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Improving Dzongkha Performance through Cross-pollination; Augmented by Reading and Writing

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Abstract

This study examined the impact of cross-pollination and reinforced reading and writing skills in class 10 students' academic performance in Dzongkha language. The action research used pre-test and post-test design. The study was conducted in Damphu Central School, Tsirang with 78 class 10 students. Non-probability convenient sampling technique was used and data was collected through pre-post intervention. The data was analyzed in the form of descriptive statistics and inferential statistics by using SPSS-22 version software. The result showed a significant difference in mean score before and after intervention. The mean difference for reading was 2.03 and for writing was 1.80. This indicated that the intervention: Cross pollination and reinforced reading and writing enhanced students' performance in Dzongkha. At the same length, students' trial result in Dzongkha revealed a higher mean (46.03) than the mean in the mid-term (44.04) result. Though the study is limited to a school, the findings of this study may have implications to policy makers, educators, and the society.

Keywords: Cross-pollination, reading, writing, Dzongkha language

Introduction

As per the (Dzongkha Development Commission [DDC], 2020), promotion of Dzongkha as a primary and national medium of communication faces many challenges both among the state institutions and the general public. Statistics of the last five years of Damphu Central School shows that the grade ten students' performance in Dzongkha is really poor-which is below the national mean marks. According to Gyatso (2004), Dzongkha is the least used language in teaching-learning process.

One of the things missing in our current education system is the emphasis on making connections and deriving meaning from lessons for our own lives. This is hindering the process of cross- pollination and the subsequent understanding, innovation and creativity that could ensue (Kapur, 2020). However, there is limited research on the effects of cross-pollination of various domains on enhancing the Dzongkha academic performance.

Therefore, this action research aims to investigate the impact of cross-pollination of various domains and reinforced reading and writing skills to enhance Dzongkha performance in Damphu Central School. The research was carried out in three phases. In the first phase, collect baseline data (pre-test) as a benchmark for Dzongkha performance. In the second phase, intervention strategies were implemented and in the final phase, post-data was collected to evaluate the effectiveness of implemented intervention strategies. Cross pollination approaches, reading, and writing enhanced students' performance in Dzongkha.

Aim and objectives of this action research.

The broad aim of conducting this study is to help educators and stakeholders to validate how the reading and writing strategy by incorporating cross-pollination approach to be used in enhancing Dzongkha performance of Class 10.

Objectives are:

- To enhance class 10 students learning achievement in Dzongkha subject by the use of reading and writing strategies.
- To implementation of cross-pollination approaches in improving Dzongkha performance.
- To reinforce reading and writing skills in improving Dzongkha achievement.

Reconnaissance

Damphu Central School is in Tsirang Dzongkhag, Bhutan. It was established around 1970. Currently, the school has 713 students (n=358 males and n=355 females) ranging from classes IX-XII. Most of the students come from diverse socio-economic, cultural and parental educational backgrounds. The school has 44 teachers (n=28 males and n=16 females). The class sizes are appropriately 26-36 students.

It was reported that class ten students' performance in Dzongkha is disappointingly low as compared to other subjects in past five consecutive years. The mean marks in Dzongkha domain in high-stake examination, Bhutan Certificate of Secondary Education (BCSE) has been below national mean as reported in the School Student Progress Report of last five years.

Table 1. Table showing the comparison between National and School mean mark in Dzongkha subject for past five years.

Year	National Mean Mark (BCSE)	Damphu Central School Mean Mark
2022	65.30	60.27
2021	64.10	58.74
2020	67.99	66.67
2019	64.90	63.15
2018	65.01	60.86

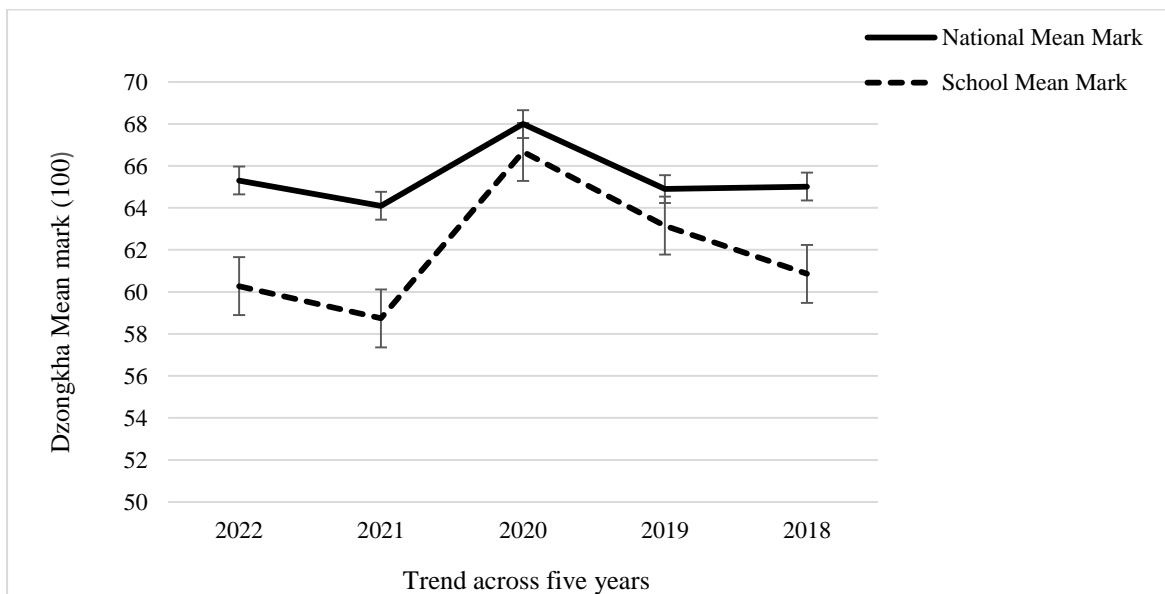


Figure.1 Table showing the comparison between National and School mean mark in Dzongkha subject for past five years.

In addition to the report as compiled by Bhutan Council of School Examination and Assessment, the team have conducted a survey to find out baseline data about student's perceptions towards Dzongkha. It was found out that class ten students were struggling even to write down all 30 Dzongkha alphabets correctly (Sel-jed sumchu). Majority of students have suggested having more writing and reading activities to enhance their Dzongkha performance. Therefore, Dzongkha domain teachers and school Research team have felt the need to investigate this trend. This action research was carried out with 78 students (n=36 males and n=46 females) who are currently studying in grade ten.

Competence

All the researchers are keen in undertaking the action researches in the school. The team members are M.Ed, M.Sc. and PgDE graduates from Samtse College of Education and other University abroad. All members have studied Educational Research Module in the college and has publications in both national and international journals and presented papers at national and international symposiums. Every researchers has minimum of 7 years teaching experiences in high schools.

Literature Review

Dzongkha is the official language of Bhutan and it is the primary subject that all students in Bhutan are required to study and pass. Dzongkha is losing favor and importance despite being the national language and a crucial component of Bhutanese identity, sovereignty, security, and togetherness (Rinchen, 2005). Additionally, students believe that they are deficient in written Dzongkha and find Dzongkha to be a challenging topic to study (Pem, 2017). The learning challenges are made worse in the case of Dzongkha since, linguistically speaking, Chöke and Dzongkha are distinct languages, just as French and Latin are, despite the fact that French historically descended from Latin (Driem, 2016). As a result, Bhutanese academics have always questioned the usage of Chöke spelling for contemporary spoken Dzongkha (Driem, 2016).

Gyatso (2004) posits that Dzongkha seems difficult, not because it is a difficult subject, but because of the limited contact hour and limited time span that is given. Rinchen claims that

Dzongkha instruction and learning are restricted to the four walls of the classroom and that Dzongkha is not given much priority. According to Gyatso (2004), learning Dzongkha is difficult at first since it takes a long time to develop its fundamentals. The process of becoming competent in Dzongkha becomes simple once all of the formulae and principles for the production of combined letters have been completely grasped (Gyatso, 2004). The author asserts that learning the fundamentals of Dzongkha takes only seven to eight years, compared to other languages that may require just a few years to accomplish the fundamentals and another ten to eleven years to master.

In order to further develop various pedagogical techniques to teaching Dzongkha, Wangchuk (2019) proposes the promotion of the national language through a new pedagogical approach created through a thorough study project. He continues by saying that diverse approaches to language comprehension and Dzongkha instruction should take into account these linguistic and cognitive factors. Learning in Dzongkha is tested using the four language skills such as reading, writing, speaking and listening. However, it seems students do not do fairly in all these skills. Thongdrel, (2016) states that students are more comfortable in listening and speaking in Dzongkha while they find it more comfortable in using English when it comes to reading and writing. He makes the assumption that the fact that all schools in Bhutan are English-medium and that almost all topics are taught in English, with the exception of Dzongkha, which is simply one subject among eight to nine disciplines, explains why pupils feel comfortable and proficient in the language. In a same note, Phurba (2021) asserts that adopting Dzongkha in literary form is one of the most difficult tasks involved. Due to the weak foundation of Dzongkha writing and reading skills, low prestige of the Dzongkha language/subject, time constraints, pronunciation-related issues, limited resources/facilities and professional support for the Dzongkha teachers, and limited career opportunities for Dzongkha backgrounders, students faced writing difficulties in the use of proper spelling, grammar, vocabulary, word structure, sentence structure, paragraph structure, expression, and handwriting.

Therefore, in order to help students write better, Phurba (2021) suggests giving adequate time for Dzongkha subject, maintain reading and writing portfolios to enhance genres writing, teaching the clear meaning and concept of different words and terminologies having same pronunciation, and adequate teacher written response needs to be emphasized and

implemented.

Research question

How can the academic performance of students in class 10 be enhanced in the Dzongkha by utilizing a cross-pollination approach that integrates reading and writing activities?

Data plan (Research Methodology)

Research methodology is the systematic approach used to address a research issue through the collection of data using a variety of approaches, the provision of an interpretation of the data collected, and the drawing of inferences from the research findings. The data collection was carried out in Damphu Central School in Tsirang Dzongkhag. Non-probability sampling was chosen because of the research design (Cohen et al., 2017), comprising of all class 10 students of the school. This paper employs the quantitative research design to examine the relationship between variables and to test objective theories (Creswell & Creswell, 2017).

Pre-test and post-test intervention of six-week duration was carried out. The data collected through pre-post intervention was analyzed in the form of descriptive statistics and inferential statistics. The test result data was analyzed by paired sample t- test using SPSS-22 version software.

Triangulation, or the use of various data sources, can improve the study's reliability and yield more accurate results (Stavros & Westberg, 2009). To confirm the triangulation of data, this study brought the reading score and writing score together to compare and contrast. The Dzongkha exam result from the mid-term and trial exam was also studied to validate the findings of the study.

Ethical clearance:

For the smooth conduct of action research, the team have developed the consent forms for the student participants, their respective guardians, teacher participants and Principal as well.

Results and Discussion

Pre-intervention: Baseline result

It has been observed that Damphu Central School's class 10 students' performance in Dzongkha domain is disappointingly low as compared to other subjects for past five

consecutive years. The mean marks in Dzongkha domain in high-stake examination, Bhutan Certificate of Secondary Education (BCSE) has been below national mean as reported in the School Student Progress Report of last five years.

Worried about the situation, the team have conducted a survey to find out baseline data about student's perceptions towards Dzongkha. Surprisingly, it was found out that class ten students were struggling even to write down all 30 Dzongkha alphabets correctly (Sel-bjed sumchu) (Appendix 1). Majority of them have suggested having more writing and reading activities to enhance their Dzongkha performance.

Intervention: Crosspollination-Reading and writing

The utilization of cross-pollination has long been employed by biologists and members of the horticultural community in order to enhance the resistance of plants against diseases, pests, and other unfavorable circumstances. Within the scope of this research, the notion of cross-pollination is applied to the educational realm, particularly in the context of instructing students at the tenth-grade level. In education, cross-pollination denotes the unrestricted exchange of ideas across various disciplines by bringing together learners from different fields within the same advanced program and fostering the dissemination of knowledge and expertise among them (Oliver & Haney, 2017).

The reading assessment examines an individual's proficiency in comprehending the material and comprehending the language used in two texts, one being a general composition and the other an analytical writing. The test consists of two passages, and the person's reading ability is evaluated based on their responses to the test queries. Likewise, the writing assessment assesses the integration, linkage, breadth of vocabulary, understanding of grammar, organization and connection to the assigned subject matter for composing an essay (DDC, 2020). For reading, pupils were made to complete a book per week. In addition, the frequency to access Dzongkha books were increased from one book to two books in a week from the school. Cross-pollination of various domains especially English to enhance the Dzongkha performance was used. English as a medium to translate the Dzongkha words and concepts was used to understand Dzongkha better. For writing, pupils were given questions on various topics and were made to write an essay of 300-400 words. Assessment was done

by following the rubrics (Appendix 2) and accordingly given feedback to enhance the writing skill.

In Bhutan, the objective of instructing Dzongkha is to enhance four proficiencies, namely auditory comprehension, oral communication, textual interpretation, and written expression, until the culmination of their advanced education. Among the four proficiencies, the act of reading is highly regarded due to its capacity for cognitive enrichment. The intellect is akin to a muscular apparatus that necessitates regular exertion. Assimilating written language is one avenue through which mental faculties can expand. The pedagogy of instilling reading skills in young learners contributes significantly to the cultivation of their linguistic aptitude (Nidup, 2013).

Post-intervention findings

The test result data were analyzed by t- test using SPSS-22 version software. A paired samples t- test was conducted to determine the effect of reading technique on improving the Dzongkha reading score. The result indicates a significant mean difference (MD = 2.03) between Dzongkha reading competency before the application of the intervention (M = 11.449, SD = 4.424) and after the intervention (M = 13.481, SD = 3.483); [t (77) = -8.264, p < .05]. Similarly paired samples t-test was conducted to determine the effect of writing technique on improving Dzongkha writing score. The result indicates a significant mean difference (MD = 1.80) between Dzongkha writing competency before the application of the technique (M= 9.763, SD = 2.923) to after the technique (M = 11.564, SD = 2.752); [t (77) = -5.946, p < .05].

Table 2. Pre- and post-test performance before and after intervention (Crosspollination-reading and writing)

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Pre-writing	9.763	78	2.923	.331
Post-writing	11.564	78	2.751	.311
Pair 2 Pre-reading	11.449	78	4.424	.501
Post-reading	13.481	78	3.483	.394

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 Pre-writing Post-writing	78	.557	.000
Pair 2 Pre-reading Post-reading	78	.876	.000

Paired Samples Test

	Mean	Std. Deviation	Std. Error mean	95% Confidence Interval of the Difference		t	df	Sig. (2- tailed)
				Lower	Upper			
Pair 1 Pre- writing-post- writing	-1.801	2.675	.302	-2.404	-1.198	-5.946	77	.000
Pair 2 Pre- reading-post- reading	-2.032	2.171	.245	-2.521	-1.542	-8.264	77	.000

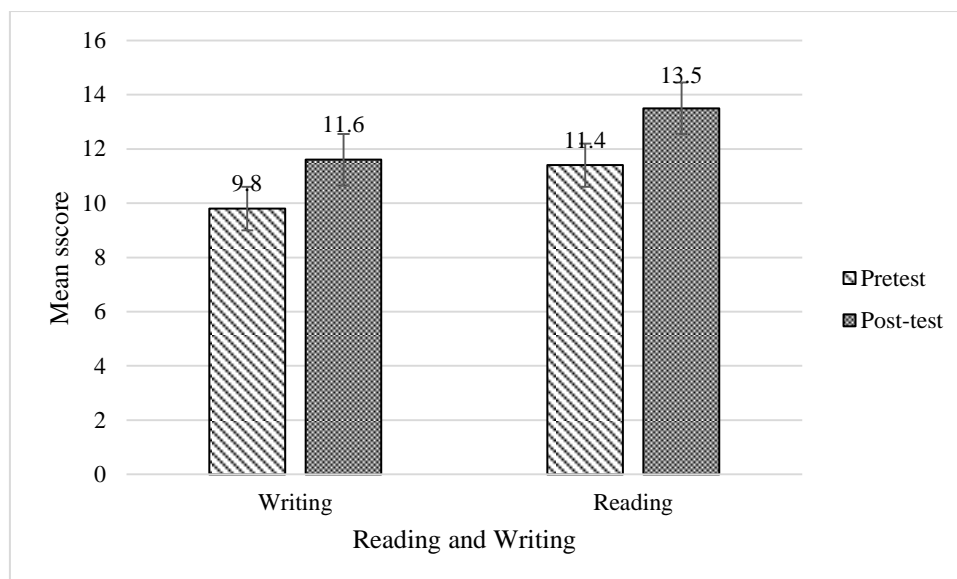


Figure 2. Pre- and post-test performance before and after intervention (Crosspollination-reading and writing).

To further validate our findings, the team have also analyzed the mean scores of two structured tests, the mid-term and trial- examination. The mean presented in Table 3 are the average of both Dzongkha I and Dzongkha II papers.

Table 3. Comparison of Dzongkha academic performance of grade ten students in two exams.

Exam	Mean
Mid-Term	44.01
Trial Exam	46.02

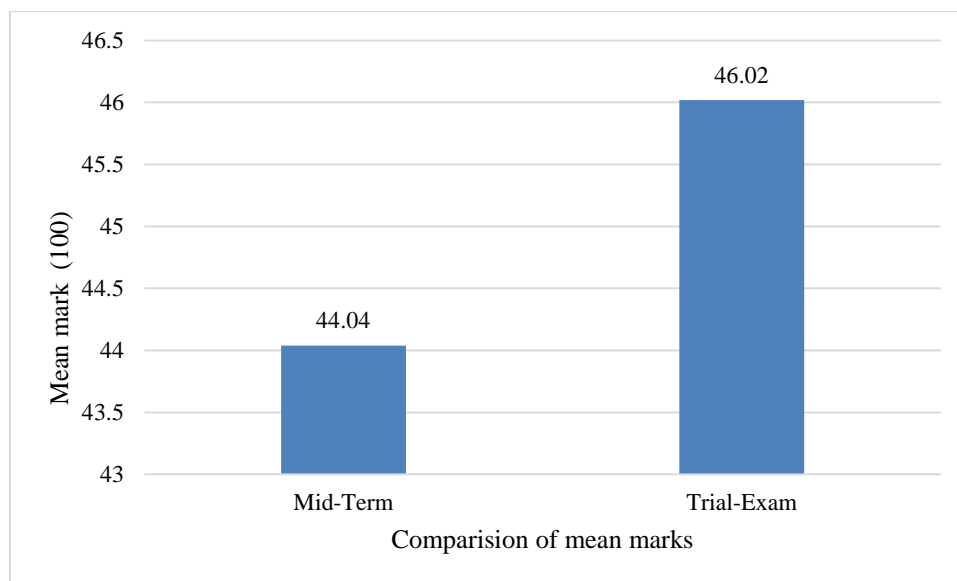


Figure 3. Comparison of Dzongkha academic performance of grade ten students in two exams.

Discussion

Since the issue of the decline in the proficiency of Dzongkha has been reported, it was imperative to conduct an investigation in order to acquire a deeper comprehension of the state of communicative competence among our High School Students (Grade 10) (Choeda et al., 2020). As stated by Harshorne (2011), certain facets of language development occur during the secondary school years, such as the development of complex verbal reasoning, the comprehension and utilization of figurative language, the ability to narrate more intricate stories, and the acquisition of increasingly sophisticated social communication abilities.

It was observed that the student's reading proficiency has significantly increased after six weeks of using the reading approach. The reading test result revealed a noteworthy average variation between the pretest and posttest results with pre-test MD=11.4, and post-test MD=13.5 respectively. Our findings are similar to what was earlier reported by (Olson & Land, 2007). In her research, it was reported that it is beneficial for children to be exposed to a demanding language arts curriculum. This exposure includes explicit instruction, modeling, and guided practice in various strategies that aid students in reading and writing complex texts. Teachers might provide an example of how to articulate words clearly in order to help students speak more clearly. Providing instruction on proper pronunciation and speech

pattern might enhance students' proficiency. Teachers should also take great caution when providing feedback on students' written and spoken work (Choeda et al., 2020).

Similarly, writing has significantly improved Dzongkha performance with pre-test mean difference MD=9.8 and post-test mean difference, MD=11.6). In relation to written communication skills, teachers have highlighted that students encounter difficulties pertaining to the organization of sentences, spelling verb tenses, and correct usage of punctuation. Proficiency in writing is closely linked to proficiency in grammar. Hedge (2000) asserts that an individual possesses grammatical or linguistic proficiency when they possess a strong grasp of spelling, pronunciation, word formation, grammatical arrangement, and sentence structure.

Intervention strategies such as reading and writing were augmented by cross-pollination. The team comprising of teachers from different domains came together and brainstormed as a part of professional learning community (PLC), regarding the pressing issue at hand. Dzongkha Teacher from the team took lead role in incorporating crosspollination in the classroom. According to Livingston (2014), there is a requirement for a diverse group of individuals who educate different domains, possessing varying knowledge, abilities, and expertise. These individuals must collaborate one another in a more integrated and co-constructed manner. This integrative approach fosters cross-pollination, wherein one teacher helps in the development of another.

Limitations

The findings of this study was limited to only the class 10 students of the focus school. Generalizing the findings to the rest of the students of the Bhutan might not be appropriate. In the future, the study could be conducted to investigate the impacts of aforementioned strategies across other high-stake examinations.

The impact of academic performance in Dzongkha due to cross-pollination incorporated by other domain teachers in the class was not quantified. This study recommends cross-pollination approach in all domains and examine its impact.

Conclusion

The national language of Bhutan, as stipulated by the Constitution of the Kingdom of Bhutan is Dzongkha. This language, which was earlier considered regional in nature, is now acknowledged as a cohesive and emblematic element that fosters a sense of unity and national pride, both domestically and globally. Learning is a multifaceted phenomenon that defies linearity. In order to truly immerse oneself in the process of learning, it is essential to have the autonomy to explore and contemplate, allowing one's train of thought to flow or deviate into unfamiliar territories. This necessitates the occurrence of cross-pollination, where the exchange of ideas and the dissolution of traditional boundaries within education and learning, which dictate what falls under the domains of Mathematics, Science, Art, or Language, must undergo transformation. It is important to note that while expertise in a specific field of knowledge is valuable, the act of cross-pollination and the exchange of ideas and concepts across various knowledge domains will enhance the learning experience and the breadth of knowledge one acquires (Kapur, 2020).

Baseline data and pretest depicts the low competency of Dzongkha, however with intervention strategies such as reading and writing augmented by cross-pollination have significantly improved the Dzongkha academic performance. Harshorne (2011) emphasized that language is the most crucial skill for students to engage in secondary classrooms, as it serves as the primary means of accessing the curriculum they are studying. Consequently, it was fitting to investigate the proficiency of Dzongkha in order to comprehend and present the current status to the stakeholders, with the aim of facilitating improvement.

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