant graphs.

Intervention Strategies

The following intervention strategies were used in teaching and learning of mathematics. The intervention strategies were further modified in its applications based on the understanding of the baseline data and the situation.

1. Reinforcement

The idea of reinforcement in learning gained popularity when B.F Skinner put forward his operant conditioning theory (McLeod, 2007). Reinforcement is the main element in his idea of stimulus-response association, which then became a broadly applied principle in teaching and learning. The use of reinforcement strategies in the classroom can be a motivating factor for managing student's behavior and maximizing the learning outcome

2. Games

One of the best strategies to improve achievement in mathematics is incorporating the use of games in the subject. Lach (2007) asserts that the “students were more motivated and more involved when learning could take place through game playing” (p. 172). Gallenstein (2005) added, “children need to be presented with situations to be solved through games and activities that challenge their minds” (p. 37). Nisbet (2009) agreed, expanding upon the effect game playing has in mathematics. Games have always played a significant role in mathematics and its learning because they encourage logco-mathematical thinking, contribute to the development of knowledge while having a positive influence on the affective or emotional component of learning situations and can raise levels of student interest and motivation. (p. 27).

3. Real Life Application in Mathematics

The strategies practice to improve mathematics achievement is incorporating real life application into the subject. Without real world application, students can find mathematics too difficult to relate to, boring and abstract. According to Farren (2008), many students expressed that math was boring, difficult, and hard to relate to because of the lack of real-world application in instruction (p. 3). Real world application brings life to mathematics, and students are able to make sense of and relate to the subject. Gallenstein (2005) expressed that, “teachers need to connect science and mathematics knowledge to real-life situations... for children to have a greater appreciation for the content” (p. 38). Farren (2008, p. 5) added to this by reporting that several students who received instruction including how math related to the real world said they became more interested and motivated in math even though it wasn’t one of their favorite subjects.

4. Differentiated Instruction in Mathematics

Another best strategy to improve motivation and performance in mathematics is differentiated instruction. According to Grimes (2009), “differentiated instruction is a teaching method used to meet the diverse needs of learners. Teachers implementing this method provide instruction for individuals or groups of students

to benefit both those who find academic concepts difficult and those who find them easy” (p. 677). Levy (2008) agreed by defining differentiated instruction as, “a set of strategies that will help teachers meet each child where they are when they enter class and move them forward as far as possible on their educational path” (p. 162).

Data Analysis

Students’ level of motivation in learning mathematics

To understand and compare the students’ overall motivation level in learning mathematics, the data were gathered from the student questionnaire with eight Likert-type items. The questionnaires were themed under three motivational domains which seeks the students’ motivation towards learning mathematics with four possible responses: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD).

Table 1. The detail of the overall students’ motivation level towards learning mathematics

Motivational Domains	Baseline (N=18)					Post Intervention (N=18)				
	SA (%)	A (%)	N (%)	D (%)	SD (%)	SA (%)	S (%)	N (%)	D (%)	SD (%)
Interest in learning mathematics	50.3	37.7	6.0	6.0	0.0	62.3	36.0	0.0	1.7	0.0
Reinforcement in learning mathematics	57.8	33.0	8.2	1.0	0.0	60.0	39.0	1.0	0.0	0.0
Usefulness of mathematics	35.3	34.1	23.6	7.0	0.0	50.0	48.4	1.6	0.0	0.0

The overall students’ motivation towards learning mathematics that was drawn from the three motivational domain revealed that more than 98 percent of students agreed and found to be interested in learning mathematics; while about 99 percent of students agreed on reinforcement while learning mathematics that actually energized them in learning mathematics; and more than 98 percent of students agreed and understood the usefulness of learning mathematics. Generally, the study shows that the overall

student's motivation towards learning mathematics was found to be high in post intervention as compared to the pre-intervention.

Identifying the motivational factors

In identifying the motivational factors in learning mathematics, a variety of reinforcements were used as strategies. The data were collected through student questionnaire with eight items on the different reinforcements: tangible and intangible. The respondent graded from the most prominent factor to the least by using number from 1 to 7. As presented Table 2. Students were highly motivated when teacher reinforced them with marks, certificates, token, verbal comments respectively.

Table 2: Reinforcements that factor students' motivation in learning mathematics

Reinforcements	Baseline (N=18)	Post intervention (N=18)
Verbal comments	3	3
Cheers	3	0
Stickers (stars)	2	1
Certificates	3	4
Token (small gifts)	3	3
Marks	3	4
Written comments	1	2
Games	0	1

The varieties of reinforcement both tangible and intangible as shown in Table 2 were used during teaching and learning of mathematics in order to weigh its influence and effects on students' motivation towards learning mathematics. From the students' questionnaire, reinforcements such as verbal comments, certificates, token, marks were recorded as motivating factors in the baseline data.

However, in the post intervention the reinforcements such as awarding certificates, marks and written comments were recorded as the most effective, whereas the score for token as a reward remained same and cheers didn't motivate them at all. The finding revealed that students were mostly motivated in learning mathematics when teacher used motivating reinforcements such as awarding marks and certificates and written comments on their work sample.

Comparison of achievement in learning outcomes in mathematics

The comparison of achievement in learning outcomes in mathematics during baseline and post intervention is presented in following graphical representation.

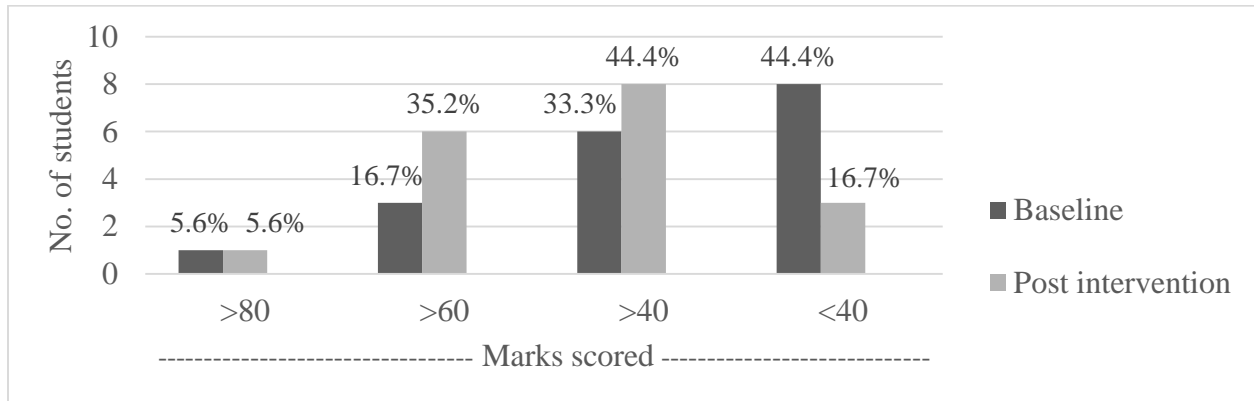


Figure 1. Comparison of learning outcomes in baseline and post intervention

The comparison of students achievement in learning mathematics showed the increase in the numbers of students who scored >60 and >40 in the post intervention. The number of students who scored >60 was increased by 18.5% and for >40 it was increased by 11.1% in post intervention. Moreover, the number of students who scored <40 is decreased by 27.7%. However, the number of students who scored >80 remained same. Generally, it was found out that the overall pass percentage of students in mathematics increased from 55.6% (baseline data) to 83.3% (post intervention) and the pass percentage of students in mathematics is increased by 27.7%.

Discussion

The result of this study indicated that motivating the student effects in enhancing the learning atmosphere and thus increasing the learning achievement of the students in mathematics (see figure 1). The finding obtained in this study agrees with the findings of Froiland, Oros, Smith, and Hirschert, (2012) which found that motivation can energize children to invest the effort and utilize the strategies necessary to be successful in learning mathematics. Gelman and Greeno (1989), Hannula, (2006),

Middleton and Spanias (1999) have also concluded that student motivation plays a key role and mathematical achievement is related to motivational factors.

The finding (Table 1) on the students' motivational level is drawn from the three domains: interest in learning mathematics, reinforcements in learning mathematics and importance and usefulness of mathematics. Reinforcements in learning mathematics were found to be the influential factors enhancing students' motivation in learning mathematics. Specifically, the finding from the table 2 revealed that the reinforcement such as awarding marks and certificates besides providing written comments and verbal comments enhanced their motivation in learning mathematics. This finding is in agreement with the study conducted by Newcomer (2009) that having good strategies of reinforcement motivate students and can attract the attention and boost the interest of the students in learning. The finding above was also supported by the use of stimulating intervention strategies such as games, relating mathematical concept to real life applications and use of differentiated instructions. Informally in the process of teaching and learning mathematics, the researcher heard students sharing their interest and motivation in learning mathematics when different strategies like games relating to real life application were used. This finding is in line with Lach and Farren's findings. "Students were more motivated and more involved when learning could take place through game playing" (p. 172). Farren (2008) added to this by reporting that several students who received instruction including how math related to the real world said they became more interested and motivated in math even though it wasn't one of their favorite subjects (p. 5).

However, cheers did not motivate the students in post intervention (see table 2). This finding may be debatable to the recent application of transformative pedagogy in our classroom, in which the cheers is used as any types of reinforcements abundantly in the process of teaching and learning. Thus, this study seeks research on implications of cheers on Bhutanese students' motivation towards learning mathematics.

Conclusion and Implications

This action research examined the effects of students' motivation in achieving learning outcomes in mathematic. The data gathered both from baseline and post intervention were analyzed using descriptive statistics. The results revealed the motivating reinforcement such as written comments on student work sample, awarding certificate as appreciation and marks. Thus, recommendations are discussed in relation to the programmed use of reinforcements and stimulating strategies in teaching and learning processes of mathematics. As students' motivation is influenced by the reinforcement strategies in the lesson and motivating factor for managing student behavior and maximizing the learning outcome, teacher should program reinforcement that establish motivation towards learning mathematics.

The programed instructions can be used to make reinforcements effective (Skinner, 1968). In addition to good strategies of reinforcement having stimulating strategies as intervention to motivate that effects the students and can attract the attention and boost the interest of the students in learning mathematics (Newcomer, 2009). The finding of the study also recommends the implementation of programed and stimulating strategies that are motivating factors in effective teaching and learning processes. Therefore, teachers should programed reinforcement and strategies that factors students' motivation towards learning mathematics to take place effectively.

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Embedding thematic progression patterns to address a lack of coherence in the writings of Class IX students in Bhutan: An action research at Khangkhu Middle Secondary School

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Abstract

The Bhutanese students learn English language from their first year of entry into the formal education system at pre-primary (PP) level which begins at the age of six. Writing, one of the important components of English language is usually taught implementing the process-based approach. Therefore, this action research was conducted to find out if integration of the genre-based approach with process-based approach can help improve the coherence in the expository writing of Class IX students (N=33). A ‘thematic progression pattern’, one of the features of the genre-based approach to teaching writing under discourse studies was used as an intervention strategy to gain coherence in the students’ writings. Data were gathered through writing an expository essay on the topic of students’ choice, class test, and midterm examination performance. After five weeks of the intervention programme, students with intermediate and upper-intermediate writing skills showed commendable improvements in their writings. The integration of the genre-based approach with process-based approach to writing was effective in producing coherent essays.

Keywords: genre-based approach, process-based approach, cohesion and coherence, theme and rheme, thematic progression

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Introduction

Students in Bhutan are exposed to the English language from their first year of entry into the formal education system at pre-primary (PP) by the age of six. Since then a child in PP to Class Twelve learns English for an hour a day for 180 days in an academic year (CAPSD, 2005). One of the English writing standards for school graduates states that the graduates should be able to “communicate in coherent and grammatically correct writing in a wide range of forms - personal, transactional, and poetic” (CAPSD, 2005, p.73). However, research has shown that majority of the students do not meet the writing proficiency standards set by the Ministry of Education (MoE) (CERD, 2002; CERD, 2009; Sherab, et al., 2017). Given the current situation, this action research was conducted to find out ways to help Class IX students enhance their writing skills.

Situational Analysis

Our observation based on more than 18 years of teaching revealed that most of the Bhutanese students dislike writing and perform poorly in it. Their written discourse, in particular, is found to lack coherence leading to the loss of meaning even after incorporating the process-based approach to writing. With the inception of the current English curriculum in 2005 (Sherab, et. al., 2017 and the process-based approach in place, students could increase the degree of originality in their writings in contrast to their previous practice of copying from commercial essay books and Internet. This approach helped alleviate their writings in the following manner:

- Exposure to the components of an essay helped students to plan their essay at the global and local levels;
- Created awareness using catchy opening sentence, thesis statement, topic sentence, supporting evidence and concluding sentence.
- The test scores of the students improved as they could fulfil most of the aspects mentioned in the essay marking criteria developed by the Bhutan Council for School Examinations and Assessment (BCSEA).

Although, the students could be introduced to peer evaluation which

empowered them in their learning process, most of the students' writings submitted were substandard and flawed in terms of incorrect and overuse of cohesive devices, lack of coherence at paragraph and sentence levels, and use of irrelevant ideas.

These observations made us realise that implementing the writing process and teaching the features of the essays, cohesive devices, and grammar are not adequate to help write a coherent expository essay owing to the lack of discourse aspect in it. Research has confirmed the effectiveness of teaching writing to both first language (Jones, 2007) and second language speakers (Kongpetch, 2006) through the genre-based approach which has discourse aspects embedded. According to Jones (2007), a genre-based approach exposes the students to text models which prepare them for both academic and professional life. However, there is a lack of research on teaching children writing in the Bhutanese context.

Therefore, this action research aimed at teaching students writing by employing the integration of process-based with genre-based approaches, as the genre-based approach receives less attention in the curriculum. This study supplements the information in one aspect of the genre-based approach to teaching writing by introducing 'theme and rheme' feature of a clause to help improve coherence in students' writing. Therefore, to help students gain coherence and cohesion in their writing, 'thematic progression patterns' was implemented as an intervention strategy.

Theoretical Framework

Genre-based approach

Existing literature indicates that genre-based approach to writing exposes the learners to linguistic features of the text, purpose of the text, social and cultural factors that describe and distinguish different genres besides helping to produce similar kinds of texts (Badger & White, 2000; Paltridge, 2001, in Ahn, 2012). This approach was developed to address the limitations in the process-based approach to writing in the late 1980s and 1990s (Ahn, 2012). Integrating genre-based approach with the process-based approach is effective in making learners aware of the specific features of the

target genre, helps in the analysis, and in-depth understanding of the target text (Ahn, 2012; Nordin & Mohammad, n.d).

According to Gee (1997), a genre-based approach evolved in Australia to replace their traditional curriculum which was based on grammar teaching and thus failed to bring the desired result. This approach to teaching writing encourages presenting different genres to the learners with a clear and complete explanation on the purpose and objective of using that particular genre, type of structure and language specific to that particular genre, the concept of register, exposing learners to the authentic materials and discourse analysis while implementing process-based approach to writing. In the Australian context, this approach was found successful in teaching writing to both native and non-native students. Subsequently, this approach was found effective in many Asian countries such as Thailand (Kongpetch, 2006), Indonesia (Sujoto, 1994), Vietnam (Dang, 2002) and Singapore (Kay & Dudley-Evans, 1998). In view of these success stories, we wanted to try out the applicability of genre-based approach in combination with the process-based-approach in Bhutanese context. However, this action research limited itself to the role of four types of ‘Thematic Progression (T-P) patterns’ propounded by Danes, one of the components of genre-based approach, in teaching writing for coherence.

Process-based approach

The process-based approach to teaching writing consists of planning, drafting, editing and revising stages with an attempt to develop students’ linguistic skills (Badger & White, 2000; Feez & Muncie, in Ahn, 2012). This approach featured in 1960s and 1970s in English as Second Language (ESL) classrooms as a strategy to teach writing but soon received criticism when students were unable to write different types of genre effectively and appropriately. To Paltridge (2007, in Ahn, 2012, p. 3), this approach did not include “form and patterns of language use” which hints that process-based approach cannot be the wholesome approach to teaching writing.

Cohesion and coherence

Phelps (1985, in Connor, 1987, p. 680) defines coherence in a text as “the experience of meaningfulness correlated with successful integration during reading, which the reader projects back into the text as the quality of wholeness in its meanings”. It is evident from the BCSEA’s class ten expository essay assessment criteria that the marks distribution is concentrated on the components of an essay with negligible focus on coherence and cohesion (Appendix 1).

Theme and rheme

According to Halliday (in Gee, 1997, p.32), a theme is “the element which serves as the point of departure of the message” and the remainder of the message is the Rheme. At the sentence level, the theme contains the message that the writer or speaker intends to express in the initial part of the sentence and the rest of the sentence is the rheme (Yang, 2008).

Thematic progression

“The progression of new Themes is called Thematic Progression (Butt et al., 2000, in Yang, 2008, p. 29), which has textual meanings of how experiential and interpersonal meanings are organised in a linear and coherent way”. This pattern helps the writer and reader to understand the content of the discourse and organise the information for effective communication. Also, this pattern affects the style of writing in terms of enhancing the coherence of the whole essay (Wang, 2015).

Silva (1993) found a number of distinct differences in the approach and features of writing compositions between native (L1) and non-native (L2) students. Native students were better in terms of fluency, accuracy, quality and structure of the writing. Non-native speakers produced less fluent and short text using less variety of cohesive devices, fewer synonyms and collocation, and inadequate repertoire of vocabulary. Moreover, Burtoff (1983, in Silva, 1993, p. 664) states that they also differ significantly in “a distinct pattern of logical relation” theme and rheme aspect which she claims is “culturally preferred rather than linguistically determined”. Additionally, Connor (1984) opines that the writings of the non-native speakers of English generally

failed to support the topic idea and provide proper concluding sentence in their paragraphs. Existing literature highlights that L2 speakers use mixed argument in their writing- they argue both for and against, alter their argument and usually end arguing in a direction different from where they began earlier (Oi, 1984, in Silva, 1993). Moreover, L2 speakers usually could not present a logical argument to qualify their statement of position, incorporated irrelevant information and repeated the points (Hirokawa, 1986, in Silva, 1993).

While there is a lack of research in the Bhutanese context, we found these findings similar to our context. Firstly, the constraints in writing identified in the literature sound similar to the writings that our students submit. Secondly, the research participants in the researches cited above had an Asian background with which we relate closely both in social and writing culture. Thirdly, Kubota (1999) claims writings produced by the Asians have strong distinctive characteristics differing from Western writings. Western writings feature “individualism, self-expression and critical thinking” leading to “direct and deductive” writings as opposed to “indirect, implicit and inductive” writings of Asians (p. 12). Anecdotal evidence indicates that all of these elements present in Asian writings are evident in the Bhutanese writings too.

School Experiences and Observations

Research has shown that schools in Asia integrate self-expression, critical thinking, and creativity in their school curriculum (Kubota, 1999), which applies to Bhutan as well. However, how competently it is being implemented in the Bhutanese classroom is doubtful. Despite the curriculum containing genre-based and process-based approaches to teaching writing (CAPSD, 2005), we lack in-depth awareness in genre-based approach. This relates to our personal experience of teaching essay writing without being conscious of ‘thematic progression, reader awareness and shared experience’ in writing for the last 18 years. This could be true to many other English teachers in Bhutan.

Research question

Can “thematic progression” help Class IX students gain coherence in writing an expository essay?

Action plan

This action research was carried out with Class IXA (N= 33, 18 boys & 15 girls) students at Khangkhu Middle Secondary School. This particular group was chosen as we taught them in the previous year (2016).

Firstly, the baseline data were collected in the last week of February 2017 by asking the class to write an expository essay on the topic of their choice following the writing process. We spent the entire week taking students through different stages of writing process such as brainstorming, pre-writing, drafting, peer workshopping, teacher-student conference, and publishing. Each writing was analysed to find out the degree of coherence at five ranges: very coherent, coherent, fairly coherent, incoherent, and very incoherent. The coherence of the essays was analysed both at sentence and paragraph levels. This baseline data provided information on the existing degree of coherence in the students’ writings.

Secondly, the first two weeks of March was used to introduce the coherent writing technique which implemented the concept of Thematic Progression (T-P) patterns. Students were taught one type of pattern at a time followed by practice. They had to write a paragraph using each type of T-P pattern ensuing peer assessment, teacher’s feedback and sharing sessions.

Thirdly, in the third week, the students wrote individual essay on a common topic decided by the class. Writing on the common topic helped to provide instant feedback and obtain easy access to ideas. They were asked to exchange their first draft of the introductory paragraph with their friends for feedback on coherence. Next, they had to write the rest of the paragraphs. On completion of each paragraph, they had to read aloud for feedback both from their peers and the teacher. This activity continued until the end of March.

Fourthly, to test the effectiveness of the intervention strategy, the class test was conducted in April first week. These writings were analysed on the degree of coherence as done for the baseline data.

Finally, to further validate the impact of the intervention strategy, essays written for the midterm examination were also analysed. Until the midterm examination, one period in a week was employed for the essay writing practice. Findings from the baseline data were compared with that of the post-intervention data to understand the impact and applicability of the strategy at the classroom level.

Analysis of Baseline Data

The essays of 33 students were read and observed. Findings from the baseline data (Figure 1) indicates that only 15.2% of the students could write *very coherently* followed by less than one-third of the students *coherently*. While slightly less than a quarter of the students' writing was *fairly coherent*, more than one-third of the students were in the struggling lot with problems in using appropriate cohesive devices, gaining coherence, and subject-verb agreement accuracy.

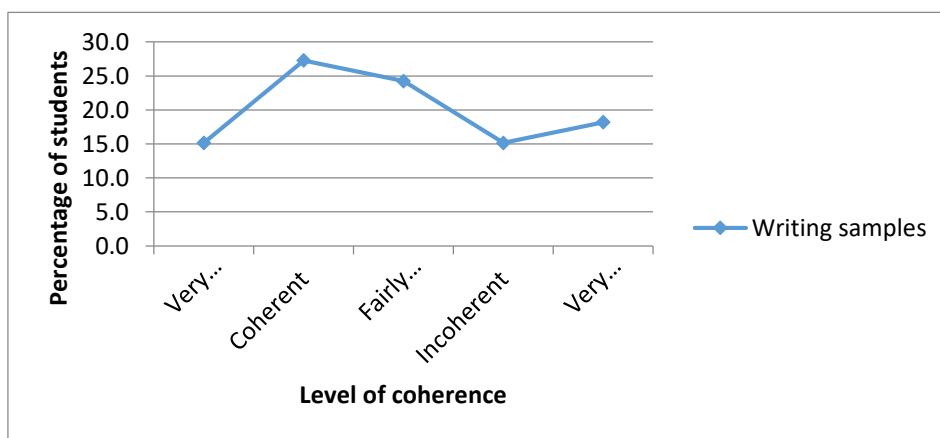


Figure 1: Writing samples (N=33)

Analysis of the baseline data indicated that the process-based approach to teaching writing with some components of genre-based approach could not achieve the objectives of teaching writing. Although, originality of the content and accuracy of grammar could improve to a commendable degree through a multi-stage process in

writing, students with low-intermediate and intermediate skills continued writing incoherently.

Mesana (2004) argues that although, the process-based approach is constructive, integration of information from other sources such as discourse study is essential to foster understanding of textual coherence, raising awareness on social context and intended audience of the text. Further, the concept of contrastive rhetoric will help learners understand the differences and similarities between their first language (L1) and the second language (L2) they are studying through the understanding of cross-cultural variances between genres. Therefore, awareness on discourse studies and contrastive rhetoric will not only help students to write within the communicative framework of the genre in practice but also help to enhance accuracy in L2 by being aware of the differences in writing across cultures.

Paltridge (1996) claims that genre-based teaching besides imparting textual knowledge informs the students of particular language and discourse structures that are typical of the genre. Furthermore, he maintains that genre-based teaching not only helps reproduce discourse forms but also master ‘language code (linguistic code), and the ability to use textual, contextual, and pragmatic knowledge (communicative competence) to both interpret and create contextually appropriate texts (generic competence)’ (p. 54). We thus focussed on providing extensive opportunities to students in distinguishing the discourse structures used in English to attain coherence and logical presentation of ideas.

Intervention strategies

Learners were presented with models of an expository essay (Appendix 4a & 4b) which were analysed in terms of purpose, structure and language. Additionally, lessons on discourse rules and writing paragraph were executed. After the lessons on writing paragraph which introduced concepts such as topic sentence, supporting sentences and inclusion of evidence, the concept of thematic progression (theme and rheme) was introduced. Yang (2008) asserts that awareness on theme and rheme has

the potentiality of increasing coherence and cohesion in the writings as it helps to organise writing.

Creating awareness on word order in English sentence: Subject + Verb + Object (SOV) as well as on different types of sentences or clauses such as: simple, compound and complex sentences, main and subordinating clauses prior to the lesson on theme (Th) and rheme (Rh) is significant as this consciousness helps students understand the concept of theme and rheme and subsequently the Thematic Progression (T-P).

Further, Danes and Fries (in Belmonte & McCabe-Hidalgo, 1998) purport that developing thematic progression is not random but guided by patterns. In this stem, four major thematic progression patterns suggested by Danes were introduced to the students:

Simple Linear Progression

In the simple linear progression, an idea from the *Rheme* of the first sentence becomes the *Theme* of the following sentence (Figure 2ai).

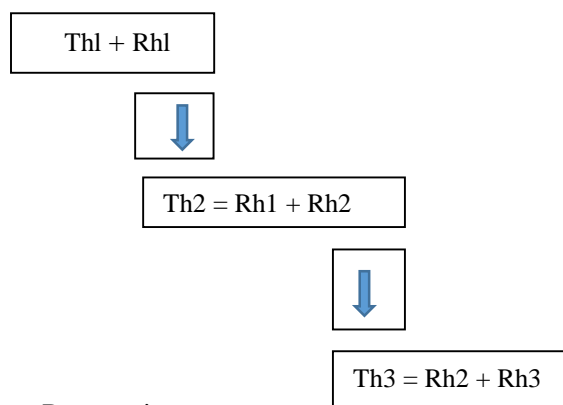


Figure 2ai: Simple Linear Progression

Simple Linear Progression was explained by using the following paragraph: *Dechen bought a beautiful bag. The bag she finally selected to buy looked very similar to traditional Bhutanese hand-woven ones. Its traditional appeal was accomplished by the use of yarn from nettle plants and patterns of Bhutanese design.* Through discussion, students identified the theme and rheme from each sentence of the paragraph (Figure 2aii):

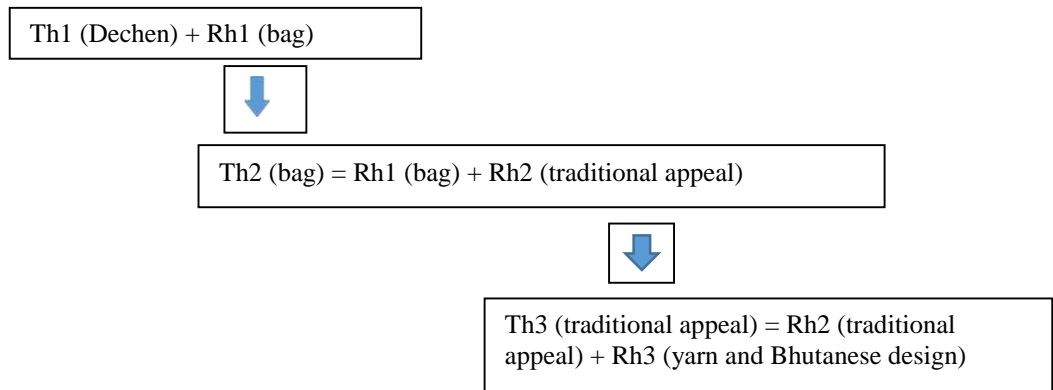


Figure 2aii: Simple Linear Progression

Constant Progression

In the constant progression pattern, *Theme* of the first sentence becomes the themes of the sentences that follow (Figure 2bi).

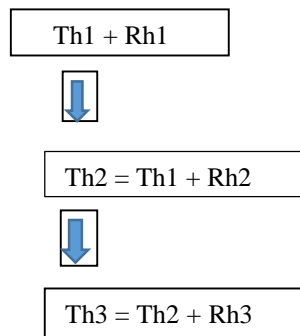


Figure 2bi: Constant Progression

This pattern of writing was modelled with the use of the following paragraph:

Many people dream of living a happy life. These people are not being realistic and practical. They must instead learn to accept both happiness and sufferings offered by life. From the explanation, the following aspects of theme and rheme emerged.

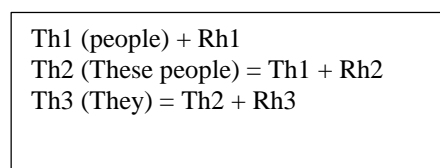


Figure 2bii: Constant Progression

Derived Hyper-Thematic Progression

In the Derived Hyper-Thematic Progression, *Themes* of ensuing sentences are derived from a hyper theme or from the same prevailing theme of the previous sentences (Figure 2ci).

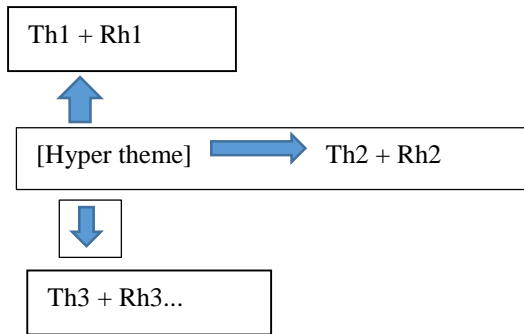


Figure 2ci: Derived Hyper-thematic Progression

The concept was presented through the following paragraph:

Pizza and burgers have become the recent favourite of the children of Bhutan. Momo the past favourite fast food of the children still tops the favourite list, although, many may prefer pizza if they are given the choice to choose. However, Maggi, Wai-Wai and Koka are the most popular fast food amongst the children as these are affordable compared to pizza, burger and momo. The discussion on it summed up to the theme and rheme aspects featured below:

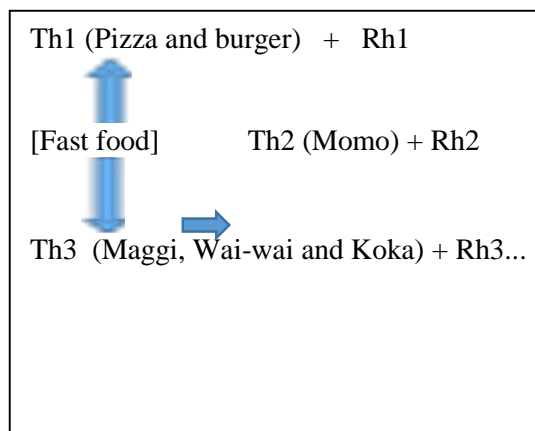
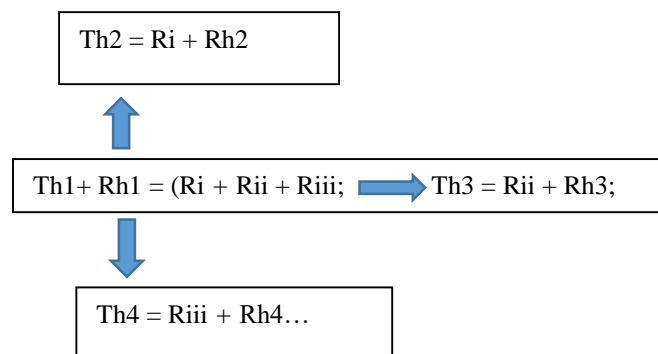


Figure 2cii: Derived Hyper-Thematic Progression**Split Progression**

In the progression pattern, *Rheme* of the first sentence is split into two items, each item then becomes the *Theme* in the subsequent sentences (Figure 2di).

**Figure 2di:** Split Progression

The following paragraph explained the split progression pattern: *Walking is good for health as it helps to lose weight, refresh the mind and release stress. Studies conducted have confirmed that going for regular 30 minutes of walk either in the morning or evening helps to reduce weight. A regular walk has also proven to have a rejuvenating effect on the mind as it makes the person feel happy after the activity. Further, it is also known for multiple health benefits by releasing the stress of a person.* On elaboration, students understood the ideas contained in the following figure.

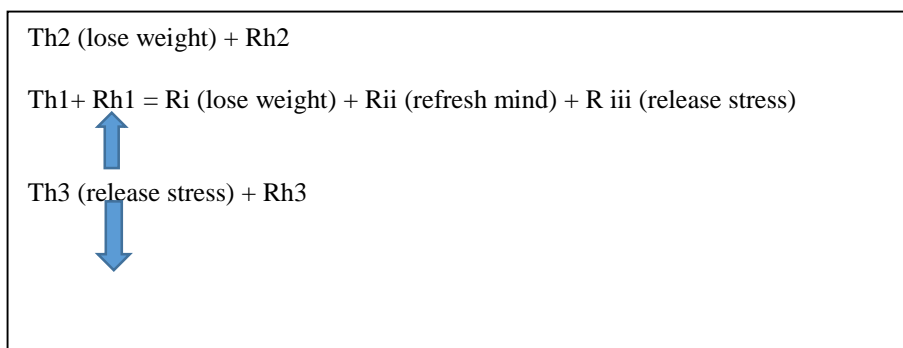


Figure 2dii: Split Progression

In addition to the four T-P patterns, the students were asked to identify thematic progression pattern from the paragraph titled- How are sedimentary rocks formed? (Appendix 3).

The lesson on T-P entailed writing of an expository essay. The first activity was a controlled activity where the students wrote on the topic decided by themselves under the guidance of the teacher. Before the start of the writing activity, students were prompted to recollect the features and components of an expository essay.

All the writing activities were carried out as a class task. After brainstorming the ideas and writing the first draft of an introductory paragraph, the pairs exchanged their drafts to provide feedback on 'coherence'. The pairs were instructed to exclude assessing spellings and grammar in the first few drafts. On completion of each paragraph, the students read aloud their writings for feedback from the class and the teacher.

After the completion of integrated teaching, a class test was conducted asking students to write a paragraph on the "Importance of conducting Unit Tests in the school." Next, the students wrote an expository essay on the topics of their choice to be filed in their Writing Portfolio. Face-to-face conference with the teacher and peer evaluation were made mandatory. The conference with the teacher was carried out during the class, morning recess, lunch-break, and after school.

Post Intervention Data Analysis

The post-intervention data include the class test and Midterm examination essays of the same group of 33 students (IXA). These essays were analysed based on students' choice of T-P patterns for coherence.

Class test

Class test on 'Importance of conducting Unit Test in the school' was structured for twenty-five minutes after introducing the concept of T-P patterns. These writings were not scored but used to analyse the implications of integrating T-P patterns. The

paragraphs of 33 essays were classified as: very coherent, coherent, fairly coherent, incoherent and very incoherent (Figure 3).

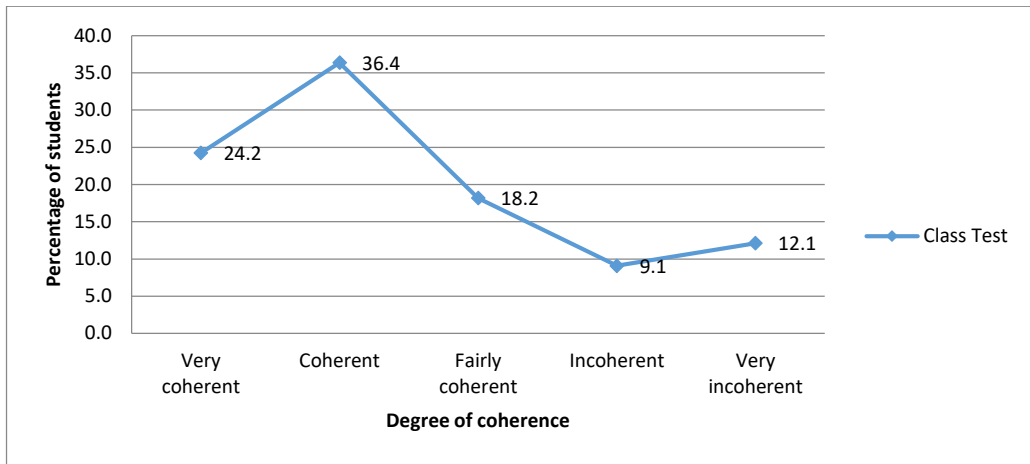


Figure 3: Class test

Midterm examination result

The degree of coherence in the essays written for the mid-term examination is shown in Figure 4.

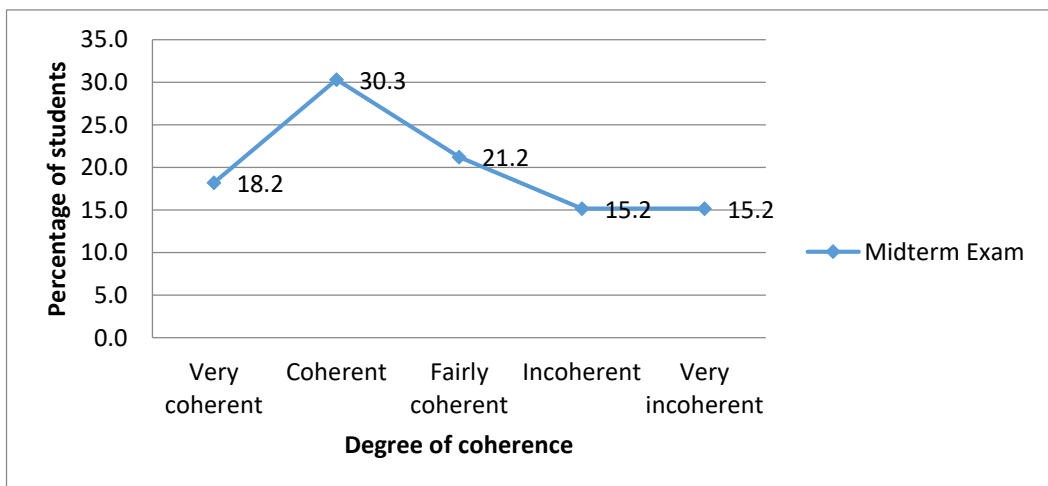


Figure 4: Midterm Exam**Findings from the Post Intervention Data**

The post-intervention indicated good use of linear and constant progression by most of the students helping them to achieve coherence in writing. Split progression created some confusion in few students as during the pre-intervention programme, the class was taught to write “thesis statement” with three main points, each of which was later used to construct the topic sentences of body paragraphs. In this vein, they could not comprehend the writing of topic sentence with three main ideas as it interfered with the previous lesson on writing thesis statement with three main points and a topic sentence with either one or two ideas. However, except for a few students who could not understand, many of them reported having understood the concept.

Burtoff (1983, in Silva, 1993) claims that non-native speaker’s writing differs from that of native speaker’s writing distinctly in theme and rheme pattern, and presentation of an idea. According to her, these differences result because of the cultural influence. Some of the students’ post intervention writings still carried enormous influence of L1 writing. An example of an introductory paragraph and five body paragraphs out of eight body paragraphs of an essay from class nine Dzongkha textbook (Lharig and Tsomrig) prescribed by the MoE has been transcribed (Appendix 3).

It is evident from the sample essay that the writing style of the students in their L1 differs greatly from that of L2 (English). The linguistic differences are striking in that L1 writing uses long sentences, ornate language, and repetition of ideas. The format and the components of an essay also differ, as in L1 essay writing unlike in L2, the introductory paragraph of L1 does not have a catchy opening sentence or general idea which is narrowed down to develop a thesis statement, it instead can be written either explaining or defining the topic of an essay. Similarly, body paragraph and concluding paragraph can be written without having to link with connectives, without topic sentence, supporting sentences, evidence and concluding sentence. This explains to some degree the difficulty of students’ writing activities in L2.

Thus, the concept of thematic progression in teaching writing can be significant to Bhutanese students. It would help improve their writing by addressing major differences between L1 and L2 writing styles and providing techniques to organise their ideas explicit to the genre.

Comparison between the baseline and post-intervention data

By the first week of July, post-intervention data (Midterm examination essays) were gathered to be compared with the baseline data and the class test to deduce the effectiveness of the intervention strategy (Figure 5). The percent of coherent essays increased from 27.3% to 36.4%, while the percent of very coherent essay increased from 15.2% to 24.2% in the class test. However, essays written for the midterm examination were not as expected as it showed lower (18.2%) than the class test (24.2%) but higher than the baseline data (15.2%).

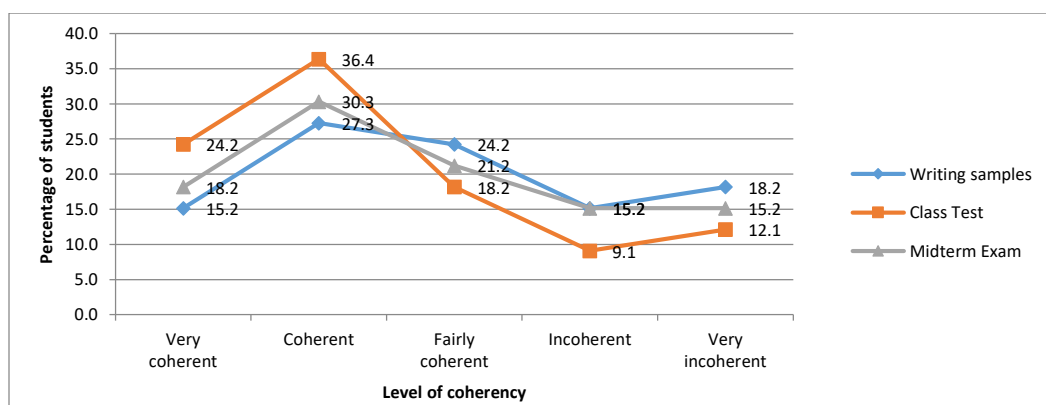


Figure 5: Baseline and post data

As in figure 5, the percent of essay coherence increased by 3% from the baseline data. While the percentage (24.2%) is higher at the fairly coherent level, it has indicated a decrease in the post data by 18.2% and 21.2% (test and midterm exam) respectively. When baseline data and post data results are compared, the overall result revealed slight improvement in the coherence level (Figure 5).

For this study, the writings were analysed only on the use of four major T-P patterns introduced by Danes (in Belmonte & McCabe-Hidalgo, 1998). The findings indicate that the number of students with high proficiency in English produced

coherent essay right from the start of this research. Awareness of T-P patterns further helped them notice their errors, plan to incorporate a variety of sentences and gain better coherence in their writing.

Following are the example paragraphs of the students who displayed improvement in their writings from being fairly coherent to coherent and from being very incoherent to incoherent (Originality of the sample paragraphs has been maintained).

Example of improvement from fairly coherent to coherent essay

Example 1: A fairly coherent essay

All students are not perfect in their studies. So, that's way teachers are letting the students to test their intelligency. Test helps the teachers to know how many knowledges did the students know. Thus, unit test is very important for us to score good marks.

Example 2: A coherent essay

Unit test is necessary for the student as well as the teacher. The teacher can know the ability of their student and also assist them. Although it is time consuming it can help the student to revise what the student learnt. Additionally the parents can also know their child's ability. The teacher can know how much the student learnt. Therefor unit test is necessary for both student and teachers.

This paragraph has a well-developed topic sentence with clear 'theme and rheme'. The rheme of the first sentence is used as the theme of the second sentence which helps to read in a coherent manner. However, the first clause of the third sentence, "Although it is time consuming..." lacks predicate, which is an example of a sentence with "empty rheme" indicating the lack of reader awareness. Existing literature indicates that this is one of the most dominant features found in L2 writing. According to Bloor and Bloor (1992, in Belmonte & McCabe-Hidalgo, 1998, p.24), "empty rheme" is a term used to describe a sentence in which rheme does not have any "conceptual content". The discourse marker, additionally, is used appropriately to introduce new theme 'parents' although the rheme of this sentence is not developed adequately. The fifth sentence appears abruptly and is another example of setbacks

found in L2 writing. This can be the example of L2 writing with short sentences and missing coordinating conjunctions. However, the concluding sentence for this paragraph is well developed. It is evident that providing feedback that raises the conscious awareness of the students on noticing the gaps in their writings with reference to the ‘Thematic progression’ in achieving logical flow in an idea can help students with good vocabulary and command over English to write fluently.

Example of improvement from being very incoherent to incoherent essay

Example 1: A very incoherent essay written before the intervention strategy- Thematic Progression Pattern

Happiness is good and interesting. It consist love and care. In addition to this we also have to smile.. This means less time for other things as we have to be happy. Therefore being happiness is not easy. Thus, happiness is the key to be fresh and active.

Example 2: An incoherent essay

The schools are conducting unit test twice a year. As it is important and give knowledge to the students. I think it is necessary to conduct unit test because the students can learn more and they can concentrate more on their studies. For instance, if they get low mark in the unit test they would feel sad and improve in the next unit text. Therefore, unit is more important and necessary for the students.

These samples categorised under ‘incoherent writing category’ have the following similarities:

Weak planning at the global and local level, poor organisation of ideas, poor vocabulary, less fluent and wrong usage of words. Analyses of the above writings portray the writer’s knowledge on T-P as both the writers have used linear and constant progression patterns mostly to develop their paragraphs. However, lack of proper planning at the global and local level before writing their paragraph must have let them focus only on generating ideas close to the topic without proper organisation. This could also be the influence of writing style adopted from a first language (L1) writing besides being one of the constrictions observed in the second language (L2)

writing. James (2007, in Kobayashi & Rinnert, 2013) rightly maintains that students lacking writing experience in L2 usually apply their knowledge of L1 writing in L2.

It is evident from the transcribed sample essay written in L1 (Dzongkha) that students' L1 writing preference is different from that of L2 (English) in the organisation of written discourse. Some of the distinct differences are: L1 writing does not always follow the linear organisation of presenting ideas, a convention of writing paragraph consisting of a topic sentence, supporting sentences, examples and concluding the sentence. It, instead, focuses on the content of the essay in which the arguments and statement of claims are indirectly linked to the main theme or idea of the essay. Further, the introduction is developed loosely with no distinct thesis statement stated but incorporated a number of proverbs and analogies. Repetition of ideas is not restricted and the concluding paragraph usually restates the main point of the essay.

Discussion

Findings from this research indicate that students with intermediate and upper-intermediate writing skills showed commendable improvements in their writings. These findings corroborate with findings from other Asian contexts that integration of process-based approach with the genre-based approach is effective in producing coherent essays (Kongpetch, 2006; Sujoto, 1994; Dang, 2002; Kay & Dudley-Evans, 1998). However, the writing proficiency of low intermediate students did not progress adequately. Some of the plausible reasons are lack of information on the essay's topic and appropriate vocabulary to write. It is substantiated by comparing the data collected for class test and midterm examinations. For the class test, students were asked to write only one paragraph on a familiar topic 'Importance of conducting Unit Test in the school'. Many essays submitted for evaluation were coherent which increased the number of coherent and very coherent essays. However, essays written for midterm were not very coherent.

It was the stipulated time allotted for writing the essay and unfamiliarity of the question that impacted the coherence of their writing. For instance, one student who

had displayed remarkable improvement in writing was found to have reverted back to being very incoherent. He informed that he had to rush through his essay writing as he thought that he may not be able to complete his test. Thus, it could be concluded that such intervention programme is affected by a number of factors such as the time frame, practice, familiarity with the questions, and environment involved for the writing task.

The finding on the correlation between producing good writing and the factors affecting the writing reflects the setback of the assessment employed to grade the students. The current assessment for writing as per the guidance from the REC (Royal Education Council) and the MoE, for class nine students is as follows: Formative assessment through the maintenance of writing portfolio is 10% out of 20% as continuous assessment and 25 marks out of 80 as summative assessment for English I. If the low achievers are able to produce good writing and the same ability of the child is deterred by the examination factors, revamping the current assessment design could help in making the assessment more reliable and fair. One of the means could be by increasing the marks for formative assessment and decreasing for summative assessment.

Further, existing literature claims the significance of having good practice in a particular genre to be proficient (Bereiter & Scardamalia, 1987). Although REC has allocated fifty periods to teach writing, its proper implementation in the classroom is a challenge as completing the syllabus outdoes the focus on writing practice. This practice is resultant of inadequate information on teaching writing effectively. Moreover, prior to this research, the feedback students received on their writing were focused on content, spelling errors and grammar and hardly on coherence generating mechanism. This pronounces the urgency of analysing and assessing the students' writing at a discourse level.

The other key finding of this research is the importance of exposing the students to discourse analysis. According to James (2007, in Kobayashi & Rinnert, 2013), students lacking writing experience in L2 usually apply their knowledge of L1 writing in L2. Thus, besides encouraging the students to maximise their exposure to L2

through reading, writing, listening and speaking, it is also important to help them notice the language they are studying at the discourse level. The information on thematic progression, for instance, caters to the students' conscious awareness on using different organisation patterns while writing in L1 and L2. Such insights would not only help students understand the differences and similarities between their L1 and L2 but also spark their interest in learning and understanding the languages intrinsically. Earlier research has also shown that when students were engaged in ethnographic research, they took control of their learning by analysing the language and producing acceptable writing (Diaz, Moll, & Mehan 1986, in Zamel, 1987).

Recommendation and Conclusion

This action research on writing was aimed to help the students perform better in their academics as a major part of the assessment from school to university is reliant on proficient writing skills. The current practice of teaching writing using the Writing Process alone has not helped in tapping the writing potential of the students. While the English curriculum can incorporate more information on discourse analysis, the colleges of education may consider integrating the theories and strategies of discourse studies to teach language. Analysing language at the discourse level not only helps in understanding the target language but also in noticing the differences between the native and the target language. This aids in learning the target language at a faster pace.

The other writing constraint that surfaced was the lack of proper exposure to the target language owing to poor reading habit, absence of good models and inadequate information. Thus, future research on the relationship between good reading habit and writing proficiency, ways to develop reader awareness may aid in improving the quality of teaching writing. This study also highlights that examination factors such as fear, limited writing time, and unfamiliar questions affect the quality of the students' writing which could be explored.

Although, our action research may have limitations, we are certain that incorporation of Theme and Rheme construct in the lessons to teach writing can be

useful. Awareness on this concept helps the struggling writers to align their thoughts moderately if not impressively. The use of linear and constant progression is easy to understand and adopt, so, the lesson on this could be a good start. All the stakeholders involved in teaching and assessing writing may consider exploring discourse analysis and incorporating it in teaching.

However, text analysis alone does not help the students to write genre-specific text. So, along with the information on theme and rheme pattern, other discourse elements of an expository essay which this paper did not address may also be taught.

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Appendices

Appendix 1: Criteria for evaluating Expository Essay (25 Marks)

Criteria for evaluating Expository Essay (25 Marks)**1. Layout (Title, paragraphing, neatness): (5 Marks)**

- a. Title = 1 mark
- b. Paragraphing = 3 marks
- c. Neatness = 1 mark

2. Content (Organisation of points/components): = (12 marks)

- a) Introduction = 2 mark
- b) Thesis statement = 2 marks
- c) Topic sentence argument (Body part) = 6 marks
- d) Conclusion = 2 marks

3. Language = (8 marks)

- a) Language Register = 1 mark
- b) Transition = 2 marks
- c) Spelling = 2 marks
- d) General accuracy of grammar & vocabulary = 3

TOTAL = (25 Marks)

NOTE: Title must be a creative one; not directly copying the topic from the question paper. Also, check the relevancy of the title and the content, and whether the title and the content matches or not.

Appendix 2a: Bhutan: Biodiverse Diamond of the Himalayas – Robin Smilie



Within the scientific community, Bhutan's list of rare and endangered wildlife and fauna is legendary: Bengal tigers sighted above 2,900 meters, snow leopards, golden langur, blue sheep, red panda, takin, black-necked crane, over 600 species of birds – 70 discovered in the last ten years, over 5,000 plants, many of which contain

medicinal properties, rare orchids, carnivorous plants, and 50 species of rhododendrons round up the list. One species of bird, the Satyr Tragopan, was once thought to be extinct but was recently sighted in Jigme Dorji National Park. Several white bellied heron, one of the fifty rarest birds on the planet with a population estimated between 20 and 200, have been recently sighted a number of times.



The challenge of conserving these national, indeed, world treasures, has fallen on various government agencies that are charged by the King and the National Assembly with policies that mandate strict conservation of Bhutan's natural wonders. A trust fund has been set up for environmental conservation. In 1995, the National Assembly passed a resolution that the country must maintain no less than 60 per cent of its area under forest cover (Bhutan currently has approximately 70 per cent of its area under forest cover). These forests are home to some of the rarest plants and animals in the world.

For many conservations, the crown jewel of Bhutan's effort to maintain biodiversity are the "biological corridors" that connect four national parks, four wildlife sanctuaries, and one nature preserve. These nine areas make up 26 per cent of the country's total land area, with the corridors accounting for another 9 per cent.

The purpose of these biological or ecological corridors is to prevent fragmentation of natural habitats by preserving the connection between protected areas. The parks and conservation areas might otherwise be separated by human activities such as farming and other developments. When a species is cut off from its main population, i.e. its genetic pool, sub-species begin to develop. The genetic survival of the new and smaller population is more difficult. By designing this system of interconnecting corridors, Bhutan has made significant strides to promote the survival of future generations of its diverse ecosystems.

Presently, the most significant ecotourism area of Bhutan is Jigme Dorje National Park, the largest protected area within the country, where popular trekking routes cross rivers at 1,400 metres and traverse mountains that soar to 7,000 metres. Visitation within the park is confined to visitor zones. Bhutan is approaching development of ecotourism even more cautiously than it has approached general tourism, recognising that areas of tiger habitat and rare medicinal plants cannot withstand any measure of an onslaught of tourists.

In an effort to pursue ecotourism, while protecting the environment, new efforts are being implemented to promote community-based tourism and trekking. This new approach actively engages the local community in development and management of ecotourism, as well as promoting the conservation of nature.

Religion plays a role

Bhutan remains the only surviving Mahayana Buddhist country in the world. To live in harmony with the mysteries and complexities of nature is a crucial Buddhist practice. One has only to look at acid rain, the ozone hole, and contamination of the earth's waters to realise how mankind harms itself by harming nature. The Buddhist approach to nature is to show reverence and compassion to all forms of life, as well as limiting consumption to basic needs, i.e. food, shelter and clothing.

The Buddhist philosophy, coupled with longstanding belief that the key ecological areas are inhabited by underworld spirits, gods and goddesses, as well as a variety of deities have served to protect much of Bhutan's landscape. If the local people believe that a powerful deity resides in a certain lake, then they will not pollute the stream originating from it. Likewise, if a certain forest is thought to be the home of gods and goddesses, the trees of that forest are not hewed. Since habitat preservation is a key element in preservation of species such belief encourages a culture that supports biodiversity and conservation of natural resources.

The world scientific community recognises that Bhutan has a significant portion of the planet's remaining rare and endangered species. It is, therefore, actively assisting the kingdom in its efforts to balance environmental management and economic development.

With the help of these worldwide stakeholders, the government and people of Bhutan, and every person that visits Bhutan, we do hope that this biodiverse diamond of the Himalayas will continue to shine forever.

Appendix 2b: The Forest Fire (sample expository essay)

Although Bhutan wears the crown of biodiversity, it is however affected by the natural disaster such as earthquake, forest fire, landslide, flood etc. quite often. Amongst these dangerous natural disasters, forest fire has proved to be one of the most destructive disasters. Forest fire brings a lot of changes in weather conditions throughout the country, increases human-wildlife conflict and also leads to global warming.

Forest fire causes lot of changes in the weather conditions of the country. During a forest fire, lots of toxic gases such as carbon monoxide, sulphur trioxide, etc. are produced which go into the atmosphere making the air harmful. Such harmful gases make the climatic condition very unbearable for living organism. According to scientists working at the National Center for Atmospheric Research and the University of California the harmful gases produced during the forest fire make the summer season very hot and winter season extremely cold. Further the Department of Hydro-met division, Bhutan has claimed an increase of 3.5 degree Celsius in the climatic condition of Bhutan over the time period of 7 years. Thus, it is evident that the forest fire plays a vital role in changing the climatic conditions of Bhutan and the world at large.

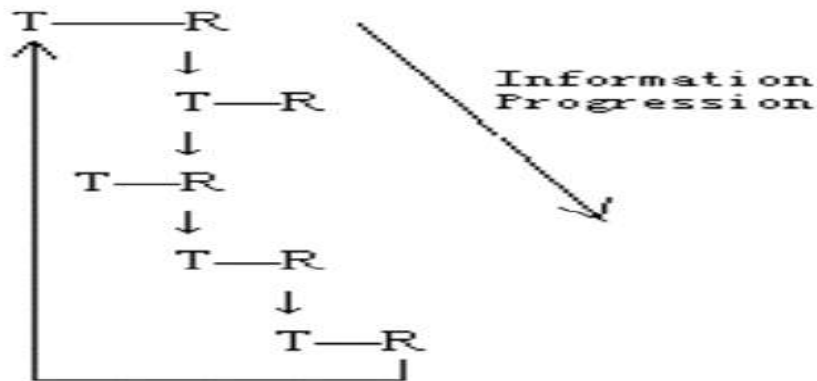
Additionally, forest fire increases the human-wildlife conflict. When there is a forest fire, the dense forests are destroyed and the homes of the animals are affected. They then either move away from that particular place or get extinct. And when the habitats of the wild animals are destroyed, they mostly come to villager's farmlands destroying the crops and even consuming the animals. Ministry of Agriculture and Forest, Royal Government of Bhutan claims that one of the main contributors to human-wildlife conflict in Bhutan is predation of livestock by carnivores such as leopard, tiger and bear. Attacks on the livestock by these carnivores usually increases after the incident of forest fires. This is evident from the record maintained by Forest department which indicates increase of 15 percent on the human-wildlife conflict during the dry seasons which triggers forest fires in Bhutan.

Further, the harmful gases produced during the forest fire mixes with the clean atmosphere forming thick blanket leading to global warming. Though, these harmful gases let the heat of the sun to reach the earth's surface but it doesn't allow them to leave the atmosphere thus increasing the temperature of the earth. Many studies conducted by the scientists have claimed that earth's climate is warming and one of the causes is forest fire. Recent survey on the global warming states that the increase in the sea and ocean levels is the effect of the global warming. Thus it is very important to avoid forest fire.

Therefore, forest fire is one of the greatest worries to the government of Bhutan as it invites lots of problems. The Forest Department of Bhutan states that every year 10,000 acres of forest in Bhutan is burned down by the forest fire due to the carelessness of the people despite frequent awareness campaigns conducted by the government. It is thus very important for the Bhutanese to realize the responsibility of minimizing forest fires by being very alert and responsible citizen of the country.

Appendix 3: How are sedimentary Rocks Formed?

1. Sedimentary rock is formed by the compression of layers of particles into a solid form. 2. Sediments such as sand and mud settle onto the floors of oceans and lakes. 3. Over a long period of time, several layers of sediments collect on the floor. 4. These layers are pressed together for many thousands of years, fusing the small solid particles of mud and sand to form solid rock. 5. This type of rock is called sedimentary rock.



Source: Wee, B. G. (2005), handouts for MAE 629

Appendix 4: Transcript of an essay from class nine Dzongkha textbook (Lharig and Tsomrig)

Self-reliance

Business is a way to increase wealth and make a person independent. While conducting business it is important to remember “Don’t do business but calculate”. First, plan. Second, generate ideas. Third, must be willing to work hard. Fourth, must have perseverance. Fifth, must be able to take risk.

There are different types of business. For example, hotel, contract, transportation, real estate, rental business, construction work, private college and school, restaurant, cloth shops, etc. Even selling doma (betal nut wrapped in leaves smeared with lime) is a type of business. All of these activities will ensure a bit of a profit.

However, it is not wise to envy rich people living in concrete house and driving fancy car instead it is better to ponder how did they become successful in accumulation such wealth. When analysed well it will be obvious that they will have started with very small capital and only with much hard work and struggle they would have become rich.

The most important thing while carrying out business is to be able to take risk and to keep excellent account. If we do business we will become richer and richer day by day. There is no way that there won’t be profit in business. However, sometimes there will be losses but we should not lose heart instead we must find out the root cause of loss and address that problem.

Once there lived a businessman called Norbu Zangpo who suffered loss from business and became very poor. Heartbroken he stopped doing business. One day as he was resting in an open ground thinking millions of thought he noticed an insect trying hard to climb a tree. After failing to climb for many times finally it succeeded in reaching the top of the tree.

This incident let Norbu Zangpo give a second thought. He realized that if one has will or determination then nothing can stop. Since then he restarted his business and became one of the most successful and popular businessmen.

JOURNAL OF EDUCATIONAL ACTION RESEARCH

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9. The use of Endnote and footnote is not encouraged. However, where the use of endnotes is necessary for the manuscript, the effort should be to minimize their number. Endnotes should be placed at the end of the paper immediately before the list of references.
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