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The Managing Editor of Bhutan Journal of Research and Development acknowledge the contribution of the following reviewers who consented to act as blind peer reviewers of the manuscript for the Autumn 2019 Issue.

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CONTENTS

Comparative Analysis of Self-Reported Wellness Levels of International Students within a University in India.

Pema Chopel and Judith Miller

Abstract

This study explored the self-reported wellness of postgraduate students studying in an International University located in South Eastern India. From a large university population, with three distinct hostel arrangements, the one hostel with a co-educational population was purposively sampled. A questionnaire based on five dimensions of wellness was administered to predominantly postgraduate students (N=50) with an equal number of males (n=25) and females (n=25) and ages ranging from 30 to 45 years. The participants represented a diverse range of nationalities, including the majority from Nepal (n=16); Ethiopia (n=15); Afghanistan (n=7); Iran (n=5); Guyana (n=3); and 1 each from Botwana, Brazil, Rawana and South Africa (n=4). Results from the self-reported height and weight indicated the cohort was predominantly in the normal Body Mass Index range (n=32); some overweight (n=14); few underweight (n=3) and one person obese. All five individual dimensions of emotional, intellectual, physical, social and spiritual were skewed towards 'high' or 'good' levels of wellness. The amalgamated scores provided a comprehensive wellness score with 'highest level' (n=29) and 'good' (n=21). Implications of this study includes informing future programs to support the wellness and wellbeing of multicultural postgraduate students in international contexts.

Keywords: *wholistic wellness, international students, postgraduates*

Introduction

The international education market is a highly valued sector of many economies worldwide. Universities are looking to attract students from international backgrounds to study in their programs. These students represent an infusion of valuable human, social and economic capital to their newfound institutions (OECD, 2006). Taking care of this student population is a key responsibility of all members of each university and this is indicated by the provision of targeted offices such as those termed "international department." These departments are designated to oversee a range of services for this valued and valuable student population. Taking care of university students is a key social and corporate responsibility and for many institutions around the world and there are key indicators that underpin the funding of university placements for the International student population.

One aspect of the 'duty of care' of international students is their health and wellbeing. Understanding the wellness and wellbeing of international students is a key aspect of developing appropriate support mechanisms. As such, this baseline study of international student wellness was conducted in a large university located in Andhra Pradesh, south eastern coast of India.

Literature Review

The movement of large numbers of students globally has been identified by Altbach (2004) as indicative of globalisation. Descriptions of the mobility of international students feature heavily on reductionism and positivism (Altbach, 2004), however, these students represent real and individual journeys of often a transformative nature (Ninnes, Aichison & Kalos, 1999). The health and wellness of students from India has been investigated from a range of perspectives both within USA and before and after their study (Mesengi, Msengi, Harris, & Hopson, 2011) and those relocating within the Midwest of United States (Kanekar, Sharma & Atri, 2010). Less in known about the wellness of international students moving into the context of studying in India.

The wellness movement began after the end of World War II largely because society's health needed to change. Advances in medicines and technology meant vaccines and antibiotics reduced the threat of infectious diseases, which until that time, had been the leading cause of death (Seaward, 1997). Instead, chronic and lifestyle illnesses (e.g. heart disease, diabetes, cancer), associated with numerous stressors in life and the workplace, became the primary health concern. This introduced an expanded concept of health as encompassing all aspects of the person (mind, body, spirit) (Foster, Keller, McKee, & Ostry, 2011). This expanded view of health allowed the development of preventive health measures and a focus on optimal health as practitioners address the whole person and consider the causes of lifestyle illnesses rather than just their symptoms.

Several studies indicate that wellness is subjective, and inherently a value judgment about how one feels, and remains problematic as a construct. An accurate definition and measurement remains elusive and problematic (Kelly, 2000 as cited in Foster, Keller, & Boomer, 2007). More recently valid and reliable measurement of wellness has been explored particularly for the adolescent population (Washington, Cuddihy, Barwais & McPhail, 2013). Therefore, for this paper, wellness is conceptualized as a continuum and not as an end state.

Holism, as a multi-dimensional perspective of wellness emerged from the approach used by scientists to study complex phenomena such as organisms and ecosystems. Such a shift in thinking about health is more holistic and relational (Richards & Bergin, 2005). Larson (1999) states that the World Health organization (WHO, 1986) was the first to introduce a holistic definition of health as "a state of complete physical, mental, and social well- being and not merely the absence of disease and infirmity", and many subsequent conceptualizations of wellness include this central concept. WHO (1986) further clarified the definition, noting that to reach a state of health "an individual or a group must be able to realize aspirations and satisfy needs, and to change or cope with the environment" (p. 126), while Bouchard, Shephard and Stephens (1994), suggest that "positive health pertains to the capacity to enjoy life and withstand challenges"(p. 23).

In connection to the concepts of WHO, Dunn (2011) emphasized wellness as one beyond the state of non-sickness. A 'well' person is satisfied at work, is spiritually fulfilled, enjoys leisure time, is physically fit, is socially involved, and has a positive emotional mental outlook. He or she is 'happy and fulfilled'. The way one perceives each of the dimensions of wellness affects their total outlook.

Marsh, Craven and McInerney (2006), use the term self-perceptions to describe these feelings. Many researchers believe that self-perceptions about wellness are more important than actual circumstances or a person's actual state of being. Greenberg (1985) defined wellness as the integration of the five dimensions and high level of wellness as the balance between them, but utilized the term mental wellness in place of intellectual wellness. Hettler (1984) included an occupational dimension and emphasised wellness as the process of becoming aware of wellness and actively making choices towards optimal living.

Self-perceptions play a vital role in the measurement of individual wellness. The present study, therefore, is an attempt to assess the wellness levels of the selected international students of Andhra University, Visakhapatnam India. Thus, the purpose of this study was to investigate self-perceived wellness, across five dimensions, in relation to age, Body Mass Index (BMI), gender, religion, and comprehensive wellness of international students in Andhra University, South India. There is potential for the findings of this study to provide some important cues for both counsellors and university staff about relevant variables that enhance international student's wellness. Furthermore, the findings have the potential to contribute to new offerings that aim to develop wellness programs to help students achieve optimal functioning. For instance, Travis (2005) suggests that an individual with a high level of wellness is characterized by "taking responsibility for his/her life and being consciously engaged in the experience." (p.17)

The Energy system model posits twelve dimensions, including: Self-responsibility and Love, Breathing, Sensing, Eating, Moving, Feeling, Thinking, Playing and Working, Communication, Intimacy, Finding Meaning, and Transcending. These dimensions correspond loosely to "energy" inputs and outputs and implicitly reflect the notion of wellness as a balance of energy states encompassed in each dimension. Although the Wellness Inventory was analysed in a study and found to have an overall reliability quotient of 0.93, only eight of the 12 scales had acceptable reliability values (Palombi, 1992).

Wellness Models

Health educator Eberst (1984) developed a model of holistic health in which the author represented it, using an object known as the Rubik's cube toy (Figure 1) in order to make the construct accessible to children. His three dimensional model shows each face of the cube as a single dimension comprising of sub-elements. The six dimensions were defined within each category of: (i) Social - living in groups and interacting with others; (ii) Spiritual - the animating force, activating principles and sense of significance; (iii) Emotion - personal feelings arising subjectively rather than through conscious effort; (iv) Mental ("knowing and cognition") - functioning of the intellectual mind; (v) Vocational - participation, effort, role in some form of productive or creative activity; and (vi) Physical - functioning of the human body.

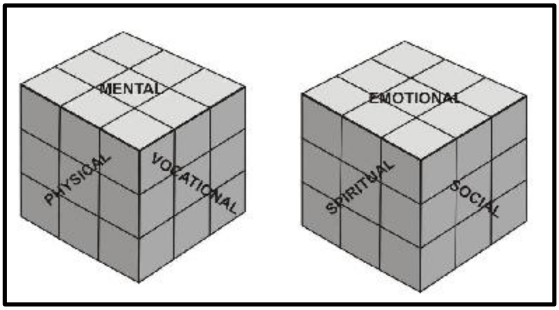

Figure 1.   Cube Model of Health (Eberst, 1984).

Similar studies were also undertaken by several other authors (e.g. Adams, Bezner & Steinhardt, 1997; Diener, 2009; Hettler, 1980; Myers & Sweeney, 2005; Ryan & Deci, 2001; Ryff & Singer, 2000; and, Travis & Ryan, 2004) relative to multiple dimensions of wellness

Table 1: Dimensions of Wellness

Wellness Dimensions	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Adams et al., 1997	x	x	x	x	x	x				
Diener et al., 2009	x	x	x	x	x	x	x	x	x	
Hettler, 1980	x	x	x	x	x					
Myers & Sweeney, 2005	x	x	x	x	x	x	x	x	x	
Ryan and Deci, 2001	x	x					x			

Significance

This study has the potential to contribute to our broader understanding of emotional, intellectual, physical, social, and spiritual health and compare it to the Body Mass Index of the students. Given the multicultural background of the graduate school enrolment there was an opportunity to explore if there were trends aligned with nationalities and religious affiliations. International students represent important resources both culturally, academically and financially to universities worldwide. Ascertaining how to protect and care for these individuals represent an important aspect of the duty of care of universities.

Methodology

This study was positioned in the interpretivist paradigm, as the nature of the investigation was most aligned with the epistemology of people's perspective on reality and knowledge being determined by people's interpretation of the world (Guba & Lincoln, 1994). In order to investigate the trends in wellness on a multidimensional scale, a range of participants' self-perceptions would inform the data (Cohen, Manion & Morrison, 2018; Crowl, 1993).

The data were collected via a survey employed to collect the wellness of a range of students from various countries of origin, different age groups, while living in co-educational environments and studying at the postgraduate level.

Context of the Study

Andhra University is one of the oldest universities, located in the State of Andhra Pradesh, South India and offers opportunities for study and research in diverse fields. International students from as many as 16 countries and as far away as Africa, study in this university and reside in the hostels. The student population of the university at the time of the study was approximately 12,500. Approximately 224 international students reside in three hostels located at the Andhra University, South India and, only one co-educaitonal hostel.

The research method enabled the researcher to collect data from a purposive sample of participants in order to make potential prudent inferences to a broader population (Cohen, Manion & Morrison, 2018). The research objectives include:

(i) To assess the levels of the wellness dimensions of multicultural international students.
(ii) To determine the comprehensive wellness of international students

The structured questionnaire "Wellness Self-Perceptions" was used to collect information on various dimensions of wellness from the specific on-campus student population. This instrument was originally designed by Corbin, Gregory, Lindsey and William (Adams, Bezner, Drabbs, Zambarano & Steinhardt, 2000) to measure perceived wellness that correlate with various health indexes (Adams, Bezner, & Steinhardt, 1997). Many international students study in Andhra University. Across the university the student enrolment was approximately 12,500.

Participants

There were 50 participants in this study, 25 males and 25 females. The age profile included: 35 participants below 30 years of age: 11 were between 30-40 years of age and 4 above 40 years of age. There were approximately 150 students living in the co-educational hostel and there were also several other hostels of a similar number of students. Therefore, the participants represent 33% of the total hostel population which is considered the acceptable return for survey research to be representative of the broader population. The other hostels were single sex groupings and therefore were not included in this study.

Nationality

There were 16 respondents from Nepal (32%), 15 from Ethiopia (30%), 7 from Afghanistan (14%), 5 of the students from Iran (10%), 3 from Guyana (6%) and 1 each from Botswana (2%), Brazil (2%), Rawanda (2%) and South Africa (2%).

Program of Study

Of the total respondents, 34 were pursuing a Master Degree (68%), 14 pursuing a PhD (28%) and 2 pursuing an Undergraduate course (4%).

Religious Affiliation

Christianity and Hinduism religious affiliation shared the equal majority of 36% of the respondents (n=18), and the remaining identify as Islam n=14 (28%). These noted religious affiliations account for 40 of the 50 participants with the remaining 10 participants choosing not to provide a response for this question.

Questionnaire

The questionnaire instrument was adopted after a thorough profiling of a range of instruments reported in the literature. The instrument was designed to gather biographical data, such as: age, gender, level of schooling, height, weight and religion. The domains of wellness incorporated in the survey included: emotional; intellectual; physical; social; and spiritual. There were three statements included in each domain and the participants were encouraged to self-evaluate this statement relative to a four-point scale spanning from *Strongly Agree* (4); *Agree* (3); Disagree (2); to *Strongly Disagree* (1). Data were collected in situ by the first author.

Analysis

The wellness questionnaire responses were analysed using descriptive statistics and a wellness rating was interpreted based on the following scoring procedure. For each of the five domains of wellness, there were three questions. Therefore, there were 15 questions in total. For each of the fifteen questions, the allocation of numbers was based on the level of agreement with the statement/question. As such, the highest score possible would be for a participant to Strongly Agree (4 points) with each of the 15 questions which allowed for a cumulative score of 60. Similarly, if a participant identified Agree, then there would be 3 marks allocated; and so forth for Disagree (2); and, Strongly Disagree (1 point).

The height and weight data were subject to the formulae to determine the Body Mass Index. The standard calculation for BMI is kg/m^2. These were self-reported measures and therefore come with the identified criticism of under reporting of weight and over reporting of height (Gorber, Tremblay, Moher & Gorber, 2007). However, they remain a general guide to physical body composition and proxy for physical health status.

Results

The wellness of the participants can first be described in terms of their physical wellness. The body mass index profile will be included initially and the five dimensions of wellness and a comprehensive scale will conclude this section.

Body Mass Index

The Body Mass Index profile of the participants in this study include the majority were within the normal BMI range (*n*=32). The next most prevalent group were overweight (*n*=14); followed by underweight (*n*=3) and one person was obese (*n*=1). This profile is representative of the normal distribution one would expect in the general population (Penman & Johnson, 2006).

Emotional Wellness

The emotional dimension emphasizes an awareness and acceptance of one's feelings. It reflects the degree to which individuals feel positive and enthusiastic about themselves and life. This dimension involves the capacity to manage feelings and behaviours, accept oneself unconditionally, assess limitations, develop autonomy and cope with stress (Denham, 2006).

For this study, the most prevalent wellness was 'good' (*n*=25) followed by 'high level' wellness (*n*=22) and successively by marginal wellness (n=3).

Intellectual Wellness

The intellectual dimension promotes the use of one's mind to create a greater understanding and appreciation of oneself and others. It involves one's ability to think creatively and rationally. Intellectual wellness is the utilisation of human resources and learning resources to expand knowledge and improve skills.

The results for this study identifies the most prevalent level of intellectual wellness was 'high-level' (*n*=41) followed by 'good' (*n*=8) and 'marginal wellness' (*n*=1). This result may be explained by the high proportion of the participants studying at the postgraduate level, which would reinforce their prior performance and perceived capacity for intellectual achievement.

Physical Wellness

Foster, Keller and Boomer (2007) defined physical wellness as encompassing the degree to which one maintains and improves cardiovascular fitness, flexibility, and strength. Aligned with these fitness, parameters are the factors of balance, harmony and awareness and monitoring of the body, feelings, and tensions are included.

The results for the dimension of physical wellness included the most prevalent of: 'high level wellness' (*n*=27); followed closely by 'good wellness' (*n*=21); and, marginal physical wellness (*n*=2).

Social Wellness

The social dimension of wellness emphasizes the creation and maintenance of healthy relationships. It enhances interdependence with others and nature, and encourages the pursuit of harmony within the family. This dimension furthers positive contributions to one's human and physical environment for the common welfare of one's community.

The results for the social wellness was: 'high level' (*n*=41); 'good' (*n*=8); followed by 'low-level' (*n*=1).

Spiritual Wellness

The spiritual dimension involves seeking meaning and purpose in human existence. It involves developing a strong sense of personal values and ethics. This dimension includes the development of an appreciation for the depth and expanse of life and natural forces that exist in the universe.

The results for spiritual awareness was'high level' (*n*=32), and 'good' (*n*=18). This finding is of interest in particular given the high level of affiliation with religions such as Hinduism, Christianity, and Islam.

Comprehensive Wellness

Comprehensive wellness occurs when a person is in good physical and mental condition, which is the result of an individual's ability to make choices and engage in behaviors that bring about a healthy and fulfilling life. For this study, all five domains previously listed are amalgamated into a composite score which is termed as 'comprehensive wellness'.

The wellness data were derived by assigning an interval measure to a nominal observation (Table 2). This provided a basis of comparison between the various groups – by national origin.

Table 2: Wellness Dimension Scored

Rating Wellness	Wellness Dimension Scores	Comprehensive
High Level Wellness	19 – 12	50 – 60
Good Wellness	8 – 9	40 – 49
Marginal Wellness	6 -7	30 – 39
Low Level Wellness	below 6	below 30

The results of this study identifies that the 'highest level of wellness' for this dimension included the majority of the participants (*n*=29), followed by 'good comprehensive wellness' (*n*=21). This result identifies and suggests that there is sound overall wellness in the international students who participated in this study.

Limitations

As with most research there are identifiable limitations in the design. For this study, there was a relatively small sample size, which makes it difficult to generalise the findings back to the original populations. Some of the measures were grouped into categories, such as age, rather than specific yearly ages. There were no checks on the self-reported height and weight, which calls into question the accuracy of these data. However, the self-reported Wellness scales needs to be validated with the multi-cultural and multi-national participants. A follow up interview of the participants would have provided greater surety of the wellness data.

Discussion

The primary purpose of this study was to amalgamate several theoretical frameworks of wellness in order to understand the perceptions of international students of a large university in India. According to Wilson and Cleary (1995), the perceptions of wellness have been found to be powerful predictors of future health outcomes.

In the most parsimonious form, the findings of this study identified the highest level of wellness for this group of participants, which included the same high level for both Social Wellness and Intellectual Wellness at 82%; Spiritual Wellness of 64%; Physical Wellness of 54% and emotional wellness at 44%. This study has provided an initial glimpse into the multi-dimensional measurement of wellness for a variety of postgraduate students studying and living in a co-educational hostel in a large University located in India. The results provide a confirmation of the social, intellectual, spiritual, physical and emotional wellness as generally high which may be representative of a range of national groups who are living and studying together. These findings align with those of Oguz-Duran and Tezer (2009) where self-esteem was reported in alignment with four dimensions of wellness. Similarly, Chow (2005) reported that the higher the grade point average (GPA) of university students, the more the students reported satisfaction with their academic experiences.

In addition, the findings also align with the multidimensional definition of health as a state of complete physical, mental, and social well- being and not merely the absence of disease and infirmity (WHO, 1986) as it encompasses social, intellectual, spiritual, physical and emotional wellness domains. These results represent a reinforcement of a multi-dimensional approach to supporting the health and wellness of international students in universities in a range of cultural settings.

The implications of these findings provide a strong case for further research to probe and interrogate the often taken for granted assumptions as to the reasons for such high self-reported levels of wellness. A follow up study with a larger population, followed by a purposive interview procedures would allow for deeper understandings of the role of national origin, gender, religious affiliation and to ascertain the ‘So What?’ factor in this line of research. Notwithstanding the need for further investigation of these findings, the positive alignment of self-reported wellness may help to support programs designed to support international students studying in not only India but other contexts as well.

Wellness programs supporting students to be connected through a range of offerings including: social group activities; physical and sporting activities; may lead to positive perceptions of their intellectual achievement and lead to develop positive self-perceptions of their own health. The gold standard of the definition of health by WHO is more than the absence of disease, incorporating the social, emotional, physical, intellectual and spiritual dimensions of health as supported by these findings.

University health policies and practices have great potential to promote the well-being of students at the tertiary level of education (Walker & Frazier, 1993). Therefore, a need to further explore the conceptualization of wellness requires additional empirical studies which would allow for further investigation of wellness. The affiliation with religious or spiritual groups is an area of further study to explore if tertiary students who have affiliations with religious groups have a higher level of spiritual wellness. The validity and reliability of the instrument used in this study could also be explored in a range of diverse cultural contexts for applicability across national boundaries.

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Creating an Enabling Research Culture at the Royal University of Bhutan- An Analysis

Phanchung and Tshering Choden

Abstract

The Royal University of Bhutan having evolved from a traditional teaching-learning institution is challenged in changing the mind-set and working practices of its academics when it involves research, innovation, and the use of knowledge. This paper looks at the initiatives pursued by the University in contributing to enhanced research culture through desktop research. Evidences indicate that support mechanisms like institutions, policies and guidelines, quality staff development, capacity building initiatives, international relations, and quality curriculum are the driving forces to improve research culture within the University. The University has made a breakthrough in changing the mind-set and working practices of its academics by engaging in research activities in a predominantly undergraduate teaching-learning University. The paper also discusses opportunities and challenges of enhancing research and innovations in the University.

Key Words: *research leadership, research mind-set, research institutions*.

Introduction

The need to conduct research to provide a long-term framework for decisive action to national policies and concerns is well recognized in all development sectors in Bhutan (TEP 2010; HEPD, MoE 2017), including legislative bodies and higher education institutions (RUB 2014). However, there is no central agency to prioritize research needs at the policy level and encourage Bhutanese scholars. In absence of such a nodal agency to coordinate national research priorities, it has become inevitable on the part of sectoral agencies to incorporate strategies to generate knowledge specific to their development mandates and use them in their sectorial plans and programmes.

As a young federated institution and first University in Bhutan, there are challenges in changing the mind-set and working practices of academics in a University set up. The paper looks at some of the enabling environments put in place to assess the state of research at the Royal University of Bhutan (RUB). The paper also sets out prospects of research in higher education and strategies to overcome research challenges faced by the University.

Research Methodology

This paper is based on desktop review and analysis of information collected from the annual reports of the RUB published annually, policy documents on research and innovation of the RUB and governmental agencies, literature review of Bhutanese research status in journals, and several initiatives undertaken by RUB to conduct and promote research and innovation through scholarly events and curriculum design.

The objective of this desktop study is to assess how the existing institutions and policies in place have contributed to enhancing investigative studies by academics and impeding factors, if any, to improve research and innovation in the University.

This paper also discusses opportunities to enhance research engagements within the RUB and its contribution in promoting research in Bhutan through review of statutory University committee meeting minutes and several reports published by the University. The paper also highlights challenges in changing mind-set of researchers both within the academic and public sector organizations.

Results and Discussions

Institutionalization of Research Institutions

In order to provide strategic leadership in setting research policies, priorities, and stimulate a culture of enquiry, curiosity and investigation, a dedicated institution or agency is inexorable. Although the purpose of establishing the RUB in 2003 was to provide tertiary education and conduct research that are of relevance to Bhutan (RUB 2003), no central Department was established until 2005 to focus on research. One proposition of not considering an independent Research Department during the launch of the RUB could be due to historical reasons where all higher education providers were evolved exclusively from teaching experience only, and with very little engagement in systemic studies. In a study of research output of academics at the RUB in 2009, Maxwell & Choeden (2012) corroborates this observation that there is lack of infrastructure to support research in the only University in Bhutan.

Since the University is a collegiate federation of colleges located in different parts of the country, the main challenge is the work responsibilities of the academics in promoting and conducting research at the college level. The need of a dedicated senior academic to provide leadership and management of research was felt necessary in liaising with the central Department so that the University research profile is promoted and supported at the college. This led to the creation of the office of the Dean of Research and Industrial Linkages in each college.

While the intentions were to achieve good outcomes, actual institutionalization through appointment of Dean of Research in the system was possible only around 2010 in all the colleges. Having evolved from a responsibility of only teaching for the past thirty to forty years as a teaching institution, an institutionalization of a central Research Department in 2005 and later the creation of the office of the Dean of Research in each College was a milestone in driving research activities in the University.

Over the years, in order to support research capacity building of the Colleges, several thematic Research Centres (RC) were proposed by several colleges. However, there is no evidence that the initiation of establishing a new RC were influenced by the objectives of Article 2 of the Royal Charter 2003, where one of the objectives of the RUB is to conduct research. Yet in absence of a guideline for establishing a RC, around eight RCs were already established in six colleges before 2014. This could probably be influenced by some academics' initiatives realizing that quality teaching learning cannot take place without engagement in research by both academics and students.

Later with continued advocacy for the need of a dedicated RC to promote research and with set guidelines put in place to establish new RCs in 2014 (RUB 2014), seven additional RCs were established across all colleges. The establishment of the Institute of Gross National Happiness Studies (iGNHaS) in 2013 at the Department of Research and External Relations (DRER) was instrumental in facilitating, reviewing, and initiating new RCs with financial support from the iGNHaS. From late 2017 to early 2018, all RCs were reviewed by a joint team of staff from the college and DRER, and recommended for continued operation of the RCs to enhance the research reputation of the University and its academics (22^{nd} and 23^{rd} RIC Minutes). As of August 2018, the University has 15 RCs operational across the colleges with dedicated Research Centre Coordinators (DRER 2018).

The Research and Innovation Committee (RIC) of the RUB is another statutory institution responsible to promote research and innovation within the University and is coordinated and operated by meeting four times a year. At the college level, the College Research Committee (CRC) is responsible to promote a strong and vibrant research culture. Further, the Research Degree Committee has also enhanced research activities by enrolling students for research degrees. However, the number of research degree programmes and research degree students are limited to one programme only within the University during the time of writing this paper.

Creating an Enabling Research Environment in the University

The Royal Charter of the Royal University of Bhutan mandates research as one of the dual objectives of the University as:

> To promote and conduct research, to contribute to the creation of knowledge in an international context and to promote the transfer of knowledge of relevance to Bhutan (Article 2, 2.2 of The Royal Charter, p.3)

In the endeavour to promote a research inspired University, the primary responsibility of the Research Department is to frame several guidelines and policies to facilitate conduct of research by academics. Among several working documents developed to accelerate scholarly activities, the *ZHIB'TSHOL RUB Research Policies 2014* was put in place after series of consultations, thus assuring the conduct of quality research under the University with detailed protocols and processes outlined. This was a significant milestone in building standard research capacity of academics within RUB, although many academics have still to put in practice their learning. Schofield (2016) too reported that since secular higher education in Bhutan is new, many academics of RUB needed training to engage in high-quality research indicating that existing RUB academics were least involved in research besides routine class room teaching. The RUB Research Policies itself needs review and fine tuning to enable academics to pick up investigative studies.

The Department of Research and External Relations (DRER) developed several working templates and general guidelines to facilitate application for University-wide sponsored annual university research grants (AURG) since 2010. In 2016, all these policy guidelines, reporting templates, and application forms were reviewed, improved, and institutionalized as an AURG guideline and endorsed by the university in the 36th Academic Board Meeting. The AURG guideline 2016 is now increasingly referred to and implemented for the college sponsored annual research grant by the colleges. Later from mid-2017, the Human Resource Rules and Regulations 2017 (RUBHRRR 2017) has also recognized to account the performance of academics in scholarly activities for their career progression. All these policies in place have enabled the academics to partake in research activities.

Quality Human Resources

Documentary evidence indicate that the first PhD degree received by a Bhutanese was in 1990 (Penjore 2016), from India. When RUB was established in 2003, there was only one academic with PhD degree. Ten years later in 2013, RUB had 18 academics with PhD degrees (RUB 2013). RUB now has more than 70 percent teaching staff with postgraduate degrees, among which 59 have PhD degrees and

367 have a Master's degree (Annual Report 2017). Coupled with a minimum of five years to average of 10 years teaching experience, higher university qualification and job experience of academics have contributed to enhanced research culture in the colleges. In 2018, more than a thousand attended 97 scholarly events organized by the colleges and the University, giving positive indications of quality human capital in initiating research events.

External institutions like civil service and legislative bodies have also been the driving force to accelerate a culture of inquiry and investigative studies in Bhutan. For instance, a seasoned educationist and public servant with more than four decades of service in various organizations in Bhutan, including as the Speaker of the National Assembly of Bhutan commented that even the Parliamentarians of today need research skills to ensure discussions in the august house is based on evidence and analysis, and not on reactionary note (Palden 2018). Recognition of such research skills from the legislative body is a source of inspiration to the higher education providers in exploring professional development services to enhance research skills of Parliamentarians. In fact, the University in collaboration with UNICEF has been involved in building research capacity of both the Houses of Parliamentarians and the Senior Planning Officers of the Government Ministries and several senior Executives of the Civil Service Organizations since January 2016 for three consecutive batches. The presence of the minimum University degree holder to the highest degree of a PhD holder by Bhutanese Parliamentarian is also a testimony of educated Parliament in Bhutan.

According to the Civil Service Statistics 2017 of the Royal Civil Service Commission, there are 37 PhD degree holders in the civil service, although 57 percent of the professionals are from the natural resources sector. The trend for PhD degree quests by civil servants has exponentially increased in recent years with additional 61 civil servants already enrolled in PhD programmes in different countries (Australia-39; Thailand-8; India-2; Japan-2; United State-2; UK-1; Netherland-1; Austria-1; France-1, Germany-1; Italy-1; Canada-1; and Denmark-1).That excludes several individuals who secured scholarships to pursue PhD privately. Although civil servants constitute not more than 4% of the Bhutanese population, an increased quality of civil servants with around 47 percent University degree holders (RCSC 2017) is a driving force in improving the culture of inquiry and innovation in human resource management.

There are also evidences from the Judiciary, Government owned corporations, Private sectors, Civil Society Organizations, and individual Consultancy firms who have staff with PhD degrees. While in general, all PhD candidates specializes in their specific area of study, there is one common attribute to all PhD degree holders. This common trait is the generic skills of analytical, methodological, logical and communicative skills, which can be applied across professions and disciplines. The challenge in a small society like Bhutan is also learning to appreciate the PhD degree holders by those in the bureaucracy that have not travelled the PhD journey.

However, with increased work force in all development sectors in Bhutan, and also comparatively with young and dynamic population, this quality workforce is indirectly a source of inspiration to conduct and promote research for quality service and policy formulation with documentary evidences.

Research Capacity Development Initiatives

Socio-economic development plan in Bhutan was initiated from 1961, but not many Bhutanese scholars were engaged productively in writing our own development plans until the 5th Five-Year Plan, where some Bhutanese educated overseas joined and were instrumental in advising the government on real Bhutanese perspective. When the RUB was established in 2003, it already had some institutions that were thirty to forty years old. However, the focus of those tertiary education providers was either to offer skills-based training or higher learning with minimal attention to conduct research. The paradigm shift in including research activities besides teaching required both capacity building and creating an enabling research environment in the University.

Among several initiatives of creating an enabling research environment, the University encourages all researchers to seek research sponsors at three levels, namely, the University-wide research funding, College research funds, and Research funded by external sources. However, all researchers are implicitly required to follow the University financial rules and regulations since all researchers are affiliated with the University (RUB 2014).

The potential to improve research activities in Bhutan is currently constrained by lack of dedicated research fund (DRER 2016). While some agencies in the Government systems have improved both in terms of quality and quantity of researchers, many agencies still do not consider or appreciate contribution of research outputs to policy formulations. On the other hand, evidences from international practices already indicate that countries in the East Asia and the Pacific invest almost 1.5 percent of GDP in R&D (UIS 2018) yielding fast results both in social and economic fronts. Therefore, it also appears that there is an urgency to institute a nodal agency like a National Research Fund in Bhutan to support research matters and generate new knowledge that is relevant to Bhutan (DRER 2016).

At the University, the Department of Research and External Relations (DRER) has been successful to garner external sources of funds to build research capacity of academics. Some of the notable achievements were scholarships from Australian Government for building PhD degree supervision skills (Annual Report 2013), institutional research capacity building project from Global Development Network (Annual Report 2014), PhD degree enrollment and research project from Danish Government (Annual Report 2014), PhD scholarship from Thailand International Cooperation Agency, Government of Thailand for PhD degree (Annual Report 2015), and Norwegian Government research project on study of women's participation in leadership in Bhutan (Annual Report 2013).

In line with the National Research Fund in Bhutan, the Department of Research has also initiated and mobilized central research endowment fund from the government, although investment plans are not yet implemented.

Likewise, in order to build up the research capacity, all colleges dedicate a minimum of one percent operational budget annually to research activities. The University-wide research fund has also increased substantially from one million in year 2010 to two and half million in 2018. The number of AURG applications has also increased exponentially from 16 applications in 2010 year to over 50 in 2018. However, there are around 38 research grants from the external sources received from both within and outside the country where academic faculty collaborate with international Universities in 2018. Such external research grants were very few and rare before 2010.

Forum for Conferences and Seminars

RUB has worked tirelessly to build the research capacity of RUB faculty members by sponsoring conferences, modestly funding research projects at constituent colleges, and obtaining research grants. All these activities were feasible within the framework of developed and approved guidelines.

The Department of Research encourages all University-wide research applications to present their project proposals at the Faculty Research Meet where the proponents receive professional feedback to improve their research grant. At the College level, a series of scheduled seminars and conferences have picked up giving space to academics to showcase their study findings.

Many researchers have also chosen to present at the regional and international conferences and seminars. This has enhanced the visibility of the University and led to several networking and collaborative project developments. It is only encouraging that trends in research engagements are increasing and would continue to increase.

Space for Scholarly Publications

In 2012, the RUB published the *Bhutan Journal of Research and Development.* In 2013, it set up the Institute for Gross National Happiness Studies (iGNHaS) to foster GNH-related research within the country. The following year, a lengthy document was developed detailing RUB's Research Policies (RUB, 2014). Research Centres have also been operationalized at all the constituent colleges, although most such Centres are still in a very formative stage.

Publication of papers in journals, journal publications, book publications, and technical report publications have also picked up within the University. The growth of journals in the colleges has given space to the academics to publish their papers. Many of the journals have journal policies, although the degree of peer reviewing may vary. The important issue for the young University at the moment is to encourage writing and publication considering the importance of quality of papers and journals.

During recent years, a few authentic research-based book publications by the University include – i) *Improving women's participation in local governance: an exploratory study of women's leadership journeys in eight districts of Bhutan* (Thinley et al. 2014), and ii) *An introduction to the Biodiversity of Bhutan in the context of climate change and economic development* (Gurung and Katel 2017).

Enhanced External Linkages

From a modest international linkage with few Institutions and universities in the region, RUB has now established academic relations with several universities in Asia, Europe, North America and Australasia over the recent years. For instance, in one financial year from 2016-2017, as many as 59 projects were implemented by the University colleges from 30 countries. This has resulted in the movement of around 175 international guests to the University to implement joint projects secured between partners (DRER 2018).

The University has also attracted international students since January 2015 under different modalities such as semester abroad, short-term study, and full-time enrollment to the University undergraduate and postgraduate programmes. The international students visiting the RUB are mainly from North America, Europe, and Australia, with a significant proportion also from Asia.

Participation to Consultancy Services

Unlike in the past, many industries within Bhutan and also outside the country have approached our academics to conduct consultancies in giving trainings, pre-feasibility studies, review of policies, use of services, and many more. This has led to capacity building of many academics engaged in such scholarly activities. Many of the study report submitted to the industries have led to policy formulations of their sectoral plans and policies. The visibility and credibility of services have also contributed to participation in various Boards and Committees beyond the University. All these professional services are healthy trends in the growth of the University.

Incorporation of Research Subject Content into Curriculum

As stated earlier, the University has evolved from a teaching-learning tertiary education focused on subject content to enhanced research culture of academics and University students. With quality assurance put in place to initiate new programmes, and with review of existing programmes; visible impacts are seen in undergraduate curriculum with incorporation of subject matter like research and statistics modules in many award bearing programmes and also a significant component where students have to undertake undergraduate projects. The presence of student project in the curriculum itself poses challenge to academics in supervising skills while the students of the University improve their analytical and written communication skills.

The University has also launched postgraduate programmes through research in Natural Resource Management. Several undergraduate students have also opted to pursue honours degree which has significantly contributed to enhanced research skills of academics and students. There are as many as six Master's degree programmes including some taught through research. A significant component of Master's degree dissertation has also challenged academics to engage in research.

Conclusion

Situational analysis of the performance of research and development at the Royal University of Bhutan reveal several initiatives undertaken during the past one and half decade in enhancing the culture of inquiry, curiosity and learning. This has been instrumental in infusing the importance of research and innovation in the higher education. While structures and mechanisms to support research are put in place within the University, participation of academics in grant writing and collaborative projects still needs improvement.

The visibility of the University within and outside Bhutan has improved exponentially in recent years and trends indicate increasing opportunities to establish formal and informal academic exchanges and joint research projects with established institutions and universities. Yet, enhancement of research activities, both in terms of quality and quantity, still needs an enabling environment in a traditional teaching-learning set up. Given the quality of academics with highest university degree, and with adequate teaching experience in a higher education system, the required research requirements of academics, and with an enabling driving force created for systemic investigations, and with required support from home and outside the university in Bhutan; the RUB is confident to conclude that research culture in the University is improving and assisting policy formulations with evidence based systematic studies.

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The Effectiveness of *Bananagrams* Game for Honing Spelling Competence of Students Who Study English as a Second Language: An Action Research

Jigme Dorji

Abstract

A total of thirty two students (16 female and 16 male) of class nine C in Phuentsholing Higher Secondary School in Phuentsholing needed to improve their spelling competence as it was found through their weekly test that their major mistake was with spelling. Therefore, an action research titled 'The Effectiveness of *Bananagrams* Game for Honing Spelling Competence of Students Who Study English as a Second Language' was carried out to examine whether *bananagrams* game was effective in improving student's spelling proficiency. Mixed method was used for the study. Pre and Post-test data were collected through students' score in the spelling tests. The result revealed improvement in students' spelling indicating the effectiveness of *bananagrams* game for enhancing students' spelling skills. The action research recommends English teachers to use *bananagrams* game daily either before or after the lesson.

Keywords: *bananagrams, spelling, ESL, weekly test*

Introduction

Phuentsholing Higher Secondary was established in 1983 with 200 students and 9 teachers including the head teacher. When the Primary School could no longer accommodate the rapidly growing population, the school was upgraded as a Junior High School with classes ranging from 6 to 8. The school was inaugurated and formally upgraded to a High School in 2000 which was further upgraded to a Higher Secondary School in 2003 offering classes 11 and 12. In 2004, the first batch of students graduated from class 12 with 100% pass percentage. The school was awarded with Top Ten school certificate in 2009, 2012, and 2013. In 2014, a class 10 student topped whole Bhutan with third position. Though the result fluctuated in the later years, Phuentsholing Higher Secondary School was recognized by the Education Monitoring and Support Section Division (EMSD) for commendable increase in pass percentage in 2018 in comparison to 2017. Besides various awards for academic excellence, improving students' academic excellence has been a challenge.

The researcher taught English for the last eleven years at various class levels ranging from class Pre-Primary till class twelve. Currently the researcher teaches English for classes 9, 11 and 12. Students are aware English is the main subject for them and for them to score better in English, spelling is vital. On the contrary, students expressed their difficulty in English, especially retention of spelling. Although the researcher tried to use different types of teaching strategies, the result was dim as students continued to commit spelling errors more than any other grammatical structures.

One study states that spelling instruction continues to have a cycle of debate among educational theorists, dividing them into two separate camps with the behaviourist theorists advocating for “bottom-up” processes while psycholinguistic theorists favouring “top-down” processes in reading and spelling acquisition (Sawyer & Joyce, 2006). Since different students appeal to different approaches, teachers must understand and identify which student needs a mere spelling tests and which student wants to rote-learn the words, and implement the strategies accordingly. Strategies considered as feasible and applicable by the teachers may not be students’ preferred one, and thus, students would not be able to spell the words correctly. It is from this very issue that this examination came into consideration.

Significance of the Action Research

The participants in this study were one section of class nine students. Out of 32 students, 16 were girls and 16 were boys. Both the researcher and students understand English is the main subject for students of all levels of classes, and to excel in English, spelling is imperative. Although the researcher adopted varied strategies to teach spelling, students continued to commit more spelling errors than any other grammatical features. Students answered ‘no’ whenever they were asked whether they would want to have spelling tests.

Students’ weakness in spelling was further proven correct during the first term weekly test where more than 70 percent of students committed spelling errors in the range of 5–10. The purpose of this action research, therefore, is to try out an alternative strategy particularly to enhance spelling competence of students.

Literature Review

Graham, Harris and Loynachan (1993) say educators ought to know which spelling words should be taught to which level of children. Educators must understand which strategy best suit for students to retain and develop their spelling competence. Behaviour of teachers is decisive in “enhancing students’ ability to think critically, develop confidence and speaking skills, contribute towards collaborative learning and develop self-esteem” (Dukpa, 2010, p. 83).

Numerous studies were conducted to evaluate which strategy best assists students’ spelling retention. Gettinger (1985) examined the effectiveness of “student-directed versus teacher-directed spelling instruction on children's spelling accuracy and retention" (p.167). Nine children received four alternating experimental treatments during a 16-week spelling program. Results indicated that student-directed instruction that incorporated visual and verbal cues was most effective in increasing children's spelling accuracy.

A similar study was undertaken by van Staden (2010) to develop a visual imagery programme for Grade 3 learners by compromising between direct instructions in specific spelling skills whilst also immersing learners in meaningful authentic reading activities. The results of the quasi-experimental study corroborated the importance of considering visual imaging teaching strategies to improve the spelling ability of learners with spelling problems.

Yet another study was conducted by Darch and Simpson (1990) to investigate the relative effectiveness of two approaches for teaching spelling with 28 upper elementary learning disabled students. While one group of students was taught spelling with a visual imagery mnemonic, the other was taught spelling with rule-based spelling strategies. But the result of their study indicated that students taught with explicit rule-based strategies out-performed students presented with a visual imagery model.

Gordon (1994) steered an experiment to explore new approaches to teaching spelling to adult learners. Strategies used were "correction of own tests; systematic teaching; careful diagnosis; guided practice; spelling strategies most adaptable to the personal learning style; word study; frequent writing; and phonetic realization" (p. 1). The study recommends teaching spelling patterns and providing phonetic analysis using an integrated approach where reading and writing are included.

An examination about whether a correlation existed between the teachers' comfort level with word study instruction and their implementation of a word study program was conducted by Coine (1995). Results showed a positive correlation.

In 2008, a group of researchers surveyed the instructional practices in spelling and the types of adaptations Primary School teachers made for struggling spellers (Graham, Morphy, Harris, Barbara, Saddler, Mora, & Mason). Most of the teachers surveyed reported teaching spelling, and the vast majority of respondents implemented a complex and multifaceted instructional program that applied a variety of research-supported procedures. Yet, with "27% of their students experienced difficulty with spelling" (p. 796), the study indicated that teachers failed to apply a number of important instructional procedures when teaching spelling.

An examination by Duckworth, Kirby, Tsukayama, Berstein and Ericsson (2011) distinguished deliberate practice and less effective practice activities to understand how children improve in an academic skill, specifically, spelling skill. Their result specified that:

> Deliberate practice, operationally defined as studying and memorizing words while alone, mediated the prediction of final performance by the personality trait of grit, suggesting that perseverance and passion for long-term goals enable spellers to persist with practice activities that are less intrinsically rewarding – but more effective – than other types of preparation (p. 1).

A study was conducted by Skarr, McLaughlin, Derby, Meade and Williams (2012) to evaluate the efficacy of "methods of cover, copy and compare (CCC) and Direction Instruction (DI) flashcards in spelling" (p. 247). The result showed mastery of spelling words with both CCC and DI flashcards.

In 2015, Pan, Rubin and Rickard examined the ability of testing in enhancing adult spelling acquisition, relative to copying and reading. The result showed that, in general, adult spelling skill acquisition benefitted both from testing and copying, but substantially less from reading.

Tshomo, Choden, Thinley and Sherab (2018) conducted an action research to investigate spelling errors involving 160 class 7 and 8 students in Bhutan who study English as a second language. The study recommends teachers to "spend about 15 minutes in a day or 60 – 70 minutes in a week as spelling period" (p. 18).

There are considerable researches conducted to study about various strategies adopted by educators to help students improve their spelling skills, yet studies have not stressed on analysing how gaming helps students retain their spelling competence. Therefore, the question of whether *bananagrams* gaming will be effective in assisting students spelling retention skill captured the interest of the researcher.

Objectives of the Action Research

Despite various strategies adopted by the researcher to lessen the spelling errors of students, the result was dim. This action research aims to:

1. Investigate the effectiveness of *bananagrams* game in enhancing the spelling skills of students.
2. Lessen spelling errors by the use of *bananagrams* game.

Action Research Question

This Action Research aims to answer the following main question:

Would *bananagrams* game be an effective tool for honing students' spelling competence?

Research Design and Methodology

This action research was conducted with thirty two class nine students of one section for three months from Mid of April till the second week of June. Mixed method was used in this action research. Students were conducted with a spelling test and the individual score was compiled. As soon as the baseline data was collected from the participants, intervention action was put into practice. Finally, during the post intervention stage, the participants were conducted with a spelling test and individual students' score was collected. In order to authenticate the finding, intervention action was put into action once again and students were conducted with a spelling test. Following two phases of intervention actions and spelling tests, the effectiveness of the intervention action was analysed by comparing the scores of pre-intervention and two phases of post interventions. Moreover, a structured questionnaire was used to gather students' view on the effectiveness of *bananagrams* game.

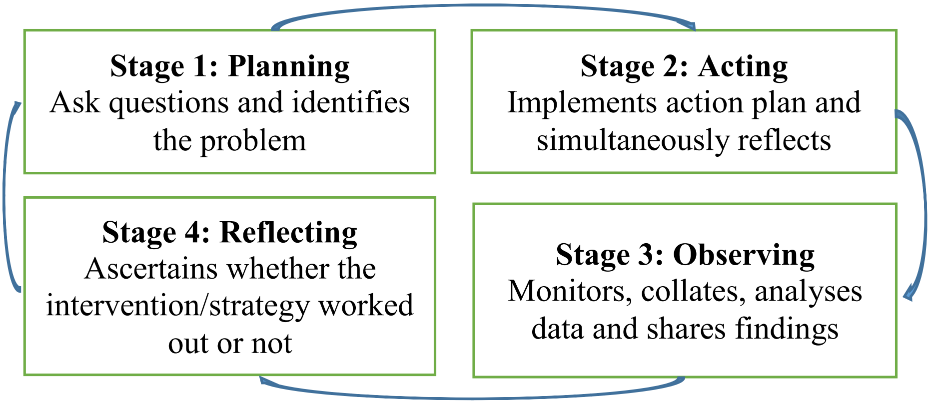

Figure 1. Action Research Process (Royal Education Council, 2018, p.5)

The theoretical framework and action research plan adopted in this research are "a cyclical and spiral four stage process, namely planning, acting, observing and reflecting" (Royal Education Council, 2018).

Baseline Data Collection

Data was collected through students' spelling test. Table 1 shows list of commonly misspelled words which were dictated for students during baseline data collection.

Table 1. List of commonly misspelled words

1	Accommodate	11	Basically
2	Achieve	12	Benefit
3	Acquire	13	Calendar
4	Across	14	Coming
5	Address	15	Competition
6	Advertise	16	Disappear
7	Apparent	17	Embarrass
8	Argument	18	Exercise
9	Athlete	19	Explanation
10	Beginning	20	Forty

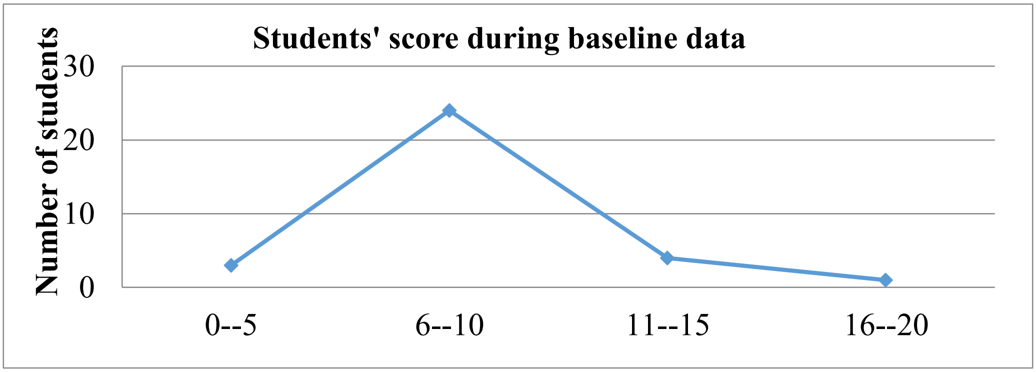

Figure 2. Students' score during baseline data

Slightly over 9 percent and 3 percent of students fell in the score range of 0 – 5 and 16 – 20 respectively. With 24 students, 75 percent of students are decked in the score range of 6 – 10. The pass percentage was a little over 43 percent and the average score in the pre-intervention was 40 percent (Figure 2).

Intervention

An ethical approval was sought from the school vice principal and the participants. The researcher informed the aim and objective of the action research. The students were briefed about the planned action research and its purpose to ensure proper usage of the method. They were ensured anonymity and confidentiality and briefed on how the data was going to be used and protected. The researcher could not take on a critical friend to authenticate the data due to time constraint.

After the baseline data was conducted, the researcher instituted the *bananagrams* game for class 9 C students either as a pre or post lesson activity, depending upon the suitability of lesson, for ten minutes. The steps of game were adapted as per the explanation by The SCRABBLE World (2012) in YouTube.

Students were grouped into four teams with eight members each. Each team was given a *bananagrams* bag. When students were told to start the game, they spread the tiles, upside down, on the table.

Every member in a team took 11 tiles each leaving fifty six tiles on the table. These remaining tiles on the table are called as BUNCH. Upon a count of 3, the researcher shouted ‘SPLIT’ and students flipped their tiles and started forming words that intersected like a crossword grid. Each player connected tiles to form words horizontally and vertically whichever possible but proper nouns and names were not allowed. Any player was allowed to rearrange their words. When a player has used all the tiles s/he had, s/he shouted ‘PEEL’ and all the members in the team took one additional tile from the bunch. The process continued until no tile remained on the table.

A team member shouted ‘DUMP’ if s/he had hard time arranging the tiles, and upon discarding a tile to the bunch, s/he took three more tiles from the bunch. The process of arranging and ‘PEEL’ and ‘DUMP’ continued.

When a player had used and arranged all the tiles, s/he shouted ‘BANANAS’. The other members inspected the grid for misspellings and proper nouns. If there were any mistake, the team member shouted ‘ROTTEN BANANA’ and the student who made an error returned the tiles to the bunch. The other team members continued the game. Whoever arranged first without any spelling error was declared the WINNER.

Post-Data Collection – I

After the intervention for one month, students were conducted with a spelling test. List of commonly misspelled words which students were asked to write are reflected in Table 2.

Table 2. List of commonly misspelled words

1	Writing	11	Sacrifice
2	Weird	12	Rhythm
3	Usually	13	Restaurant
4	Twelfth	14	Repetition
5	Temporary	15	Recommend
6	Surprise	16	Receive
7	Successful	17	Psychology
8	Soldier	18	Professional
9	Separate	19	Privilege
10	Scissors	20	Personally

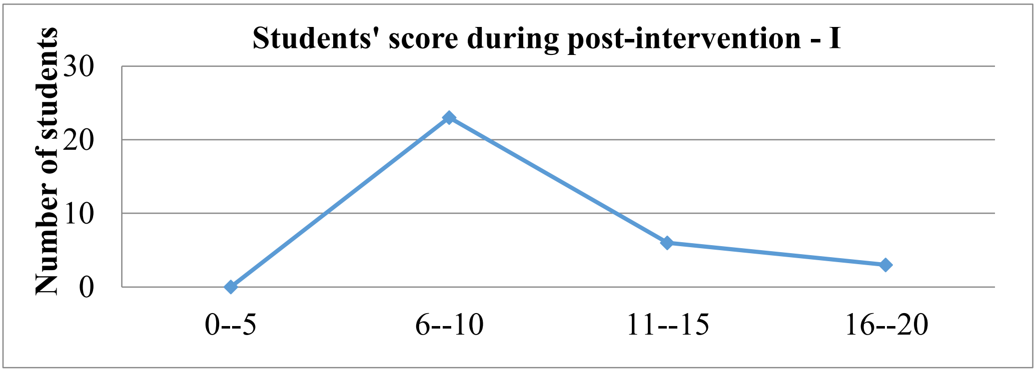

Figure 3. Students' score during post intervention – I

While none of the students scored in the category of 0 – 5, maximum number of students are in the category of 6–10 with a little over 71 percent. With 3 students, 9 percent of total students scored in the range of 16–20. Although the pass percentage was approximately 88, average score during the post intervention – I was 49 percent (Figure 3).

Post-Data Collection – II

In order to authenticate the effectiveness of *bananagrams* game, the researcher conducted yet another spelling test after one moth of intervention. The commonly misspelled words are listed in Table 3.

Table 3. List of commonly misspelled words

1	Permanent	11	Knowledge
2	Peculiar	12	Judgment
3	Original	13	Island
4	Occasion	14	Invitation
5	Mysterious	15	Interruption
6	Mathematics	16	Interfere
7	Wednesday	17	Intelligent
8	Library	18	Immediately
9	Length	19	Imaginary
10	Laboratory	20	Humorous

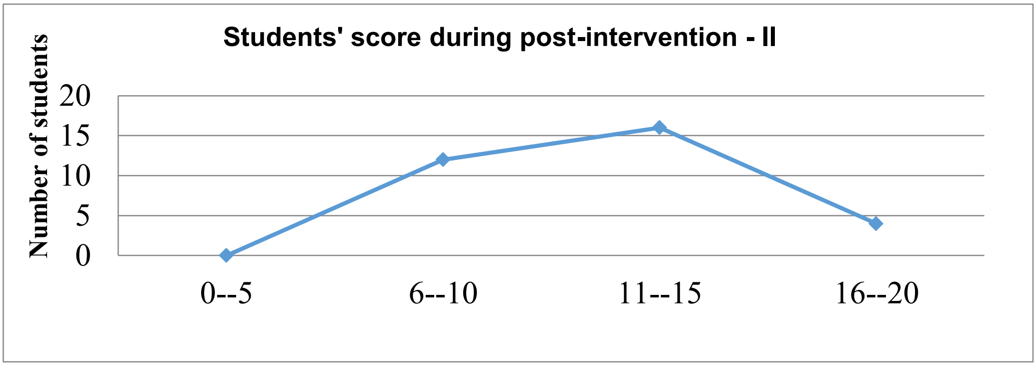

Figure 4. Students' score during post-intervention – II

50 percent of students scored 11–15 while none of the students fell in the score range of 0–5. Over 12 percent of students scored in the range of 16–20, yet none of them scored 20 out of 20. The pass percentage was a little more than 96 and average score during the post intervention – II was around 60 percent (Figure 4).

Result and Findings

Figure 5 illustrates the comparison of students' score among baseline data and the post intervention I and II.

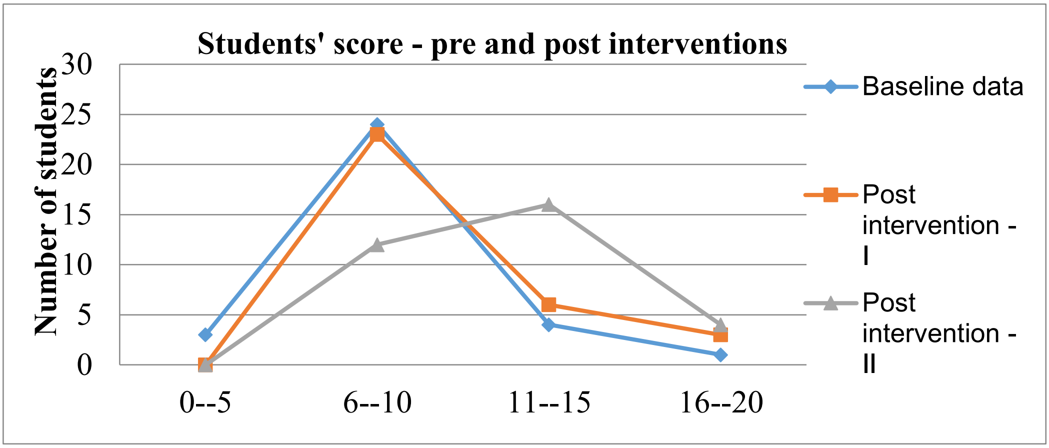

Figure 5. Comparison of students' score – pre and post interventions

To begin with, none of the students scored in the range of 0 – 5 during post interventions while there were 3 students during the pre-intervention. There is a decrease of students in the category of 6–10 during the post intervention – II in comparison to pre and post intervention – I, but the score range increased from 4 and 6 students during pre-intervention and post intervention – I respectively to 16 students during post intervention – II in the score range of 11–15. An increase of students to 4 from 1 during pre-intervention and 3 during post intervention – I in the score range of 16 – 20 is noteworthy.

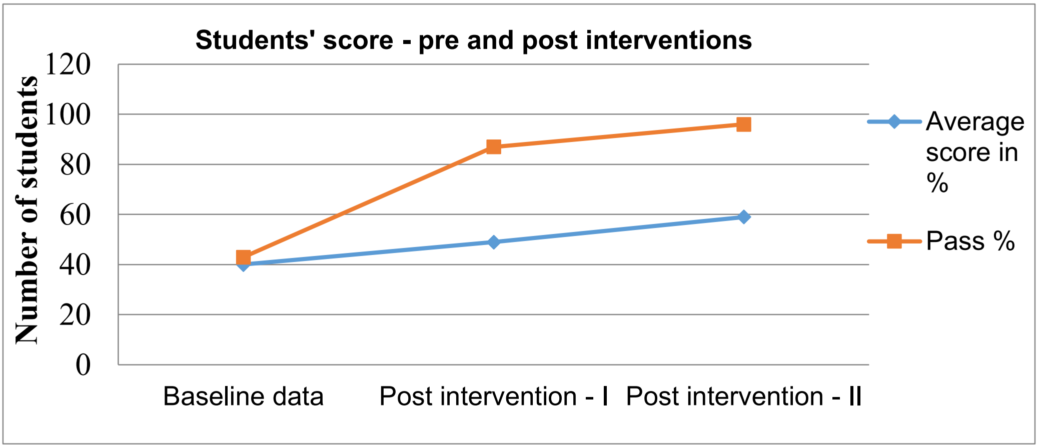

Figure 6. Comparison of students' average score – pre and post interventions

Although it is not a whopping increase, there is a 9 percent rise in average score in the post intervention – I from baseline data. During the post intervention – II, students average score increased with 10 percent in comparison to post intervention

– I. Generally, students' average score has a notable increase of 19 percent from baseline data to post intervention – II.

Similarly, there is prominent increase in pass percentage from baseline data to post intervention II. Pass percentage leap-frogged from around 44 percent during baseline data to more than 87 percent during post intervention – I which further increased to 96 percent during the post intervention – II. To conclude, there is a distinguishing increase in pass percentage of 53 percent from baseline data to post intervention – II.

After the two phases of interventions, students were provided with a structured questionnaire to assess whether *bananagrams* game helped them in their spelling skills. The first question in the questionnaire asked whether students liked *bananagrams* game. 100 percent of students responded positively. The second question enquired them to explain how *bananagrams* helped them in their spelling skills. 25 percent of total respondents have abstained from answering the question.

One student has written thus:
If teachers have used such games, we would not have had spelling errors.

In his response, another student hopes for similar type of game activities for them. The main reason, the respondent stated, was games kept them active and thus learned whatever was taught. These responses conform to the increased trend in pass percentage and average score in % of students from pre-intervention to two phases of post interventions indicating the effectiveness of *bananagrams* in honing students' spelling competence.

Conclusion

The researcher believes this study was carried out successfully as the planned actions were implemented on time according to the timeline. Most importantly, the effectiveness of *bananagrams* game in honing students' spelling skills was unearthed. The result of the experiment runs in parallel with one blog writer's opinion about the importance of the game. Johnson (2019), in his blog titled *Using Bananagrams to Build Language Skills*, puts that forcing students to race to spell as quickly as they can would broaden their vocabulary and reinforce spelling skills as they gain familiarity with word parts. Thus educators are recommended to put in practice *banangrams* game for ten to fifteen minutes either before or after the lesson to lessen spelling errors of ESL students.

Limitation

The limitations to this study are restricted sample size and participants being only a handful of 32 students from one section. The result would have been more authentic and applicable to the general population if the participants were selected from different schools.

Implications for further Action Research

The researcher could not take on a critical friend to authenticate the data due to time constraint. Therefore time span considered for the research can also be questioned. Since the research suggests that a lot more could be explored, the researcher intends to do a further research with more data samples from different schools to ascertain the effectiveness of *bananagrams* in honing spelling skills of students who study English as a second language.

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Comparative Analysis of Water Discharge Measurement Methods and Seasonal Trend Analysis of Taebayrongchu Sub-watershed, Punakha

Damudar Dahal and Ugyen Dorji

Abstract
Stream discharge can be measured using several methods and are influenced by the natural flowing characteristics of the stream. The study analysed the comparative measurement of stream flow using float area method and cup-type current meter with baseline data of propeller-type current meter. It also determined seasonal flow and lean flow trend analysis of stream in Taebayrongchu sub-watershed. The percentage difference and matrix technique were used for comparison of the discharge. The discharge data using cup-type current meter, propeller-type current meter and float area method were 0.912m^3/s, 0.876m^3/s and 1.654m3/s respectively. The percentage difference between propeller-type and cup-type current was 0.036. The cup-type current meter was used for lean flow measurement and Integrated Flood Analysis System (IFAS) modeling to determine the peak flow measurement. The Nash coefficient for the modeling was 0.598. The highest discharge in the stream was in the month of July (13.663m^3/s) and lowest in the month of February (0.876m^3/s). The trend analysis of lean flow showed decrease in the amount of water in the stream from the year 1998 to 2018. There was a variation in water discharge measurement in different months of the year. The IFAS modeling is less applicable for small streams.

Keywords: *current meter, discharge measurement, float area method, integrated float analysis system, lean flow*

Introduction
Watershed is a system of connecting streams where all the surface runoff originating within the area leaves in a concentrated flow through a single outlet at a lower elevation (Reddy, 2011; Brooks, Ffolliott, & Magner, 2012). It is a useful unit for natural resource management establishing relations between natural resources and human activities. One of the important aspects of watershed is the water discharge measurement for management of water resources (Bradley, Kruger, Meselhe, & Muste, 2002). The discharge measurement of a stream is the volume of water flowing through a single point within a channel at a given time (Whiting, 2003; Hirsch & Costa, 2004). The discharge measurement of water depends on natural characteristics of the stream and availability of measuring instruments.

Water discharge measurement is critical at present climate change scenario such as occurrence of floods, water flow in the lean season, agriculture activities, hydropower generation, and environmental management of aquatic ecosystem. Accurate measurement of volume flow is needed for computing estimation of water discharge in a stream (Antigha, Akor, Ayotamuno, Ologhodien, & Ogarekpe, 2014).

Stream discharge can be measured using several methods and has not changed for over centuries in many countries (Costa *et al.*, 2000). The most common traditional methods for water discharge measurement in open channels are cup-type current meter, and float area (Costa *et al*., 2000; Merz, 2000). The latest discharge measurement methods are salt dilution method (Sappa, Ferranti, & Pecchia, 2015), channel geometry (Sefick, Kalin, Kosnicki, Schneid, Jarrell, Anderson, & Feminella, 2015), and Acoustic Doppler Current Profiler (ADCP) method. The current meter work on the principle of rotating the cup and propeller with the velocity of water (Sappa *et al*., 2015).

Discharge measurement in a mountainous area with rugged water course depends on types of instruments and methods used (Calkins & Dunne, 1970). It is difficult for discharge measurement due to high variability of the flow and turbulent stream conditions that varies throughout the year (Adhikari, Dhakal, Dongol, & Merz, 2000). The selection of the most appropriate instrument and method in different flow conditions is the first step to provide accurate information on surface water conditions of a stream (Merz, 2010). Annual water availability in the streams is characterized by the low flows during lean seasons of the year (Adhikari *et al*., 2000). The quantity and variation of flows depend on precipitation pattern in the watershed (Merz, 2010).

In Bhutan, water discharge measurement is done by National Centre for Hydrology and Meteorology (NCHM) and Druk Green Power Cooperation (DGPC) for hydropower projects. They use different methods such as Automatic Water Level Station Sensor (AWLSS), cable way, and wading using current meter. The NCHM collects data on daily basis using AWLSS and Cable way in major rivers of Bhutan. The wading method using current meter is taken once in a year from January to March in small streams (NCHM, 2017).

Taebayrongchu watershed is valuable water resource for the local communities and contributes to the sustainability of water supply for irrigation and drinking water to the communities. Owing to the seasonal change, the stream shows variation in discharge; high during monsoon and low during dry seasons. The water becomes insufficient for paddy transplantation and drinking purpose during dry season (Gyelmo, 2015). Conversely, there are no clear scientific information depicting the actual discharge measurements for the stream during different seasons. The information generated will aid the farmers to better use and plan for cropping and irrigation at different seasons. The result will also help extension officials, municipality, local government and policy makers for planning and management. The data will be instrumental to hydropower project management as the contributions from streams to the main river, Punatshangchu can be generated with much ease.

The comparative study for flow measurement to establish the best method that will be feasible in mountainous areas, volumetric discharge in different seasons, and discharge trend of lean season in Taebayrongchu sub-watershed, under Punakha district were the premise of the study.

Methods and materials

Study Area

The study was carried out in Taebayrongchu (27° 31”31’ N; 89° 52” 03’ E) under Punakha district. Water discharge measurements were taken at Taebayrongchu Bridge. The watershed has an area of 114 sq.km with an elevation of 1250 to 3100 meter above sea level (masl) (NCHM, 2017). Water yield in a stream is mostly from rainfall and springs during summer. The water from all the springs on upper catchment meet at the lower elevation to form a stream because of steep slopes. The water in upper catchment flow with high turbulence due to steep slope and velocity decreases at lower elevation before forming confluence with Punatshangchu. The water flows from 3100masl passing through roads and human settlement. Some amount of water is also diverted for drinking and irrigation from the source. The watershed is more prone to landslide and soil erosion due to human disturbances.

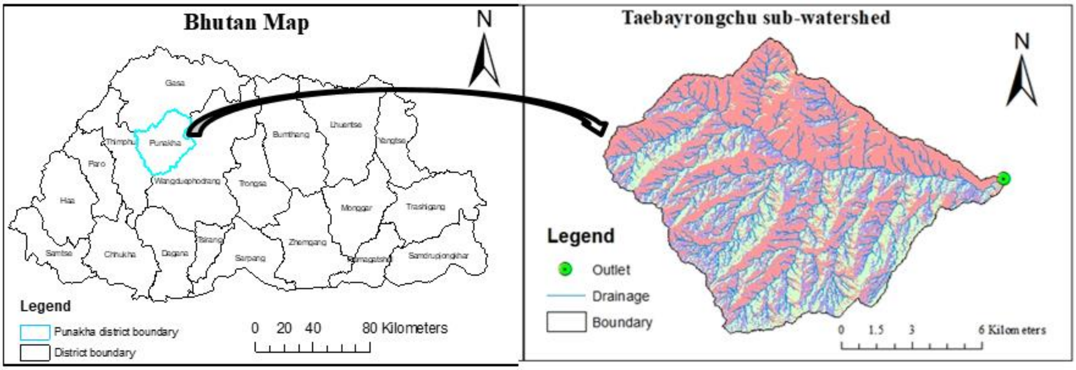

Figure 1: Taebayrongchu sub-watershed (Data source: National Centre for Hydrology and Meteorology)

Sampling Design

The data were collected through spot discharge measurement by wading method for six months (October 2017 to March 2018) during lean season using cup-type current meter. The discharge measurement was taken twice a month. The data were collected from only one station throughout the study period to reduce the error in accuracy and for the reliability of water discharge measurement as applied by Otuagoma (2015) and Sappa *et al*. (2015). The remaining 6 months data were predicted based on IFAS modeling during high discharge flow. The precipitation of seven surrounding meteorological station data was used as an input for discharge prediction for IFAS modeling.

For the effectiveness of water discharge measurement method, cup-type current meter and float area method was used. The data of propeller-type current meter method was used as baseline measurement data. The data from three methods were collected from same station at the same time. The data were analyzed using percentage difference in the reading and plotted against the bar graph. The lean flow data from 1998 to 2018 were used to analyse the discharge trend. Water discharge trend of lean season was done using Microsoft excel and Statistical Package for the Social Science (SPSS).

The rainfall data of 2016 from seven meteorological station (Punakha, Wangdue, Thinleygang, Gasa, Tashithang, samtengang and shelgana) were used as input for IFAS modeling. The only one meteorological station falls under the Taebayrongchu watershed and other six falls outside. The other six station’s rainfall data from the surrounding area was include because of limited data. The discharge data of Wangdue Rapid is used for simulation correlation process in IFAS modeling. All the secondary data were collected from NCHM.

Results and Discussion

Cup-type current meter method

The area was calculated by measuring the width and depth of the sub-section of the stream. The velocity was determined using cup-type current meter. The total velocity and area were summed up to calculate the total stream discharge. The current meter method gives water velocity in each vertical section with the calibration equation of ($v = 0.5826*RPS+0.0536$) between stream velocity (m/s) and the number of spins (sec-1) with the rating range of 0.3m/s to 3.3m/s (Sappa *et al*., 2015).

Discharge (Q) = Velocity (V) * Area (A)

Table 1: Discharge measurement reading using cup-type current meter

SEGMENT	WIDTH (M)	DEPTH₁ (M)	DEPTH₂ (M)	TIME (SEC)	REV.	REV./ SEC	V=0.5826*RPS +0.0536(M/S)	AREA (M^2)	Q=V*A (M^3/S)
1	0.5	0	0.1	60	17	0.283	0.218	0.025	0.005
2	0.5	0.1	0.12	60	22	0.367	0.267	0.055	0.015
3	0.5	0.12	0.16	60	25	0.417	0.296	0.070	0.021
4	0.5	0.16	0.20	60	17	0.283	0.218	0.090	0.019
5	0.5	0.20	0.22	60	33	0.550	0.374	0.105	0.039
6	0.5	0.22	0.23	60	44	0.733	0.481	0.113	0.054
7	0.5	0.23	0.26	60	47	0.783	0.509	0.123	0.063
8	0.5	0.26	0.30	60	48	0.800	0.519	0.140	0.073
9	0.5	0.30	0.29	60	46	0.767	0.500	0.148	0.074
10	0.5	0.29	0.32	60	50	0.833	0.539	0.153	0.080
11	0.5	0.32	0.39	60	46	0.767	0.500	0.178	0.089
12	0.5	0.39	0.50	60	40	0.667	0.442	0.223	0.099
13	0.5	0.50	o.43	60	34	0.567	0.384	0.233	0.089
14	0.5	0.43	0.44	60	27	0.400	0.287	0.218	0.063
15	0.5	0.44	0.42	60	32	0.533	0.364	0.215	0.078
16	0.5	0.42	0.30	60	16	0.267	0.209	0.180	0.038
17	0.2	0.30	0	60	12	0.200	0.170	0.075	0.013
	Average velocity: 0.369 m/s				Total area: 2.344m²			Total: 0.912	

The discharge was taken during the lean season when the water level in the stream was low and does not show much fluctuation (Table 1). The total width of the stream at the station site was 8.2 meter. The cross section was divided into 17 sub-sections with 0.5 meter interval. The sub-section was determined based on width of the stream. According to Michaud and Wierenga (2005), more number of sub-section will have greater probability of discharge estimation. The time set was 60seconds at every cross section of the stream. The method used was 0.6 meter point measurement because the depth of water was less than one meter. More than one meter depth requires three point measurement at 0.2, 0.6, and 0.8 meter depth for the accuracy of velocity. Gees (1990) had set time for 60 seconds using conventional current meter set by United State of Geological Survey (USGS). The revolution per second was determined by time set by the total number of revolutions at each section. The discharge value calculated was Q = 0.912 m^3/s after summing up total velocity and area.

Float area method

The float area method is useful for streams which involve measurement of width, depth, and velocity. A pine cone was used as a floating object which was slightly submerged (Otuagoma, Ogujor, & Kuale, 2015) in the stream. The time 't' was taken by the float to cover a known distance 'd' was recorded. It measures surface velocity and correction factor is used to determine average velocity depending on stream bed rocks (Meals & Dressing, 2008). The cross-sectional area in the particular section of the river was calculated using the measuring tape for width and wading rod to measure average depth.

Three different measurements were made at the discharge station. The data collected from float area measurements were recorded and presented (Table 2). The discharge measurement using float area method was done thrice at a site to determine average velocity. The distance was maintained at 60 meter between start of the point and certain point downstream as done by Otuagoma *et al*. (2015). The K (Correction factor) 0.85 was used to find the average velocity of the stream based on river beds.

The surface velocity 'V' of the water is given by the relation:

V surface = travel distance/ travel time = d/t (m/s)

$$Discharge(Q) = Area(A) \times Velocity(V)$$

$$Vmean = \frac{d}{t} = k \times Vsurface \quad Where\ K\ \ (Correction\ factor) = 0.85$$

The equation to calculate the discharge: $Q = Ave \times Vsurface \times correction\ factor$

Table 2: Discharge measurement reading using float area method

Trial	Distance(m)	Time (s)	Area(m^2)	Velocity(m/s)	Discharge(m^3/s)
1	60	72	2.344	0.833	1.660
2	60	76	2.344	0.789	1.573
3	60	69	2.344	0.869	1.733
					Average: 1.654

In three different measurements; the time taken by the floating object to reach specific point were 72, 76, and 69seconds respectively. The three different velocities were averaged to get more accurate reading. The velocities of the stream were 0.833, 0.789, and 0.869m/s respectively. The total area of the cross section was 2.344m^2 and average discharge of the stream using float area method was 1.654m^3/s.

Comparison between current meter and float area method

Comparison of cross sectional mean velocity, area, and discharge using float area method and cup- type current meter method were observed (Figure 2). Results of the two methods for determining stream flow discharge at Taebayrongchu Bridge gauging station were compared with propeller- type current meter. The discharge values measured by the cup-type current was similar to values obtained by propeller type current meter. Propeller-type current meter method was the standard instrument and many stream flow measurements were taken throughout Bhutan during lean season (NCHM, 2015).

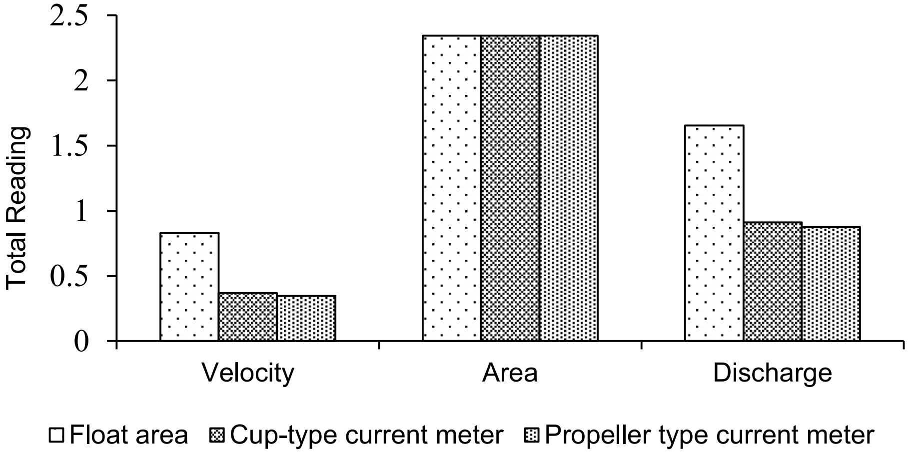

Figure 2: Measurement of velocity, area, and discharge using three methods

The highest mean velocity of 0.83m/s of water was recorded in float area method. There was a small variation of 0.036m/s in velocity measurements done by cup-type and propeller-type current meter. The area was 2.344m^2 in all three methods because the discharge measurement was taken at the same place. The discharge measurement using float area method is 1.654m^3/s, and cup-type current meter is 0.912m^3/s respectively. The stream measurement from cup-type current meter and float area methods were analyzed and compared with baseline data of propeller-type current meter. The difference in discharge measurement among three methods is primarily due to velocity difference as higher velocity value corresponds to higher discharge value (figure 2)

Comparison using percentage difference method

The percentage from discharge of propeller type current meter was used to compare between cup- type current meter and float area method.

Table 3: Percentage difference of three different methods

Date	Current meter (Propeller-type)	Current meter (Cup-type)	Float area method	Percentage difference
15/02/2018	0.876	0.912	-	0.036
15/2/2018	-	0.912	1.654	0.743
15/2/2018	0.876	-	1.654	0.779

The discharge measurement using propeller-type current meter was used as baseline data recorded by the NCHM. The propeller-type current meter was the standard method upgraded by United State of Geological Survey in a mountainous area. The discharge value using cup-type current meter and float area was 0.912 m^3/s and 1.655m^3/s respectively. The percentage difference between propeller-type and cup-type current meter is 0.036. The percentage difference for float area and cup-type current meter with propeller type current meter is 0.779 and 0.743 respectively.

According to Nolan, Shields, & Survey (2000), value of the cup-type current meter within 5 is considered good and float area greater than 8 is poor. The discharge measurement done in Ethiopia for comparative methods show that the current meter gives accurate result than float area method. The finding from Taebayrongchu shows that cup-type current meter is better and accurate than float area method. However, Merz and Doppmann, (2006) argued that in Bhutan, salt dilution method was appropriate and accurate, but this method could not be used due to lack of instrument. There is limited comparison with current meter with float area methods in the mountainous stream.

Matrix technique

Matrix of the techniques and methods and their use under certain stream conditions was used to observe the feasibility and advantages of current meter and float area method. Ticks and Crosses indicate where an advantage and disadvantage have been identified during discharge measurement in the field. Nolan *et al* (2000), used similar technique to look into effective methods based on field experience.

Table 4: Matrix techniques method

Stream condition	Cup-type current meter	Float Area method
Turbulent flow	√	×
Steady flow	√	√
Irregular channel	√	×
Regular channel	√	√
Low flow	√	√
Reversing flow	×	×

The stream condition such as turbulent flow, steady flow, irregular channel, regular channel, low flow and reversing flow was observed in both the methods. The tick mark indicate advantages and cross mark indicate disadvantages based on field observation. There are more advantages compared to disadvantages for stream discharge measurement using current meter in a mountainous area. The current meter was appropriate except in reversing stream condition.

In float area method, the floating objects were disturbed by wind that affected the velocity of water during measurement. The study on surface water flow measurement for water quality monitoring projects by Meals and Dressing (2008) found that wind was the main affecting factor for discharge measurement in float area method. The presence of aquatic plants and wooden materials that were washed away by flowing water also affected the velocity of water. The advantage of using float area method was fast and easy to take measurement. It is difficult to place cup-type current meter at different depth of water during velocity measurement. The advantage of using cup-type current meter over float area method was measuring the velocity of water across the stream at having measurement interval.

Integrated Flood Analysis System (IFAS) model setup

The IFAS modeling tool is was used for water discharge estimation of Taebayrongchu stream for peak discharge months. The data used were observed discharge records, rainfall, Digital Elevation Model (DEM) and land use as indicated in figure 3. Similar data were used by Sutikno, Handayani, Fauzi, & Kurnia (2017) for study of hydrologic modelling using TRMM-based rainfall products for flood analysis. The IFAS software ver. 2.0 and all data were downloaded directly from http://www.icharm.pwri.go.jp/research/ifas/ifas.html website.The observed discharge data are required to calibrate with simulation data of IFAS software to mimic the shape and follow the trend of the observed hydrograph (Sugiura, Fujioka, Nabesaka, Sayama, Iwami, Fukami, & Takeuchi, 2014).

Rainfall data of seven meteorological stations were used as input data to the IFAS model. IFAS reads rainfall point where location of the station and time of the measurements are specified (Sugiura, Fukami & Inomata, 2008). To handle rainfall data in IFAS format, there are four conditions to consider such as the format of the data, its chronological continuity, the no-data issue and if the calculation time step is smaller than the data time step and also the interpolation of rainfall data for each time step. Daily rainfall data of 2016 were collected from meteorological stations. Rainfall data from seven surrounding meteorological stations were used for accuracy and validity of model.

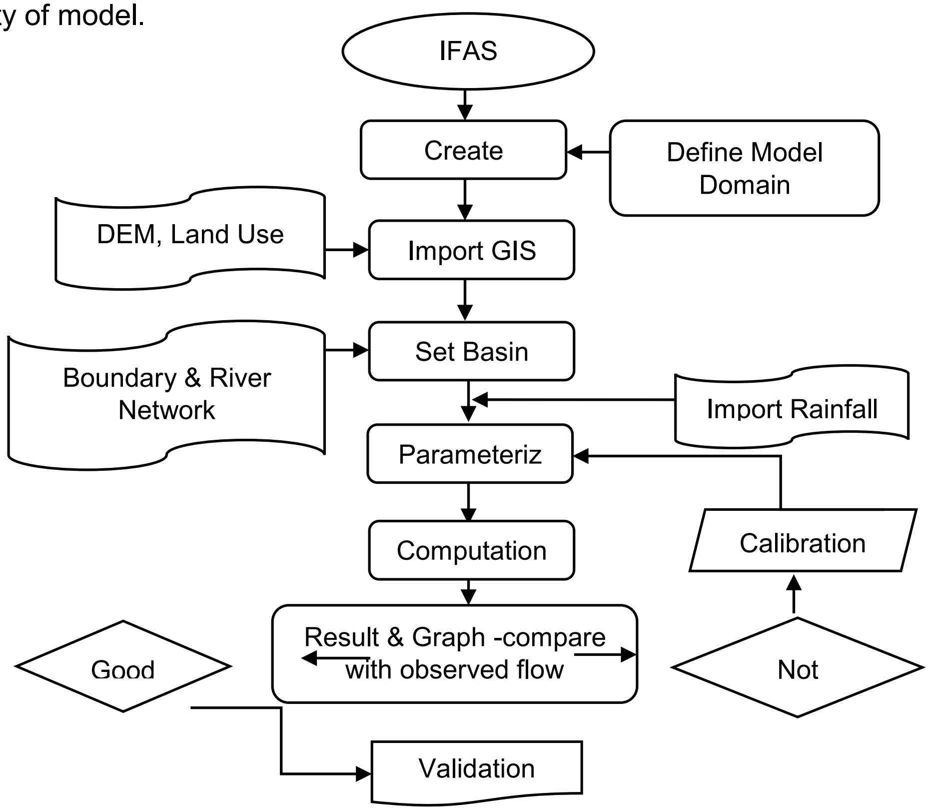

Figure 3: IFAS modeling procedure setup

Model calibration and validation

Model calibration is the process of optimizing the value of the parameters to improve the coherence between the hydrological discharge data (observed data) and simulated discharge. In this research, the IFAS model was calibrated using a reference of water discharge data of Wangdue rapids as there are no observed seasonal discharge data of Taebayrongchu. The hydrological parameters such as sub-surface, aquifer and river course were calibrated. These parameters were used in calibration by Sutikno *et al*. (2017) and Sugiura *et al*. (2014). At the beginning of the simulation, hydrological parameters were set default specified by IFAS based on satellite data input as shown in figure 3. The sensitivity of these parameters on the response of hydrological model calibration phase was examined.

Comparison between the simulation and measured hydrograph show the similar trend but the magnitude was not acceptable. The peak of simulation discharge of Wangdue rapid was significantly over estimate compared with the measurement peak discharge. To improve the accuracy and the correlation, calibration process was done by trial and error method on hydrological parameters so that the output discharge from the model was as close as possible with measured discharge. The calculated discharge produced by IFAS was compared to the observed discharge data from river at Wangdue rapid station. After calibration process, the simulation hydrograph is shown correlated with measured hydrograph.

Discharge trend of Taebayrongchu using IFAS modeling and manual measurement

Model calibration was used to simulate a discharge of Taebayrongchu of 2016. The model was simulated between rainfall data and discharge data. The Nash coefficient from modeling was 0.599 which simulation shows discharge trend of good correlation. According to Aziz, A. (2014), Nash coefficient above 0.5 is an acceptable error simulated for discharge prediction. The maximum simulated discharge in 2016 was about 13.66m^3/s and minimum were around 2m^3/s sing IFAS model.

The IFAS modeling using rainfall data can be used as an alternative for discharge analysis in the area with limited hydrological data. The simulations for data from Wangdue rapids station is similar to data collected from the study area. Sugiura *et al*. (2008) found high flow in beginning of simulation and overestimate during the peak flow. The discharge prediction showed an acceptable error with the Nash coefficient of *0.598.*

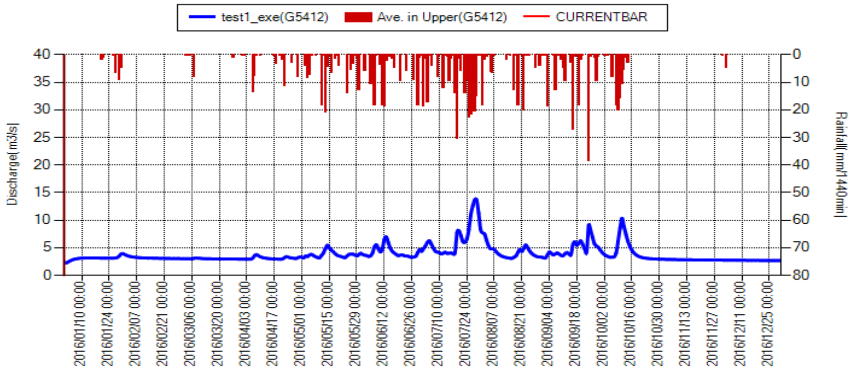

Figure 4: Peak discharge measurement using IFAS modeling

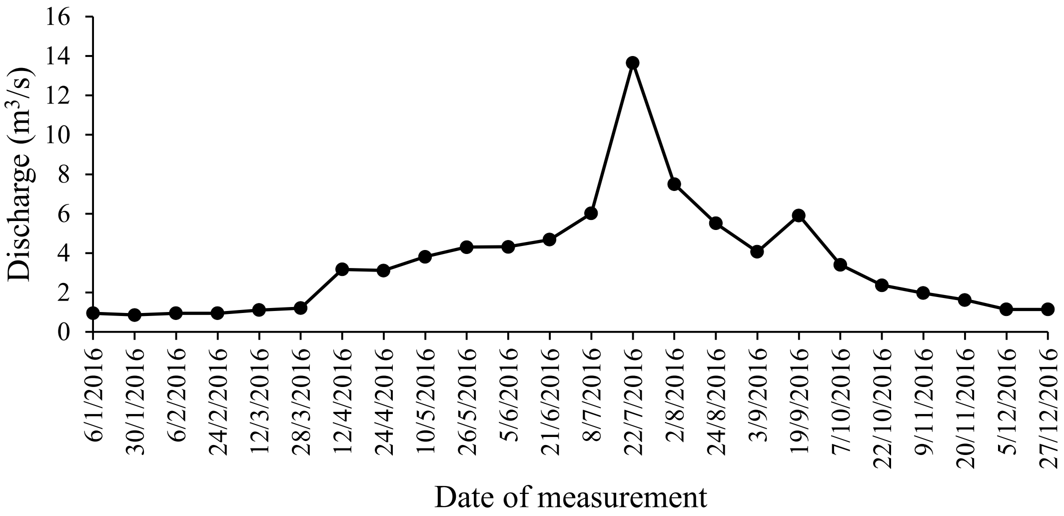

Figure 5. Discharge trend of stream using observed discharged and IFAS

The water discharge was measured using cup-type current meter for six months and remaining six months discharge was calculated using IFAS modeling (Figure 7). It indicates the variation of discharge as high during monsoon and low during lean season. The water discharge was low in February with 0.876m3/s and the highest in July with 13.66m3/s during monsoon season. The large variation in discharge is attributed to rainfall as recorded higher in monsoon than other seasons. The rivers and streams flow of mountainous area are the highest in the month of July and lowest in February (Water and Energy Commission Secretariat, 2011). The discharge measurement in a mountainous stream is 10-20 times higher than lean flow (Merz, 2010).

Water discharge trend of Taebayrongchu during lean flow

The lean flow discharge measurement was recorded by the National Centre for Hydrology and Meteorology from February to March every year. The trend of lean flow was analyzed for 21 years from 1998 to 2018 (figure 6). The minimum averaged discharge was 0.609 and maximum averaged was 1.294. The mean discharge of stream during lean season in the last 21 years was 0.869 with standard deviation of 0.211.

Table 5: Descriptive Statistics of 21 years lean season flow

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Discharge(m^3/s)	21	.609	1.294	.86881	.210681	.044
Valid N (list wise)	21					

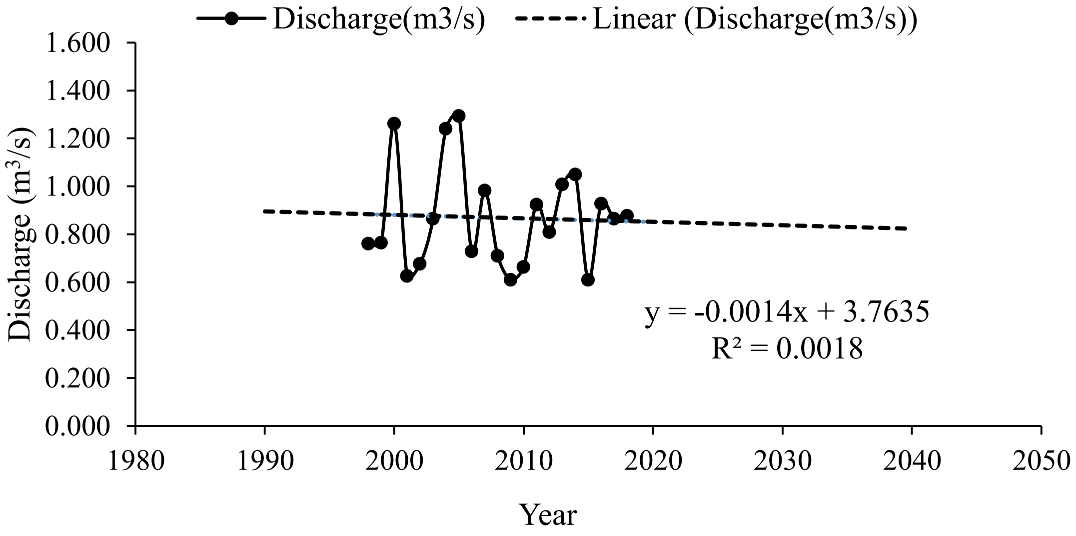

Figure 6: Lean season discharge trend of Taebayrongchu

The trend line showed that the water discharge in a stream is decreasing over the last 20 years (R^2 = 0.0018). The trend line indicated that 21 years from now water in the stream will continuously decrease during lean season. In the year 2040, the average water discharge will reach 0.80m^3/s from 0.89m^3/s in 1998. The factors that led to decrease of water are climate change (Armstrong, 2010; Beldring and Vokso, 2012; Khatiwada, Panthi, Shrestha, & Nepal, 2016), absence of rainfall (Devkota and Gyawali, 2015), forest type, soil characteristics and agriculture practices in the upstream which Taebayronchu stream is subjected to today.

Conclusion

The water discharge measurements of cup-type current meter and propeller-type current meter are similar. These two methods are more accurate than float area method for discharge measurement of streams in mountainous stream. The percentage difference between propeller-type current meter and cup-type current meter was 0.036, which is considered a good accuracy. Whereas, the percentage difference between propeller-type current meter and float area method was 0.779, which is a poor accuracy.

In the seasonal discharge trend of a year for Taebayrongchu, the highest flow was in July with 13.66m^3/s and lowest in February with 0.876m^3/s for the year 2016. The monsoon rainfall contributes to stream flow in the Taebayrongchu watershed. The lean season trend of past 20 years shows continuous decrease water level in the stream (R^2= 0.0018). The predictive linear line also indicated continuous decrease of water in the Taebayrongchu stream.

The limitation in this study are (1) Three discharge measurement methods were only used due to limited instruments for the comparison; (2) The IFAS modeling is used in small watershed in this study, which is less applicable, and (3) Only one site was selected for the discharge measurement in which the channel characteristics will change throughout the year. Study on different discharge measurement methods for accuracy and usage of particular instrument in future is deemed necessary.

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Identifying Critical Thinking Skills of 2nd Year, Bachelor of Language and Literature students at Taktse, Trongsa

Karma Yangdon

Abstract

This research study aimed to focus on writing critically in any kind of essay or short responses of the second year Bachelor of Language and Literature in an academic writing. A preliminary survey was carried out with five language teachers; to identify their understanding and beliefs on teaching and learning critically. Critical thinking skill is one of the tools that are required even in the job market or any kind of research skills. This research tested students' (n=55) critical thinking ability through the Cornell Critical Thinking Tests CCTT Level X (2005). The findings indicated that the critical thinking ability of students was 46%≥ 54% lower compared to the standard level of tertiary education. In order to successfully prepare students for the workplace, a solid foundation in subject matter knowledge, critical thinking and effective communication skills should be well established. Comparably, thinking and writing are compatible, synergistic processes. As we teach students how to write, we are teaching them how to think. This research discusses as ways forward to integrate both principles and pedagogical practices in both small and large classroom to develop students' critical thinking skills.

Keywords: *Critical thinking, Cornell Critical Thinking Test, Pedagogical practices, Induction, Credibility, Deduction and Assumption, Six Thinking Hats*

Introduction

This research cross-examines teachers' pedagogical teaching practice in the context of why students are not able to analyse and think critically in terms of academic disciplines such as writing. Teaching at the tertiary level for more than 2 and half years, I have realized that students are not able to respond to questions critically in writing any kind of essay or short responses. This motivated the researcher to further inquire the understanding of critical thinking skills of both students and teachers. The respondents teachershave taught the same classes in different English literature module in four semesters.For qualitative data, the data were collected from the teachers by using a set of semi structured survey questionnaires, who had taught the same classes in the previous semesters. The questions were divided into two parts: A and B. They were about their beliefs on teaching and learning, and their views on critical thinking skills. The analysis survey questionnaires data were collected from two sections Bachelor of Language and Literature the second year learning Literary

Genre II module. This subject in itself demanded and confirmed four areas of concern on writing activities practised in the classroom, the attitudes to classroom questioning and answering, thinking and writing anxieties to develop positive attitudes to critical thinking. On-going data about the effectiveness of the intervention strategy was verified by the research committee and by maintaining a self-reflective diary. However, it was more feasible in the areas of developing critical thinking skills of students using another effective mode of teaching and learning strategies.

Literature Review

This research focused on the critical thinking level of college students. The performance is judged by productive skills in most of the situations, be it in the class or job interviews. According to Joe and Jonathan (2007, p.1) “Critical thinking is the ability to think clearly and rationally about what to do or what to believe. It includes engaging in reflective and independent thinking such as the critical thinkers can understand the logical connections between ideas and can solve the problems systematically”. Critical thinkers can deduce consequences from what they know, and they know how to make use of information to solve problems and to seek relevant sources of information to inform them. Similarly, Rosita and Rosna (2008, p.2) state that in the present information era, university students are expected to be able to think critically, so that they will be able to keep up with the changes brought by new technological innovations and have better chances of employability. These studies also showed that one of the reasons for high unemployment rate was due to lack of critical thinking and English language competency. Willingham (2007, p.8) claims that "critical thinking consists of seeing both sides of an issue, being open to new evidence that disconfirms ideas, reasoning dispassionately, demanding that claims be backed up by evidence, deducing and inferring conclusions from available facts, solving the problem”. Recent studies show that thinking is not that sort of skill, but it is the process of thinking that is intertwined with the content, domain knowledge or practice (Willingham, 2007). Such findings reflect that the school attendance and academic success are no guarantee that a student will graduate with an effective thinking in all situations. This means that anything you hear or read is automatically interpreted in light of what you already know about similar subjects.

Arguments based on experience or observation is best expressed inductively, while arguments based on laws or rules are best expressed deductively. It is said that most arguments are mainly inductive, so we could find the participants have performed well in inductive reasoning than in deductive reasoning skills. Inductive reasoning would come naturally than deductive reasoning. Inductive reasoning requires specific details and observations to the general underlying principles (2008). Inductive reasoning is open-ended and exploratory at the beginning. It is assumed to support the conclusion, but do not guarantee it. Thus, the conclusion of an induction is referred to as a hypothesis. On the other hand, deductive reasoning deals from general facts to an exact conclusion. It releases with an unrestrained explanation and persists with speculation for particular observations supporting it. Deductive reasoning is constricted in nature and is based on experimenting or verifying a hypothesis. For example, a false idea can lead to a false outcome. Such reasoning leads to a logical response. It assures the correctness of a conclusion. If learners can make a stronger argument or hypothesis by adding information, then they are using inductive reasoning. If students cannot improve their argument by adding more evidence, the learners are using deductive reasoning.

In case of credibility, it is a judgment of how much belief to put in a basis of information. For credibility, it is to take everything on trust without question or to believe nothing. Conversely, examining the subject carefully may perhaps help to refine and substantiate these judgments. Credibility issues are different from issues of argument. Deductive arguments are either valid or invalid, but credibility is constantly a matter of a certain degree. Credibility is judging assumptions, and we are not so much to do with claim or evidence. An assumption is a supposition of belief where people think without realizing what they think. The conclusions regularly stand on assumptions that without critical thinking. So whilst students attempted the questions in this section of credibility and assumptions, they have not paid attention and were incorrect and misguided. Students need to think carefully about their assumptions when finding and analysing information but also think carefully about the assumptions of others. This indicates that the author's assumptions could be the author's conclusion in their scholarly articles. One could also say that to be a critical thinker, one must have an ability to respond to the material by distinguishing between facts and opinions or personal feelings, judgments and inferences, inductive and deductive arguments, and the objective and subjective.

Paul (2004) agrees that educators must develop higher order or cognitive intellectual abilities as critical thinking is central to both personal success and national needs. This could be explored by pedagogical practices that could effectively develop student critical thinking knowledge, skills, and dispositions across the academic disciplines. Further, students could apply it in the academic environment to their professional and personal lives. Nonetheless, educators should have a clear idea about what is critical thinking before implementing pedagogical practices for students. As educationist students must be taught through the problem-solving method by letting students to logically analyse, compare, and evaluate within the contextual field of study. Thinking should be divergent that is interlinked and integrated with content. In addition, this would be one of the factors affecting students not being able to think and write critically.

Literature in the Bhutanese context have shown that teacher dominated teaching and lack of opportunity for the students to learn critical thinking skills have a negative impact on the overall quality of education (MoE, 2014; REC, 2009; Sherab & Dorji, 2013). As a school teacher for 9 years and a lecturer for over 3 years, the quality of my own instruction has always been a concern for me, mainly because I did not have in-depth knowledge of how to develop critical thinking level of students. It was indeed a challenge for me to expect critical answers to critical questions in any kind of academic disciplines. Lecture method and rote learning are still practised in the present scenarios of the college in case of Dzongkha modules because the subject content demands it at a larger scale. However, it has been more than two years since we adopted the learning-centred teaching approach in the class (Gyatsho, 2017, Personal Communication). However, there is lack of research on the critical thinking skills in the Bhutanese context.

This research, therefore, aimed at finding and understanding the levels of the 2nd year students' critical thinking. So, that the researcher can cross-examine her own practices to promote and improve the levels of critical thinking students to facilitate their academic experiences while writing in the modules taught as a way forward. It is also a hope to promote the approaches of critical thinking skills such as six thinking hats to practice in the class activities to improve the critical thinking skills of students. Furthermore, it would help other educators in the college to use them effectively while teaching.

The research question is what do we know about the Critical Thinking Skills of 2nd Year Bachelor of Language and Culture Studies students in CLCS?

The objective of the study

The core objectives of the study are: firstly, to identify the levels of critical thinking in the two cohorts of 2nd Year students I teach. Secondly, to identify approach(s) to develop students' critical thinking abilities.

Methodology

This research employed quantitative approach (Cohen, Manion, & Morrison, 2011). To identify the level of students' critical thinking skills and also to identify approaches to develop students' critical thinking abilities. A survey design was used to collect information on the levels of critical thinking, characteristics, and attitudes of the two cohorts of 2nd year students that the researcher taught in the previous semester. A survey questionnaire was also employed for the teachers to understand their beliefs about teaching, learning and critical thinking. A standardized test called Cornell Critical Thinking Test (CCTT) was administered to determine students' critical thinking ability (The Critical Thinking.Co, 2005). Furthermore, observation of the students' behaviour while the teaching was going on was also used to collect information.

Sample profile

The sample of this study is drawn from two sections of Bachelor of Language and Literature in 2nd year at Taktse, Trongsa. The Bachelor of Language and Literature programme aspires to produce modern Bhutanese with traditional knowledge through a dynamic and forward-looking curriculum. The modules are Translation and Interpretation, Literary Genre, Bhutanese Etiquette, Buddhist Poetry and Sanskrit, Linguistics and Languages of Bhutan. (CLCS, Website, 2018). While conducting this study; there were five sections of students studying Bachelor of Language and Literature consisting of 32-35 in each section. They were selected randomly out of 150 plus students in BLL 2nd year programme. Both classes were taught by the researcher in the previous semester and were more familiar with the teaching and style. The student participants' age ranged from 21-25, only two were in-service students (28 and 38 years old).They had 13-15 years of English language exposure. It was an assortment of various subject backgrounds such as humanities, science, commerce and 'Rigzhung' Rigzhung subjects include Ngennga (poetry), Choejung (history), Dayig (grammar II),Translation and Sumtag (grammar-I) Dzongkha, Tsi (Astrology), nghencha (music), Driglam (discipline), and Gyalrab (King's biography) (RUB module 2011). Majority of the students were from the Rigzhung background and very few were from science, commerce and humanities (arts) required intensive study. Therefore, random sampling was carried out to understand students' standard within five classes. For teachers' ideas on critical thinking skills; five teachers responded to the self-administered questionnaires (see Appendix I).

Instruments

In this research, three tools were used such as self-administered questionnaires (My beliefs in teaching, learning and critical thinking) for teachers; standardized test (Cornell Critical Thinking, CCTT), and survey questionnaires for students to collect data. The student questionnaire consisted of items based on six specific themes identified with the help of the literature: background information, writing activities, attitude to classroom questioning and answering, thinking and writing anxieties, attitudes to critical thinking, and expectations of students. Secondly, Cornell critical thinking test was conducted to test students' critical thinking ability. The survey questionnaires for both the students and teachers included semi-structured and unstructured questions to inquire about how both teachers and students perceptions about critical thinking skills. The survey questionnaires provided information about students based on achievement grades, language exposure, sex, age and to find their aptitude in different fields. The teacher (respondents) answered the self-administered form designed by NSW University (2018). However, few refused to participate and some did not like to observe their classes. The researcher did not observe any of lessons. The study aimed at increasing learner's consciousness about their learning and involving them in critical thinking activity using writing tools. The researcher did not intervene in normal classroom teaching. In each set of question, there were relevant subheading questions, Section A comprised of nine questions followed by three alternatives such as agree, disagree and unsure. In Section B, the teachers had to write additional comments or reasons; if incase they answered unsure or disagree in section A. Section C had four questions regarding what they knew about critical thinking approach and skills to be taught in the classroom. The classroom behaviours of students were noted while teaching in the class. In addition, to maintain ethical consensus, respondents were informed that all data will be destroyed after the study is published.

Administering the Cornell Critical Thinking Skill Test –Level X

In the case of students' standardized instrument, the questions were divided into 4 sections. The test consists of MCQ items followed by three alternatives (A, B & C). There were 71 items wherein students had to answer 67 questions, 4 questions were answered with examples. This test helped to identify the aspects of critical thinking in students such as induction, credibility or observation, deduction and assumption. If a student scored high in the test, it indicated higher achievement in critical thinking ability. For some purpose, the time limit was extended to 1 hour 15 minutes to meet the requirements of the participants. The first fifteen minutes were effectively used for instruction and one hour for writing. The administrator allowed 20 minutes to complete the first two sections, and 12 minutes for each of the last two sections. They had to assume that the information given is true. Students read a small situational and analytical comprehension passage given and respond accordingly. The evaluation was conducted using the manual 'Cornell Critical Thinking Test level X manual fifth edition (Robert, Jason & Thomas, 2005). The test is designed for evaluation and teaching experiments for appraisal of the critical thinking ability. Few students did not attempt most questions and were considered as missing data. Only 29 students from BLL C and 26 students from BLL E took part in critical thinking test. This administration has collected the scores made by individual students further looking at the performance of each class in terms of four aspects of critical thinking skills (The Critical Thinking Co., 2008), (see Appendix III). The administrator computed data using Microsoft Excel and calculated the mean score of individual participants.

In addition, the four sets of questions were based on how to explore in NICOMA where they imagine themselves to be in the second group from Earth in 2052. They have landed on the newly discovered planet Nicoma to find the first lost group, which landed on Nicoma two years earlier. The second group had to make a report about what happened to the first group. They learn about Nicoma and find problems that need clear thinking. They cannot guess wildly at any answer. They left it blank if they had no idea about the answer. If a student had a good idea, even though they are not positive, they can answer the problem. Each question carried 1 mark.

The study test was conducted in one of the weekends during off hours of the college. The students were briefed on the test and instructed with proper direction. They were also asked to pose a question to the test taker if any. Most of the students took more than 50 minutes as given in the test manual to complete the questions. In the first part, it is on what happened to the first group? The critical thinking aspect used here is induction, it judges whether a fact supports a hypothesis. The questions help them to understand that the fact needs to provide only support, not proof. This section had 22 critical questions from question 3-25. The second part; a question from 27-50 was on examining the village on Nicoma. There are 23 questions to test credibility & observation, critical thinking aspect. Here students pay careful attention to what is said, who says it, and to the circumstances in which the statement is made. The third section was on what can be done? This has 13 items from question 52-65. It catered to test on deduction the critical thinking aspect. The final section was on reporting back and deciding what to do that would identify the assumptions critical aspects of learners. The important thing for students to understand is that they are to decide what is taken for granted. There were 9 questions from 67-76. When they finish one section, they were not allowed to visit the next part of the first other two once they have completed.

In addition, the students were asked to fill out the survey on demographic information before the CCTT test. Through such survey, it observed students nature of writing skills. This enabled to analyze why and how thinking and writing skills are compatible with each other. These students' data were deliberately used to identify the attitudes of maximum students in different modes of the learning environment. The self-administered questionnaires were designed based on the general perspectives and beliefs of teachers on teaching and learning. 8 sets of the question were distributed to English department along with teacher's consent form The set of questions; comprised of a rating scale of agree, disagree and unsure. The third section was open-ended questions designed for critical thinking concept and their understanding. To maintain the confidentiality of teacher and students respondents, pseudonyms are used; for students (three initial letters) and for teachers (Teacher A, B, C, D& E).In addition, few teachers gave reasons; why they disagreed with some of the statements.

Data Analysis and Results

The researcher used data to measure an individual's performance in the Cornell Critical thinking Test as given below in Fig 1 & 2.

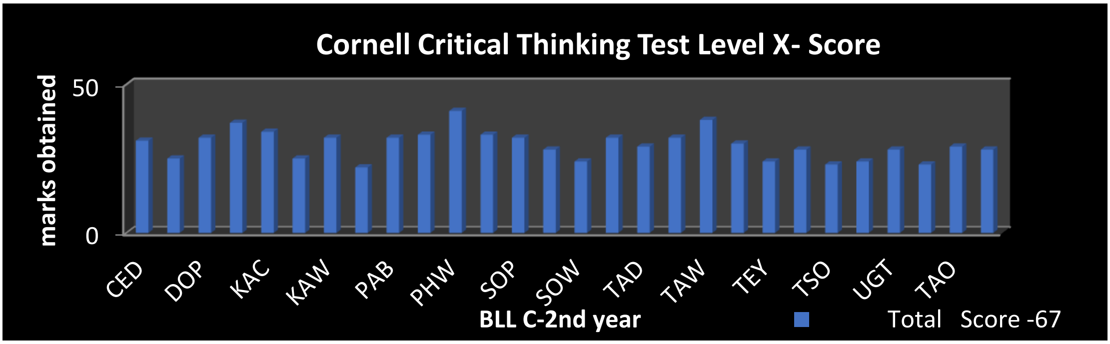


Fig1.Bachelor of Language and Literature section 'C' Cornell Critical Thinking Test scores

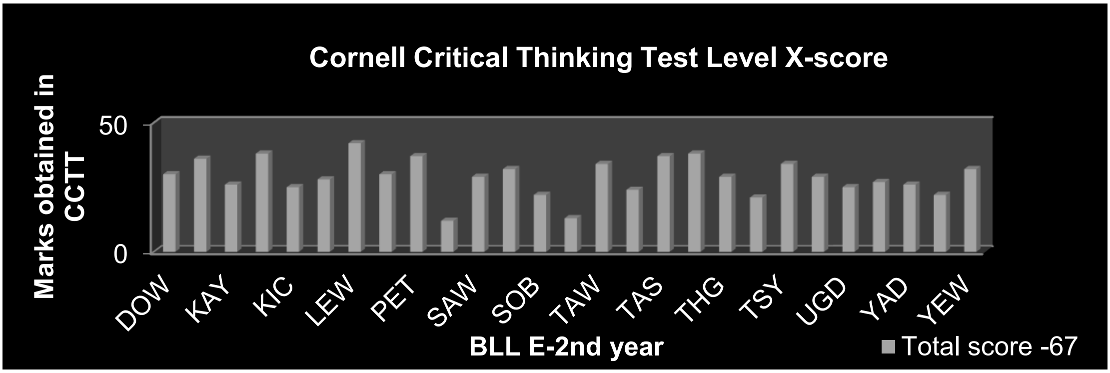


Fig 2: BLL E CCTT scores

Out of 67, LOJ (pseudonym name) scored the least with 22 and PHW scored the highest with 41 in BLL C as given in graph 1. More specifically, LOJ scoring in percentile is 32.83% and PHW is 61.19%. Likewise, in BLL E, PEY scored the least with 12 points and LEW scored 42 out of 67. In terms of percentage, PEY could score only 17.91 %; which is 14.92 % lesser to LOJ. LEW scored 62.68 % and the difference is 1.49 higher compared to PHW. Generally, BLL C performed well as compared to BLL E, with 45.83% and 43.01% respectively in terms of overall average.

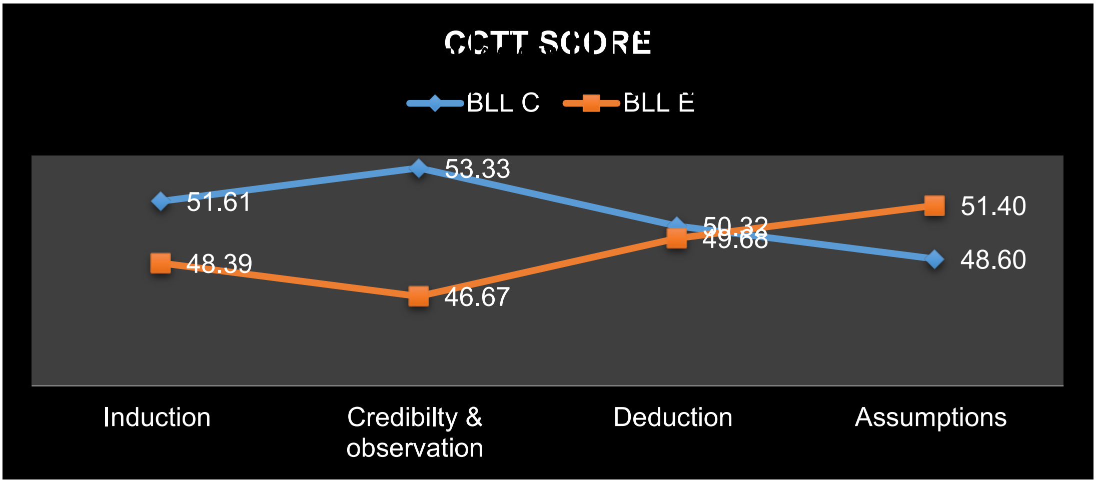


Fig 3: Critical thinking aspects of students in BLLC and BLLE

Table 1: BLL students' Critical thinking Aspects

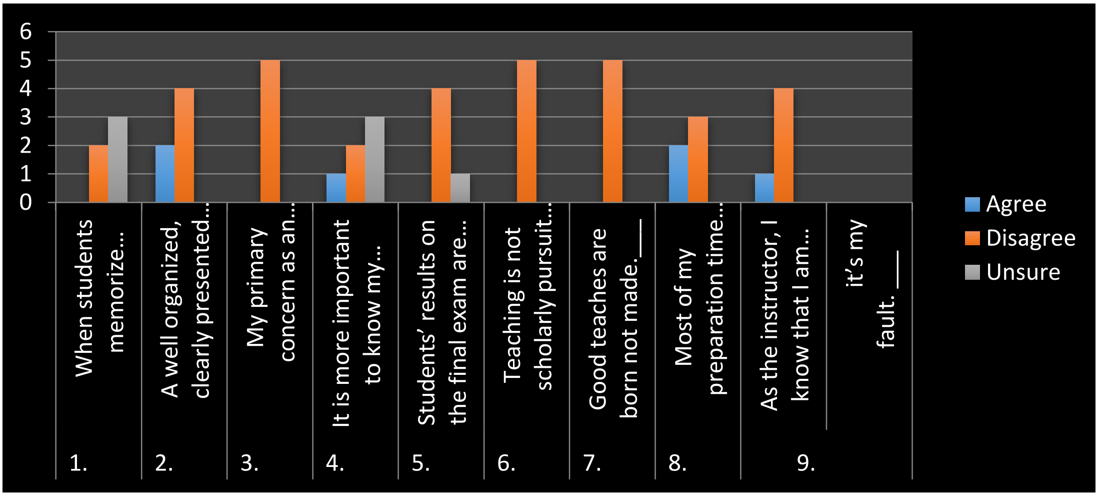
Classes	Induction	Credibility & observation	Deduction	Assumptions	Aggregate percentile of a class %
BLL C	51.61	53.33	50.32	48.60	45.83%
BLL E	48.39	46.67	49.68	51.40	43.01%
Mean mark	50.00	50.00	50.00	50.00	50%

The CCTT test result has proven that 50%of students have equal ability in terms of critical thinking aspects. The study graph above indicates that there is not much difference. In fact, both classes could not perform at par in almost all the aspects of critical thinking questions provided to them. The finding is in all aspectsbetween 46%≥ 54%. Except for BLL E could score higher in assumptions as compared to BLL C, but lower in all three aspects. The mean score of both classes is 50% in all aspects of critical thinking. These further connote that students could not achieve good marks in credibility & observation, deduction, and assumptions. According to the guide to inductive and deductive reasoning (2008), induction and deduction are omnipresent basics in critical thinking and are also sometimes misapprehended terms.

While data were collected from the students, most common points extracted from their writings were: they preferred to participate in classroom discussion, evaluate discussion, evaluate other's opinions and learn how to write essays, craft short stories and learn grammar. However, there were few students who have low self-confidence in writing, anxious about grammar and its usage. They addressed their weakness to be argumentative rather preferred to stay quiet. They do feel anxious if they can't answer teachers' question. They face difficulty while analyzing, inferring and evaluating. Thus, this clearly specifies that there is a gap between comprehension and evaluation that requires higher order thinking level while answering such question. The interpretation reveals that there are only a few students who were very satisfied with their abilities. This designates that the interest of students' writing and speaking activities were related to experiential learning skills. Nevertheless, it is acceptable that the students' level of anxiety does matter when answering any sort of question being posed to them. Most importantly, the points signify that students are poor in grammar, argumentative skills and not confident to answer questions of teachers. The result indicated that maximum students accepted; critical thinking requires factual information by validating it using supporting evidence and also need to know how to make claim or argument. The stake in position needs to be proven by critically analyzing using relevant evidence andthe concept.

Through close observation and sharing information while evaluating students' papers and class activities; it was noticed that Rigzhung students excelled in Dzongkha subjects. Similarly, students from science background performed well in English modules. It still remains as an argument to be proven. The students with science background could answer most of the literary questions analytically and critically in the test and exams. They were divergent thinkers even when they answered verbally in the class activities as compared to other students in the class. Some students were convergent thinkers (thinking inside the box). They answered using the exact lines from the text without any critical thoughts. In this section, it also includes the responses of five English lecturers in the college; trained and holds Postgraduate certificates: PGCHE or PGDHE from Samtse College of Education. (see Appendix II).

Fig4: Teachers' beliefs in teaching and learning



There were nine questions on teacher's content and subject matter, teaching styles, forms and function, coverage of syllabus, exam and end product result (Retrieved from http:www.lakes.nsw.edu.au/**)**. Earlier, the main idea was to interview these teachers, but most of them were engaged and could not match with the time scheduled during off periods. Some teachers were engaged in morning and afternoon classes. It was difficult to get an appointment with these teachers. Fig.4 represents that most teachers disagreed with almost all statements framed. There were only few who agreed or were unsure with few statements they answered. To maintain the confidentiality of teacher and students respondents; pseudonyms were used for respondents: three initial letters and Alphabet A-E were used respectively.

In Addition, few teachers also gave reasons for disagreed and opposed statements. Through their responses, it was observed that most of the teachers do not have a clear understanding of what is critical thinking and how it can be used to improve students' critical thinking abilities. Most of them were aware of what is important in teaching and learning, yet they could not clearly state how do they practice in the class. Had it been allowed, the researcher would have identified the common teaching and pedagogical practice pattern in the class. There were nine questions catering to teacher's content and subject matter, teaching styles, forms and function, coverage of syllabus, exam/end product result. The survey indicates that to train or expect students to be critical thinkers, teachers need to be trained first as to how to improve the critical thinking abilities of University students. Although colleges and universities offer critical thinking courses, critical thinking can be embedded in the instruction of a variety of academic disciplines, and faculty can engineer their course focus so that it is more thinking-skills-based (Halpern, 1998).

According to the teacher respondents, critical thinking is to think logically on the topic provided students would give logical reasoning and make a personal connection. It includes logic, evidence and reflection. A teacher said, he himself is always a critical thinker. Critical thinking is being suspicious of things. CT is analytical skill on the concept without accepting directly what is being said.Do they foster critical thinking in the classroom by asking provoking questions that make students think such as –what is it about? Why do you…? How would you? To create an activity that would let those solve problems and validate claims. Teachers do practice, by setting or asking a critical question such as introducing debates in the class, without providing answers and allowing students to think from different perspectives. The usual strategies practised are WH-questions and 1 –H question, problem-solving method tasks and incorporate situational analysis in content learning. The significant obstacles faced in bringing critical thinking more explicitly into their teachings were: students do not understand what critical thinking is. They are not able to think about a topic in an objective way nor can analyze the question and respond logically. Many students do not have it naturally, and it is not something one can force upon while trying to implement or align the topics or lesson with critical thinking. It is observed that the students do not understand the question(s) or task(s) and reading materials used in the class activities. This asserts that the respondents have vague idea on critical thinking skills. Most of them are aware of what is important in teaching and learning, yet they could not clearly state how could they practice in the class using effective strategies. Further, this implies that teachers cannot expect students to be critical thinkers unless teachers themselves are critical thinkers or trained, so to improve critical thinking abilities of University students.

Discussion and Implications

Whilst evaluating their responses in the class, it is observed that students wrote facts rather than to reflect and comprehend on their reading. As a result, they are incompetent in drawing conclusion and of engaging in intricate discussion about the literature they read. The College institutionalizes students to be proficient in both the languages such as Dzongkha (National Language) and English. However, a few workshops and trainings are offered to students to acquire knowledge and skills for jobs. In language classes, students get little experience in learning effective communication and professional skills but that do not cater to the need of complex economic structure of the world. As Elder (2007) suggested that, it is not enough for students to train with narrowed defined skills both at home and abroad. It is questionable even today, whether the colleges are preparing students to become accustomed to these complexities. Therefore, it is the function of the educational organization to endorse and expand students' critical thinking aptitudes. Nevertheless, a primary goal for teachers is to implant in their students, a questioning, thoughtful critical mind. In this 21st century, educators are experiencing insightful challenges, and difficulty to identify which method or strategy would best suit the instruction and assessment of critical thinking (Paul, 1995). He argues that the assessment must focus on higher order thinking, reasoning, and authentic performance. These would further help students to be successful in academic, personal life and in the workplace.

In order to teach students how to think rather than what to think, the study has identified one suitable intervention strategies designed by DeBono (1985) such as six hats thinking. According to DeBono (2000), critical thinking is a planned thinking process in a meticulous and organized way. He thinks that thinking is the ultimate human resource and the main difficulty is confusion because most people try to do too much at once that is crowded with emotions, information, logic, hope and creativity. In the class, most students speak or write using mixed mode of ideas and expression and gradually, fail to convince the audiences. Therefore, the six thinking hats allow us to conduct our thinking as a conductor might lead an orchestra.

The two main purposes of the six thinking hats concept are : to simplify thinking by allowing a thinker to deal with one thing at a time, and to allow a switch in thinking "Teaching critical thinking through the 6 thinking hats requires drawing for the certain patterns of intellectual behaviours that produce prevailing results". (DeBono, 2000). The concept works best when it has common language in the class, organization, meeting… It is not how good students become at thinking but the ultimate goal is to become better Moreover, he offered six Thinking Hats as a model for integrating critical thinking. De Bono also splits thinking into six different approaches known as six coloured Thinking Hats, white, red, black, yellow, green, and blue. Each color indicates definite function of thinking in determining or implicating what facts is needed to solve or answer questions.

The function of each hat is represented in the table given in fig.5 below:

SIXHATS Thinking	**Function**
The White hat	When engaging in white hat thinking, students should only focus on facts, figures, and objective information.
The Red hat:	Centres emotions and feelings and students should only focus on those representations during this mode of thinking.
The Black hat	Symbolizes reasoning skills. When employing black hat thinking, students use logical, negative thoughts based on the consequences of red hat thinking.
The Yellow hat	Composed of positive, constructive thoughts whereby students seek to find resolutions, which contrasts black hat thinking.
The Green hat	Signifies creativity and new ideas. Students using green hat thinking apply the facts of a white hat thinking to create new concepts.
The Blue hat	Serves as the mediator and controls the other hats and thinking steps.
Therefore, the Thinking Hats model allows students to approach issues from different perspectives utilizing both creative and critical thought.(pp, 39-176)	

Regrettably, there has been no study to examine whether language competency affects critical thinking skills of students to perform well in academic performance. Thus, it necessitates continual study concerning the use of significant critical thinking intervention with appropriate teaching strategy and resourceful educational opportunities to facilitate teachers to produce an effective result for their students. The study also does not address what are different types of critical questions to provide students at tertiary levels. However, the teachers in the college are aware of Bloom's taxonomy that they use before they set exam papers for students. Moreover, teachers in the college prepare questions papers using a blueprint developed by Bloom, et al. in 1956; the table of specification.(Bloom's taxonomy of learning domains,1999)

Conclusion

The finding reveals identified populations of BLL, 2nd year students as in competent critical thinkers. Therefore, it is important for educators to teach students how to ask high-quality questions, to think critically, in order to succeed in responding to critical queries being posed in a particular subject we teach. This means the teacher must be critical thinkers so as to have critical thinkers. Similarly, teaching critical thinking would prepare students to live successfully in a democratic world to make sound decisions about personal and civic affairs. To be successful employees they must be able to utilize disciplined reasoning and rethink their thinking to reason, analyze, judge, and interpret the information not just transfer the information. To enhance critical thinking knowledge of the students, the educators must develop instructional pedagogy with certain learning activities. Furthermore, teachers must have training in critical thinking pedagogical workshops. Students should be encouraged to participate in dialogues and communicative activities in the class through effective modelling methods.

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Teaching Grammar using Literary Texts: An Action Research Study with Class Eight students in Paro

Tshering Tshomo, Ugyen Choden, Kezang Sherab and Pema Zangmo

Abstract

The school English curriculum framework in Bhutan mandates the teaching of grammar to be integrated with teaching of literary texts. This has become an issue as teachers find it difficult to integrate. A pre-survey using a questionnaire and a class test was administered to 76 Class Eight students (one student was absent) to examine their perceptions on using literary texts to learn grammar and test their grammar knowledge. Based on the findings of the pre-survey and the pre-test, this action research was designed to adapt and implement Ellis's (2002) practice and conscious-raising approaches to grammar teaching, Celce-Murcia and Olshtan's (2014) a discourse-based approach to teaching second language grammar and Larsen-Freeman's (2014) a three-dimensional grammar framework to effectively teach both content of the text as well as the grammar. After six months of intervention, a post-survey using the same questionnaire and a post-test (n=77) were conducted to explore if there were any differences in students' perceptions and test scores. In order to further validate students' quantitative responses, semi-structured interviews were conducted with students (n=6) and teachers (n=2). Findings showed that the intervention strategies have made an impact on students' understanding of both content of the literary texts and grammar. Recommendations for further improvement of teaching grammar in context and for future research are also provided.

Keywords*: ESL, Literary Texts, Grammar Instruction, Teaching and learning, grammar in context*

Introduction

English is the medium of instruction in the Bhutanese education system ever since the modern education was introduced in the early 1960s. From social linguistics perspective a language is considered to be the second language as it is used along nation's national language in schools and colleges, for business transactions and official use (Saville-Troike, 2006). English language plays a pivotal role in Bhutanese education system, thus the Ministry of Education (MoE) emphasises on periodic review of English curriculum. The Curriculum and Professional Support Division (CAPSD now changed to Royal Education Council) revised the English curriculum in 2006 and it is currently under review process.

The current English curriculum mostly consists of modern literary genres; essays, poems, and short stories focusing on four strands (Reading and literature, Writing, Listening and Speaking, and Language). Teachers are expected to integrate all these strands with the literary texts provided for every class level. Recent studies have shown that teaching grammar has become an issue in the Bhutanese schools for several reasons as shared in the literature review section (Sherab, et. al. 2017; Tshomo & Sherab, 2017).

Teaching language using literary text emerged with the emergent of communicative language teaching approach. Literary texts are considered effective materials to develop students' communication skills through critical, analytic, and interactive activities (Kramsch, 1985). In the process of learning language, students are expected to learn the grammar structures of the target language subconsciously. The linguist like Karshen (1982) in favour of communicative approach believe knowing the rules subconsciously enhances students' usage of language by creating infinite sentences. Grammar is referred to as a systematic form of language.

It is a dynamic system of rules for students to learn through authentic ways in which meanings are encoded into wordings where structure of words, phrases, clauses, and sentences are used to structure a meaning of a communication (Celce-Murcia, Briton & Snow, 2014; Harmer, 2001; Larsen-Freeman, 2014).

Situational Analysis

English language teachers are expected to teach grammar in context with the literary text. There is lack of research into this new system of teaching grammar in the Bhutanese context. However, limited research indicates that it is mostly ignored (Tshomo & Sherab, 2017) and this has become debatable in the schools (Sherab, et. al. 2017). These researches and also anecdotal evidence from more than ten years of English teaching experience indicate that grammar is taught in isolation to prepare students for only examination. As English teachers, we have failed to make teaching of grammar through literary texts meaningful and effective. If this issue is not addressed, it is likely that our students will be weak in grammar and hence perform poorly both in their overall English language development and also likely to negatively impact their learning in other subjects as the medium of instruction in the schools is in English.

Earlier research by Tshomo and Sherab (2017) has found that the teachers and students positively perceived the use of literary texts in ESL classroom. However, it was found that too much focus on content of the text and other four language skills made it challenging for the teachers to focus on teaching grammar. Existing literature indicates (Kacar & Zengin, 2013; Odetallah, 2013) that the teaching and learning of grammar in English lessons is considered important and core-essence of the language learning. There is lack of literature in Bhutanese context to show how grammar could be best taught in context. Therefore, this action research was intended to find ways to improve teaching of grammar in context.

Literature Review

Literature support the idea of teaching grammar in context since learning the grammar rules should be a natural process allowing the students to apply correctly. For instance, Mart (2013) highlights that learning grammar in isolation limits students to infer grammar functions in sentences and this results into ineffective communication. Therefore, literary texts could be one effective material for teaching grammar in context as it provides authentic form and application of the grammar topics. Similarly, Ellis (2002) states that making students capable of demonstrating correct metalinguistic knowledge could help them apply the syntactical rules correctly in their communication. In line to Ellis's concept of teaching and learning grammar, a study by Groeneveld (2011) identified that teaching a form and usage of grammar through literary texts like stories and folktales ~~is~~ as one effective way to enhance students' knowledge on grammar and its usage in their communication. For instance, Groeneveld (2011) used an anecdotal version of 'Alice in Wonderland' to teach the concept of demonstrative pronoun where students had to describe the usage of grammar rules using the text. The study concluded that students improved their knowledge on the targeted concept and also enjoyed the lesson.

Kacar and Zengin's (2013) study with the pre-service teachers demonstrated the importance of grammar practice in developing communicative ability and fluency. It was suggested that contextual grammar course with a strong conceptual basis could benefit the students to learn and use grammar effectively. For instance, Odetallah (2013) used the story 'Alice in the wonderland' to teach regular and irregular verbs. It was found that the story provided multiple exercises on various grammar topics and active involvement of students in learning the culture and the target language.

Limited research in Bhutanese context (Sherab, et. al. 2017; Tshomo & Sherab, 2017) and also anecdotal evidence indicate that teaching of grammar in context to literary texts have been a challenge for several reasons. Firstly, Bhutanese education system is content oriented and is highly focused on performance in the examination (REC, 2009; Sherab, 2013). So, teachers focus on syllabus coverage and preparation for examination than the appropriate implementation of such innovative programmes. Secondly, earlier research has shown that English language teachers are not adequately trained to teach grammar in context to literary texts (Sherab et al. 2017). Hence, it is being neglected.

Existing literature suggest several approaches to teaching grammar in context to literary texts: ‘practice’ and ‘consciousness-raising’ approach (Ellis, 2002), ‘a discourse-based’ approach (Celce-Murcia & Olshtan, 2014), ‘a three-dimensional grammar framework’ (Larsen-Freeman,2014), ‘a language-based’ approach (Lazar,1993), and ‘teacher feedback on errors’ approach (Frodesen, 2014). Each of these approaches is examined to evaluate if it is appropriate and applicable to the Bhutanese context.

According to Ellis (2002), ‘practice’ and ‘consciousness-raising’ are vital for students to have ample opportunities to practice the grammar structures and rules practically in their daily communication. Students are also encouraged to explore grammatical generalisation from the given situations. In a nutshell, practice is behavioural and consciousness-raising is concept forming.

A discourse-based approach to teaching second language grammar states that cohesion is regarded as the most important component of the grammar (Celce-Murcia & Olshtan, 2014). These authors comment that “through the appropriate use of cohesive devices, textual cohesion facilitates discourse coherence i.e., the manner in which individual sentences or utterances are connected to each other to form a meaningful whole” (p. 427). In a discourse-based language classroom, essays, cloze passages, error detection, and correction exercises can be used as assessment tools.

Larsen-Freeman (2014) underpins a conceptual framework called ‘a three-dimensional grammar framework’ to help students learn grammar. It takes a form of pie chart with three dimensions of: structure or form, semantics or meaning, and use or pragmatics. The structure or form dimension gives an information on constructed and sequenced lexicogrammatical, morphosyntactic, and phonemic patterns. The meaning or semantic dimension deals with the information on grammatical meanings and examples. Lastly, use or pragmatics dimension deals with the use of language in context where students distinguish the grammatical features from similar structure and also, make students look for its usage in text.

A language-based approach to using literary text involves integrating language and literary texts (Lazar, 1993). The texts are seen as a resource to develop and study linguistic features of the texts where students develop grammatical knowledge through activities such as predicting, making interpretations, improvising role plays with dialogues and cloze passages developed from the content of the text.

Frodesen (2014) suggested teacher feedback on errors in student writing as an approach to successful teaching of grammar in context to literary texts. The teacher could use the following guidelines:

1. Providing an error analysis checklist to the students at the beginning of the session;
2. Using indirect feedback to correct errors; and
3. Providing feedback on frequently appearing errors.

Prior studies mentioned above indicate that learning grammar in context is an effective strategy in enhancing students' metalinguistic knowledge. Knowing the functions and usages of the grammar topics allow students to use grammar correctly in their communications. The approaches of teaching grammar as suggested by Ellis (2002), Celce-Murcia and Olshtan (2014), Larsen-Freeman (2014), Lazar (1993), and Frodesen (2014) are consciously selected to be implemented as a part of this action research project. These selected approaches are found useful in teaching and learning grammar, selecting texts for teaching various grammar topics and providing effective feedbacks in various other contexts. Although teaching grammar using literary texts is considered effective, there is not research being conducted in the Bhutanese context. Therefore, this study was conducted to provide insights into how grammar could be effectively taught using literary texts.

Research Questions

This action research aimed to answer following research questions:

Overarching Question:

How can we effectively teach grammar to Class Eight students in context to literary texts?

Sub-questions:

What is the level of students' perception on general practice of English lessons, teaching grammar using literary texts, teaching grammar in isolation, and importance of grammar?

Were the mean differences between pre- and post- surveys significant?

How can ESL teachers help their students learn grammar rules from literary texts to apply in speaking and writing?

Would teaching grammar in context to literary texts help students use grammar rules accurately beyond the classroom situations?

Is there a significant difference between pre-test and post-test scores of the students?

Methodology

This action research employed a concurrent mixed methods approach (Cohen, Manion, & Morrison, 2011; Cooksey & McDonald, 2011; Crewell, 2014). A quasi experimental (without a control group) with pre-test and post-test design was used (Cohen, Manion, & Morrison, 2011). The participants (N=76) were all class eight students of the principal author who taught English at a lower secondary school for more than 10 years.

Baseline data were collected through a census survey using self-designed questionnaire (N=76) from all class eight students except for one who was absent that day. The survey questionnaire was designed to understand students' perceptions and experiences of English lessons with a particular focus on teaching of grammar in context to literary texts (see Appendix 1). Semi-structured interviews with class eight students (n=6) and other English teachers (n=2) of the school who were purposefully selected were conducted to gain in-depth insight into the existing practices of grammar teaching (see Appendix 2 for interview guide). A class test (see Appendix 3) in the beginning of the academic year was also conducted to test students' grammar knowledge. The teacher participants had 10-18 years of English teaching experiences. These data collection methods helped the students to easily reflect on the grammar lessons from the previous year. These tools also explored the grammar teaching and learning practices in the school along with teachers' and students' perception on these practices.

After the baseline data collection, intervention strategies were administered (see the section on intervention phase for details on the intervention strategies) to the students for six months starting from April (July was excluded due to summer vacation). In between the intervention stage, second class test was conducted in June. Post intervention data were collected in November from the same group of class eight students using the same survey questionnaire (N=77), semi-structured interviews with students (n=9), and a final class test.

Baseline Data Analysis and Findings

The self-designed questionnaire was based on a five-point Likert type scale ranging from 1= strongly disagree; 2= Disagree; 3= Neither agree nor disagree; 4= Agree; and 5= Strongly agree. There was a total of 28 items that measured students' perceptions on general practice of English lessons (6 items), teaching grammar using literary texts (8 items), teaching grammar in isolation (8 items) and general perception on importance of grammar (6 items). The scores for each of the items under each theme have been computed using SPSS to generate an overall mean and standard deviation. Interview data were analysed through identification of themes and were later triangulated and merged with survey themes. Pseudonyms PG, YD, PP, AM, CY and TW are used to hide student interviewees' identity. Similarly, Pseudonyms Tr. A. and Tr. B. are used for teacher participants. The key findings from the baseline data are presented in the following sections.

General practices in English lessons

Findings from the baseline data showed that English lessons were all about reading stories, essays, and poems. Activities used by the teachers in their English lessons helped students to practice and improve four language skills (Reading, Writing, Listening and Speaking) and grammar as shown by a higher overall mean (M= 4.07; SD= 0.47).

Student pre-perception on learning grammar through literary texts

Students were doubtful about the effectiveness of learning grammar through literary texts (M= 3.02; SD=0.48). Their perceptions about whether their English teachers taught grammar using literary texts, gave grammar examples from the literary texts, corrected their grammar errors in writing and speaking were just about average. In alignment to this survey findings, all the six student participants mentioned in their interviews that their teachers never used literary texts to teach the grammar concepts. Students had a preconception that learning grammar infused into literary texts could confuse them. For instance, PP preferred learning grammar in separate class. She said, "…separate, to get rid of confusion- Confusion between text and grammar." In contradiction, TW asserted that, "I don't think so. Because we will be able to remember the grammar rules, if grammar and text were taught together. It can help learn grammar easily."

Teaching and learning grammar from other grammar sources

Students neither agreed nor disagreed about teachers using separate grammar lesson and learning grammar from a grammar builder text provided by the school helped them learn grammar (M=2.68; SD=0.49). The survey questionnaire specified the text but, in an interview, teachers and students revealed that the teachers used neither grammar builder text provided by the school nor the literary texts. Rather, teachers used other materials from Internet and library to teach grammar concepts. For instance, PP mentioned that, "Our English teacher taught us grammar and gave exercises from grammar tree books. This book gave us some meaningful definitions and questions." Tr. A. also confirmed that, "I usually borrow worksheets from google and sometimes I also use Grammar Tree Books for exercises and information."

Although teachers used other grammar materials, students tried to find application of grammar learnt in literary texts. PP explained in her interview, "I look at how pronouns and nouns are used while reading short stories, essays and poems."

TW also commented, “I look at when and how punctuation marks are used in short stories, essays and poems.”

Students’ perception on importance of learning grammar

Students appeared to slightly agree that learning grammar is important (M=3.78; SD=0.48) as it helps them to use correct grammar structures in writing and speaking. Findings also showed that correct use of grammar rules help them gain confidence in writing and speaking. Interestingly, findings from the interviews corroborated with that of the survey findings that the students liked studying grammar concepts to improve their language and avoid communication gaps. For instance, AM emphasised, “I love learning grammar. It helps to improve my language.” Similarly, PP agreed, “Yes, I like studying grammar because if there is problem with the sentence then there is [are] high chances of communication gap.”

Teachers’ perception and challenges of teaching grammar in context with literary texts

As per the mandate of the MoE, English teachers are supposed to teach grammar in context to the literary texts, however the teachers are confused about how to do it. For instance, Tr. A argued, “There has been an instruction from the Ministry to teach or infuse grammar with the text we are teaching I would like to say that, for me teaching grammar infusing with texts is quite a difficult task.” This argument is further substantiated by Tr. B, “I think teaching grammar in context is little difficult for higher grades.”

Findings from the baseline data corroborates with earlier study that teachers consider teaching grammar in context to the literary texts as one of the biggest challenges (Sherab, et al. 2017). According to Tr. A, “My major challenge is when teaching the text, students are supposed to look at two things. Their focus is diverted. They will have to firstly look at the content of the story and grammar concepts simultaneously. In the process, the focus is being lost.”

Discussing the difficulties associated to teaching grammar in context, Tr. B also highlighted, “The focus is being lost. The focus is neither on the text nor on the grammar. The attention is diverted. So, I think, if we teach grammar in isolation then there is a focus.” Also, findings from the baseline data include that selecting an appropriate text for teaching a specific grammar concept was a challenge for the teachers. Tr. B declared, “Sometimes, it so happens that you know we have to wait for the text where the examples are appropriate to the grammar topics we are supposed to teach.”

It is apparent from the findings that these teachers did try to teach grammar in context to literary texts but they have a perception that the strategy of teaching grammar in context with literary texts further confused the students as well as the teachers themselves. For instance, Tr. A clarified, “It isn’t that I did not teach grammar infusing with literary texts. I tried but looks like it did not work for me. So, I went back to the method we were taught [during my schooling], teaching grammar in isolation, the method I was quite comfortable with.” Therefore, these teachers recommend for professional development programmes for English teachers which could enhance the skills to teach grammar in context with the literary texts.

Teacher interviews indicate that they did want to infuse grammar lessons into their normal lessons using literary texts but failed. The reason could be their limited skill and knowledge on infusing grammar into literary texts. They considered syntactical rules significant in language learning and made their best effort in teaching them through grammar materials but not with literary texts in their normal lessons. Such practice of teaching grammar rules, is ineffective since it limits students to infer grammar usage to communicate effectively (Mart, 2013). Linguists such as Krashen (1982), Savignon (1997), and Lightbown and Spada (1999) assert simply teaching syntactical forms neither enhance the second language learning nor communicative competence. Based on the findings from the baseline data, the following interventions were designed to implement.

Intervention Phase

In order to overcome the above-mentioned challenges of teachers in teaching grammar in context to literary texts, three intervention approaches were designed. These three approaches were designed by adapting Ellis’s (2002) practice and conscious-raising approaches to grammar teaching, Celce-Murcia and Olshtan’s (2014) a discourse-based approach to teaching second language grammar and Larsen-Freeman’s (2014) a three-dimensional grammar framework. These scholars’ approaches were blended in a content (literary texts) based classroom in teaching the concept of grammar. Also, idea of Lazar’s (1993) a language-based approach was borrowed to test students’ usage of concept taught. Finally, to provide the feedbacks to the students on grammar learning, we followed Larsen-Freeman’s (2014) guidelines.

During the intervention stage, we taught grammar topics reflected in the curriculum standards and also those frequently occurring incorrect grammar topics. According to the standards, some of the grammar topics that students of class eight should be able to learn and use are; relative pronouns, correlative conjunctions, passive and active sentences, phrasal verbs, direct and indirect speeches, and adverbial clauses. In addition to these suggested topics, we also taught tenses and preposition since students frequently committed errors while using them.

Intervention strategies were carried out for about six months (April to October) to teach various grammar topics through different literary genres: The short stories- *Which Way?*, *The Nest*, *The magic Brocade* and *A Red Sweater*; biography- *Ghandhi and the Salt March*; , essay- *Prayer flags blowing in the wind*; and poems- *Drop a Pebble in the Water*, and *Mending a Wall*. These literary genres were selected to teach both content and targeted language topics.

Teaching grammar concept through literary texts involved introducing the target language through examples extracted from the texts. Then students drew inferences on its usage through the examples. Once the students were able to evaluate the usage of the grammar topic, they used the target language in a different context. After the completion of the tasks, students presented their work to the class and the teacher along with the whole class evaluated the given responses. Further, an extended activity was provided to test students' learning through exercises like cloze test, transforming the sentences, creating dialogues, filling gaps, and combining the sentences.

Intervention Strategies

Step 1: Select right text to teach the target language

While teaching the literary genre, we selected a grammar topic that could be taught using the text. Since we were trying to integrate grammar teaching with literary texts, we made sure that the texts had ample examples of the target language to allow students to acquire enough knowledge and practice from its repeated occurrence. We were mindful that the chosen texts were relevant to students' language proficiency, provided authentic example of target language, and stimulated numerous activities to practice them both in and outside the classroom.

Step 2: Design activities to teach the target language

Ellis' (2002) consciousness-raising in teaching grammar and Larsen-Freeman's (2014) three-dimensional grammar framework guided us to design activities to teach the grammar topics from literary text. As an introductory to each lesson, we gave brainstorming activities to explore students' prior knowledge on the grammar topics. Students were given sentences with the target language and asked to discuss and share the meaning, form and function of the given examples.

In the lesson development stage, as an information input to grammar topic, some rules and new ideas on the topic were presented. Activities such as discussing and sharing elements of short stories, constructing dialogues, role plays, creating comics, writing summaries, explaining figurative languages, and answering analytical and critical questions were generated for students to use the target language along with the content of the texts. They wrote two or more sentences that contained the grammar topic discussed and explained the forms, meanings, and functions of their sentences which helped to infer and use the language correctly.

As a follow-up to the activities for the lesson development, students explained and presented their sentences containing the grammar topic. We helped the students with the errors in the sentences by aligning the grammar rules and corrected with inferences. Feedbacks from Frodesen (2014) guidelines (refer literature review) were provided on errors committed.

Step 3: Evaluation

To evaluate the grammar knowledge taught and learnt, exercises like cloze test, gap filling, restructuring sentences, joining sentences, and editing were designed. These tasks were given either as extended learning activities or homework. This helped us to check students' knowledge and made students practice what they have learnt. All the activities and exercises designed for teaching grammar topics aligned with the content of the literary texts. This helped us to teach not only the content of the text but also practice grammar.

To carry out the intervention process successfully critical friends observed the lessons twice in that entire six months. The observers used an observation checklist while observing the lessons. The checklist consisted of five sections- consciousness-raising in teaching grammar, a discourse-based approach to teaching second language grammar, a three-dimensional grammar framework, feedback on the errors and language- based approach. The observation checklist was to check our way of teaching the grammar topic, evaluating students' learning, providing feedback, and checking the relevancy of texts to teach the grammar topic.

Post Intervention Data Findings

The findings of the post intervention data are categorised based on the five research questions. The research questions are answered through data collected from student survey questionnaire (similar to the baseline), observation checklists, teacher diary, and test scores of three tests administered at three different phases. Semi-structured interviews with students tried to explore students' opinion on their grammar lessons that were taught using literary texts. Pseudonyms used to refer to these students are YW, YD, PP, NC, KB, TW1, SJ, NS and TW2. In addition, data were collected through teachers' diary and test scores. Throughout the intervention stage, teachers kept a diary to record the strengths and challenges of the lessons and recommendation for future lessons. A total of three tests were conducted- firstly before the intervention phase in the beginning (baseline), secondly in the middle of the process and finally at the end of the year (post-intervention).

Data from all these sources were triangulated to provide answers to each research question:

What is the level of student perceptions on general practice of English lessons, teaching grammar using literary texts, teaching grammar in isolation, and importance of grammar?

Pre- and post-survey findings and post semi-structured interviews with nine students answer the above research question. The overall means and standard deviations of two surveys conducted before and after intervention strategies are shown in Table 1.

Table 1: Mean and SD of pre- and post- survey

Theme	Pre-survey		Post-survey	
	M	SD	M	SD
General practice of English lessons	4.07	0.47	3.83	0.45
Teaching grammar using literary texts	3.02	0.48	3.97	0.47
Teaching grammar using grammar teaching and learning materials	2.68	0.49	2.60	0.68
General perception on importance of grammar	3.78	0.49	3.91	0.50

The overall post survey means are just above average except for the teaching grammar using grammar teaching and learning materials (below average) indicating that the level of student perceptions on the four themes is high. However, teacher's diary (dated 16 May 2018) indicated one room for improvement that needed teachers to work harder to make grammar teaching using literary texts meaningful and effective to the students.

Were the mean differences between pre- and post- surveys significant?

Paired samples t-test were produced to check if there were any significant differences between the pre- and post-surveys among the four themes. The mean difference between general practice and teaching grammar using literary text were significant ($p<.05$. The mean for students' perception on *general practice of English lesson* could have probably decreased because the English lessons during the intervention period included practices not only on four language skills and grammar knowledge as reflected in the questionnaire but also on activities such as creating comic books, enactments, and singing. This was confirmed by YW "I have studied English since class PP but I never did a presentation, debate, role plays, comic and singing in my English lessons. I would like to ask my teacher to continue doing the same for future students too as it improves our confidence to use English language."

On the other hand, students' perception on *teaching grammar using literary texts* have increased with significant mean difference ($p<.05$) after intervention phase. This could be because in the beginning students were skeptical about the benefits of learning grammar through literary texts. However, at the time of post data collection, they were familiar with the benefits of learning grammar through literary texts. For instance, PP's pre-perception that learning grammar would be confusing if taught with literary texts has changed after the intervention phase, "I thought it would be confusing to learn grammar with literary texts since my previous teachers used grammar texts to teach grammar. But it was not. In fact, literary texts help us to get lots of grammar examples and use them."

Increased mean difference between the pre- and post-surveys showed no significant difference ($p > .05$) for third ($p=.54$) and fourth ($p=.16$) themes. Since the beginning, they found learning grammar in isolation have not helped them to use grammar in their communication. NS asserts, "I could understand grammar more easily when taught through literary texts with explanation. I cannot understand grammar when it is taught separately through grammar builder text."

In addition, grammar is considered important by the students to converse confidently and to learn rest of the subjects. For instance, YW said, "It is important to learn and know correct grammar rules. We need it in our daily lives even for job interviews and for next grade level." Additionally, TW1 affirms, "Since all the other subjects are in English, it is important to know and understand grammar usage correctly." They further emphasised that if grammar is not used accurately, it could create a communication gap. One of the students (SJ) stressed, "Just knowing how to communicate is not enough. We have to know the correct form of grammar if not it can cause a huge communication gap. If grammar is wrong, whole meaning of the sentence will be changed."

How can ESL teacher help students learn grammar rules from literary texts to apply in speaking and writing?

Learning grammar through literary texts could be effective if teachers design appropriate task for the students. Findings from both observation checklist and teachers' diaries showed that teachers should firstly select the literary text that could give ample examples and opportunities for students to practice the target language. According to the observation checklists recorded by the critical friends, literary texts gave opportunities for students to learn grammar topics and also draw inferences on its usage. Drawing inferences on the usage and errors could help students use the target language learned correctly in their speaking and writing. Therefore, in follow-up activities, teacher need to design some tests and activities based on the content of the literary texts that require students to use the target language learnt. For example, a grammar topic ‘adverbial clauses’ was taught through Mahatma Gandhi’s biography *‘Gandhi and the Salt March’* written by *Gerald Gold*. This text had ample adverbial clauses used that could serve as authentic examples for students. The procedures followed were:

Step 1: Students were given some examples of adverbial clauses related to Gandhi’s life.

Step 2: In groups, they were asked to provide their inferences on rules and functions of highlighted adverbial clauses in the example.

Step 3: Then some sentences related to the content of the text were given to each group to identify the errors and to correct them using the inferences they have drawn.

Step 4: Students wrote a paragraph using adverbial clauses on the lesson they have learned from Gandhi’s life.

Step 5: A cloze test was given to check whether they could use words such as ‘since, after, when, while and until’ to convert the sentences into adverbial clauses.

Step 6: Five pairs of sentences that needed to be converted into adverbial clause using joining words given in brackets were provided as homework.

As mentioned above findings suggest that learning grammar through literary texts helped students understand content of the texts easily. Since students were learning both content and grammar together, the teachers focused on one concept at a time because it could be challenging for teachers to teach and students to comprehend if multiple and advanced concepts were taught at once.

However, our experiences show that it is stressful for the teachers to teach grammar through literary texts even though the students enjoyed and were able to apply the rules learned (Research Diary, 11 October 2018). The following are some of the challenges that teachers face while teaching grammar in context to literary texts:

- finding a relevant target language or grammar topic from the given texts.

- extra effort from teachers and time consuming in preparation of activities to integrate both content and grammar topics after the selection of target language as exercises and activities have to be newly generated.
- As English is a second language, teachers have to refer to several grammar references for correct use of grammar rules which is time consuming.

Would teaching grammar in context to literary texts help students use grammar rules accurately beyond the classroom situations?

Students were embarrassed of making grammar errors in their communication. Grammar accuracy indicated their intellectual and academic status. According to YW, "When grammar rules are not learnt, we land up using broken English. This is embarrassing in front of others…my friends tease me when I use broken English. They say I have not learned anything at school." Comparatively use of literary texts for learning grammar has boosted students' confidence and how to use them consciously. Since grammar structured used in literary texts were authentic, students learn from literary texts and also communicate confidently beyond their classroom situations. Further KB mentioned, "Last year, I was not able to communicate with tourist due to my grammar structures. But this year, I am comfortable interacting with tourists since I am aware about structures and how it works."

The findings from the interviews further affirm that literary texts not only helped students understand the content of the texts but also developed their language structures. This also helped them to use grammar correctly in their communications. For instance, NS asserts, "After learning grammar from literary texts, I was able for progress much more. We were able to cover and comprehend the content of the literary texts easily. We learn content and grammar at the same time." PP assured that, "When we get chance to use the grammar, we use the ideas we got from the story. We are able to understand the rules and apply them in our conversations." SJ further confirmed that, "I enjoy learning grammar through literary texts since it helps me to communicate effectively avoiding broken [incorrect grammar] English."

Is there a significant difference between pre-test and post-test scores of the students?

Three class tests were conducted to test whether students could apply the grammar topics learned correctly. First test was conducted in the beginning of the year, second was in the middle of intervention process and the third one was at the end of the intervention. The tests had similar pattern and a total score of 25.

Students' grammar test scores have improved with every test and the mean differences were significant. Mean of second test was higher than the first test and mean for third test was higher than the second test. Students have achieved higher scores with every test which is an indication that teaching grammar in context helped students score more in grammar tests (see Table 2)

Table 2: Paired Sample Test of Students' Test Score

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	SD	Std. Error Mean	Lower	Upper	t	Df	Sig. (2-tailed)
Pair 1	test1 - test2	-4.653	3.464	.408	-5.467	-3.839	-11.398	71	.001
Pair 2	test1 - test3	-6.870	3.932	.467	-7.800	-5.939	-14.723	70	.001
Pair 3	test2 - test3	-2.207	3.179	.365	-2.934	-1.481	-6.053	75	.001

Discussion and conclusion

Krashen (1982) and Ur (2011) recommended that real mastery and internalisation of grammar in natural process could be achieved through students' extensive exposure to comprehensible input. According to Krashen's proposed model of second language acquisition, the input must be comprehensible and little higher than students' level (i+1). In line to this, literary texts could be one input that has features of Krashen and also expose students to extensive usage of grammar since there are texts at varied levels consisting variety of sentences with accurate grammar use.

However, simply exposing students to grammar information input (teaching grammar technically without its functional aspect) would not help students acquire correct grammar. They should be taught how grammar works in the sentences. Therefore, they should be aware of the grammar components in the sentences. It is significant to know both form and meaning, and function of grammar structures. In contrast to Krashen's hypothesis, participants of this study revealed that consciously learning grammar helped them with their communication skills. Students are at the stage of learning and they try to apply the rules learned in their communication and this finding is compatible to Ellis' (2002) conscious-raising model of grammar teaching.

In teaching the grammar concepts, teachers can be mindful of what and when to teach since the concept taught would not be beneficial if the students are not ready to learn the new structure. This aligns to Pienemann's (1984) the teachability hypothesis that states teaching and learning grammatical structure is developmental sequence where students will be able to acquire new grammar concepts if they have mastered the preceded concept.

Students' readiness to learn the grammar concepts could also be determined through the errors they commit. If students are found committing frequent grammatical errors in their speaking and writing, teachers should understand that students are experimenting with new structures and need to guide them. This might help them learn and apply those grammatical structures accurately and correctly in their communication.

Prior research has shown that literary texts provided opportunities to improve and practice students' four language skills (Tshomo & Sherab, 2017). Also, the texts provide lots of grammar examples and their usage. Therefore, when the texts could cater to variety of communicative activities, it could provide students with opportunities to learn and acquire grammar structures. The texts enable the students to familiarise with the form and meaning of grammar structures and its functions. These two processes enable students to apply the acquired grammar consciously in their communication.

Students should be able to firstly learn the structures before applying them extensively in their daily conversation. It is an assumption of the researchers that the beginners (students of classes PP-II) acquire language simply by getting exposed to language extensively and use them without considering too much focus on the structures. Once they have acquired fluency over the language, they need to know form and meaning of grammar structures to apply them in their communication. This could be applicable for the students at an intermediate level (classes IV-VIII).

Corroborating to Tshomo and Sherab (2017), the findings of this action research indicated that most of the teachers who taught grammar using the grammar-related texts were taught for examination purpose. Teachers mostly followed traditional grammar teaching that involved presentation-practice-production (PPP) process. According to Ur (2011), this form of teaching grammar is a common experience of many teachers and could make students perform well in test but not in language production. It does not help students in producing accurate form of grammar in their communication and as a result, students make several errors in their production of language.

Simply focusing on form and conscious raising is not enough, students should be able to use these forms meaningfully in their communication. Larsen-Freeman (2014) stresses on practicing grammar through communication situations rather than focusing on accuracy-focused drills. Students would be able to do this if they were exposed to activities that needed transfer of knowledge to communicative situations. Literary texts help teachers to create variety of such communication situations to practice their grammar knowledge. Following the guidelines that we implemented in this study helps ESL teachers and students teach and learn grammar for examination purpose as well as use grammar accurately for their communication.

Bhutanese students who learn English as second language do not use the language frequently outside their classroom context. It is rather used in formal situations when required. They would be mostly communicating in their native language or national language. Thus, they do not get enough time to drill on the grammar they have learned. Ur (2011) posits that grammar in such situation is learned with best results through systematic explanation and drills using communicative input such as stories and fun activities.

Grammar teaching has been quite challenging for long time in the field of second and foreign language. Different strategies have been adopted to teach grammar structures for ESL and EFL students. To name some of the popularly used approaches, it started with grammar-translation method to audiolingual to cognitive and finally to communicative (Terrell, 1991). Aligning to Terrell (1991), the findings of this action research confirm that acquiring and learning language exposed to communicative input is not sufficient. Students do learn from them by drawing analogy and noticing the use of language. However, in the process of drawing analogy, students might apply wrong form of language structure because of overgeneralization. Therefore, there is a need to familiarize and expose students to various forms and functions of grammar structures.

Thus, the findings of this study suggest teachers of lower classes to focus only on one form of grammar concept from one text since these students would not be able to acquire multiple concepts at a time. If students are at intermediate or advanced levels then the teachers could teach varied concepts from one text. They would be able to learn and know the function of multiple grammar concepts from just one text.

Recommendations

While teaching grammar in context with literary texts, the focus of teaching and learning is both on content and grammar language. In the process of doing so, multiple tasks need to be designed and requires time for teachers to prepare the lesson before teaching the students. Teachers need to learn adequate grammar knowledge referring various sources and design the activities aligned to literary texts as mentioned in the intervention stage. They need to put in extra effort. However, the effort is worth since students learn grammar significantly when infused with literary texts.

Future researchers could experiment these strategies with controlled and treatment groups to find how literary texts could help in learning and acquiring language accurately. The researchers could also carry out longitudinal studies to find accurate results. Teachers could have longer intervention phase for valid and reliable findings.

Limitations of the study

Given the current issue of teaching grammar using literary texts in the Bhutanese education system, this action research was designed to try out various intervention strategies to teach grammar using literary texts. Like any other action research, this research had several limitations. This study is about one teacher's practices administered with her own class eight students. Interpretation of the results could be biased. Therefore, it may not be possible to generalize the findings to other settings. Moreover, this study did not have any control group to infer any kind of causal effect.

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