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A Policy Analysis on Bhutan's Participation in the Programme for International Student Assessment (PISA)

Phuntsho Wangdi

Executive Summary

The Ministry of Education has rolled out plans to participate in the Programme for International Student Assessment for Developing countries (PISA-D) in 2017 and is projected to participate in the Programme for International Student Assessment (PISA) in 2021. This policy initiative is viewed as bandwagoning the burgeoning global educational practice without an in-depth analysis introspecting the costs and benefits of Bhutan's participation in the international ranking systems.

This paper analyzes the policy content, effect and direction of Bhutan's intent to participate in PISA through the prism of a criteria-based approach policy analysis with a primacy of focus on the theoretical adequacy, policy feasibility, ethical merit and empirical validity.

The findings reveal that the Ministry of Education could continue focusing on the national education reform initiatives of strengthening school resources and systems; reformation in the curricular and assessment practices and provision of pedagogical and instructional support through continuous professional development programmes to the educators. The paper finally, suggests the Ministry of Education to suspend from partaking in PISA 2021 without a full proof research on its costs and benefits.

Teacher,

Introduction

The Royal Government of Bhutan accords highest priority to education sector as the country's quality of health, prosperity, happiness and progression hinges on the quality of its education. In the early 1960s, the introduction of modern education with English as the medium of instruction further boosted the country's age-old monastic form of education. Since then both the monastic and modern education systems have been highly instrumental in producing a generation of nation builders who have contributed to the country's socio-economic development thus far. However, in spite of these achievements, the system still grapples with the challenges of change as it seeks to further enhance educational access, quality, equity and system efficiencies at all levels of the education system (MoE, 2014).

In order to ensure that the Bhutanese education system is not only responsive to the socio-economic needs of the country but also at a level of quality at par with the international standards, the Ministry of Education has launched reform initiatives to streamline and strengthen the structure of school systems; curriculum and assessment and teacher competencies (MoE, 2012). Subsequently, in keeping with the global trend of assessing the country's educational standards against international benchmarking systems, participation in the Programme for International Student Assessment (PISA) has been one of the major agenda in the reform programmes (MoE, 2014).

PISA is considered a powerful tool for policy making. By participating, countries receive a comprehensive assessment of the quality and equity of their education systems. This helps them to set national goals, benchmark their progress over time and chart paths to better and more equitable learning outcomes. Countries also see where they stand in comparison to their regional and global peers – an opportunity for mutual learning and inspiration.

The Organization for Economic Cooperation and Development (OECD) introduced PISA for Development (PISA-D) programme in 2013 with aims to encourage and facilitate PISA participation by interested and motivated low and middle-income countries. PISA-D is a similar comparable international assessment of the knowledge and skills of 15-year-old students of the low and middle-income countries.

The Ministry of Education endorsed and signed the Memorandum of Understanding (MoU) for PISA-D participation on 12th January 2017 during the 18th National Education Conference (MoE, 2017) with the following key objectives:

- To set a baseline profile of the knowledge, skills and competencies of the students in Bhutan.
- Collect evidence about the readiness of the system for entry into the international testing program.

In order to ensure effective implementation of the PISA- D programme, a three-tier administration and management structure was formed at the National Level, District Level and School level. The National Center for PISA-D, housed in Bhutan Council for School Examinations and Assessment (BCSEA) worked in collaboration with the external partners such as Organization for Economic Cooperation and Development (OECD) with their contractor - Educational Training Service (ETS) and PISA partners - World Bank, UNESCO, UNICEF and other UN bodies and regional organizations. In collaboration with its implementing partners, the National Center has executed PISA-D for Strand A (Cognitive Strand) along with eight other countries participating in PISA-D 2017 - Cambodia, Ecuador, Guatemala, Honduras, Panama, Paraguay, Senegal and Zambia (MoE, 2017).

Rationale for Bhutan's participation in PISA

In the light of the adoption of the Sustainable Development Goals (SDGs), including Goal 4 (Education) in 2015 and Sustainable Education 2030 agenda, the function of international benchmarking is of global significance. The Education SDG includes a target and indicator that is focused on learning outcomes at the end of lower secondary education, in particular that all young people achieve at least a minimum proficiency level in reading and mathematics. Bhutan's education system has four key stages of education from Pre-primary to level 3 (Stage I); level 4 to 6 (Stage II); level 7 to 10 (Stage III) and level 10 to 12 (Stage IV) to basically measure the graduating rates from each cohort by means of quality check. In this context, for the pragmatic purpose of incorporating policy changes in all key stages, the government viewed Key Stage III, which is the category for 15-year-old students, as a critical stage to check the standards of student learning.

PISA-D is also viewed as an opportunity for the Ministry of Education to understand how the performances of students in the country compare, in relation to international benchmarks. It is also considered to be an effective tool for comparison with countries facing similar challenges elsewhere and to identify the factors that are associated with under performance in order to effectively eliminate it (BCSEA, 2019).

It is to gain a full insight on the health of the education system in the country to formalize a system that would ensure that students obtain the skills needed to succeed in tomorrow's world as set in the

Education Sustainable Development Goal Framework adopted by the United Nations.

PISA-D is also considered as a contributing factor for monitoring and achievement of quality and equity of learning outcomes for children, young people and adults. Using the data collected from questionnaires, an analysis linking contextual information with student outcomes allows the country to gauge the state of education against the international standards; ensure use of the results of the assessment for supporting national and international policy dialogue and decision-making.

The PISA findings are helpful to build local and institutional capacities in terms of the standards and structures to implement large-scale education assessments (MoE, 2017).

Problem statement

PISA is now a global phenomenon with participations from about 80 countries. The policy makers and bureaucrats use the PISA results to make claims about the quality of public education system and make policy recommendations.

The Bhutan Council for School Examinations and Assessment (BCSEA) in collaboration with the Ministry of Education (MOE) has administered the Programme for International Students Assessment for Developing countries (PISA-D) in 2017 with proposals for the PISA participation in 2021.

While PISA presents itself as a tool to make education more inclusive leading to equitable outcomes, it is far more than ambiguous and controversial. In this article, I pose an argument that the scores and rankings from PISA are not necessarily serving the purpose of meeting Bhutan's national educational goals of imparting a holistic education and that it cannot

give policy makers and educators a comprehensive insight into students preparedness (Tienken, 2014) for the national and global economy.

Discussions/Policy Analysis

In order to gauge the policy content, effect and direction of Bhutan's intent to participate in the PISA, a criteria based approach of policy analysis with primacy of focus on theoretical adequacy, policy feasibility, ethical merit and empirical validity (Lee, 2018) is used.

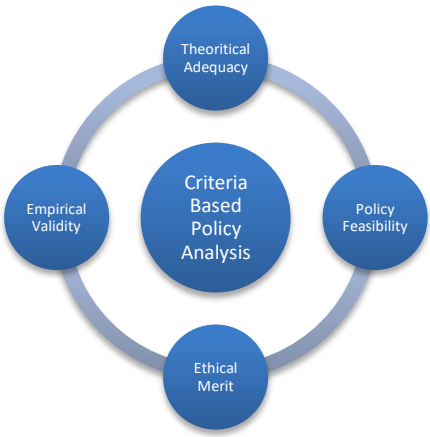

Figure 1: Criteria-Based Approach of Policy Analysis. Source: Lee (2018).

Theoretical Adequacy:

Bhutan's educational aspirations have its emanations from the wisdom and legacies of Their Majesties, The Monarchs. His Majesty the Fourth King Jigme Singye Wangchuck has emphasized on imparting the fundamental Bhutanese values of *semdagzinthabni* (to take care of their minds);

semdring-di zoni (to be strong minded) and *semgochoepzoni* (be mindful of their actions in body, speech and mind). His Majesty has also stressed on an education system that fosters an understanding and practice of the Bhutanese Buddhist precepts and etiquette of the concept of cause, condition and effect of one's actions - *thadamtsig – ley judrey* (Thinley, 2016).

His Majesty the Fifth King Jigme Khesar Namgyel Wangchuck has envisaged education as a tool for empowerment – a social equalizer that facilitates self-discovery and which leads to realizing one's full potential (MoE, 2014). Furthermore, the Constitution of Bhutan emphasized on the all round development of the child's physiological and psychological growth. The Constitution envisions the education system to 'provide education for the purpose of improving and increasing knowledge, values and skills of the entire population with education being directed towards the full development of the human personality' (RGOB, 2008, article 9.15).

Bhutan's educational policies are anchored on the overarching philosophy of Gross National Happiness (GNH) to effectively cultivate GNH values and principles, including deep knowledge and understanding; critical and creative thinking; ecological literacy; practice of country's profound, ancient wisdom and culture; contemplative learning; a holistic understanding of the world and competency to deal effectively with the modern world and preparation for right livelihood (MoE, 2014).

Accordingly, drawing from the philosophical foundations of idealism, realism, Marxism, romanticism, pragmatism and post-modernism (Tait, 2013), Bhutanese students are aspired to master the four imperatives of learning – knowledge, competencies (skills), Values and Attitudes (MoE, 2014). In essence, the education system is underpinned on the practical philosophies of imparting holistic education by emphasizing on building the knowledge and competencies; character building; learning habits; family, community and national values; physical and psychological wellbeing and a sense of identity as illustrated in the nine attributes of student learning.

Figure 2: Nine Attributes of Student learning. Source: Bhutan Education Blueprint 2014-2024. (MoE, 2014).

It can be surmised that the educational goals for Bhutan is to prepare the younger generations as genuine Bhutanese with a solid grounding on the nation's timeless traditional values and equipping them with the knowledge and skills of the contemporary world.

PISA is a snapshot of achievement in tests by a sample of 15 year olds to question about their comprehension in writing, reading, mathematics and science. It gives undue weightage and privileges to the literacy and numeracy domains and does not necessarily measure the cultivation of a contemplative, spiritual, social and humanistic dimensions of education (MoE, 2014) as per the country's national educational aspirations as outlined by Their Majesties the Kings, The Constitution of the Kingdom of Bhutan and the nine attributes of a Bhutanese student in the *Bhutan Education Blueprint 2014-2024*.

Hence, it can be deduced that the PISA rankings do not conform for a holistic assessment of Bhutan's educational policy of wholesome education.

Policy Feasibility

The modern education system in the country was introduced with a dose of Indian school curriculum and it was not until the 1980s that 'Bhutanization' of its curriculum was initiated (Education Sector Review Commission, 2008). With the turn of the new century, Bhutan launched a systematic curricular reform where the best curricular contents and practices of the education systems across the globe with pedagogical changes were incorporated in the system. Given these changes and a relatively late entrant into the modern education system, the Education sector is still grappling to meet the basic educational resources such as good infrastructure; vibrant curricula with provisions for alternative pathways to education such as the technical and vocational education; a dynamic assessment systems founded on formative assessment practices and the curricular and pedagogical competencies of educators and teachers to impart 21st century education.

Amidst the in-house reform initiatives at the school's structural, curricular and teacher professional development fronts, there are also simultaneous reforms in the national assessment systems. As a relatively new area of specialization in Bhutan, challenges to examinations and assessment policies and practices emerging as a result of various paradigm shifts within the education system demands a substantial capacity building of the assessment (Namgyel & Rinchhen, 2016) fronts.

PISA examines students aged 15 years on how well students can extrapolate from what they have learned and can apply that knowledge in unfamiliar settings, both in and outside school (BCSEA, 2019). In Bhutan's context, the competency-based assessment practices were introduced in 2011 (Namgyel and Rinchhen, 2016) is currently in the process of firming up. In the absence of a well established competency based assessment systems, the

conventional testing systems, which is still being practiced has compelled the teachers to focus on syllabus coverage and digress from fully immersing in their professional roles of using their 'professional knowledge, practice and engagement' to enhance the overall quality for excellent outcomes (Tuinamuana, 2011). The classroom pedagogical practices are mostly teacher centered to complete the centrally prescribed school curricula and not on learner centered teaching learning experiences based on experiential and interactive lessons. In sum, a teacher operates as a sage on the stage than being a guide by the side.

As a system where school curricula are nationally prescribed, teacher's instructional autonomy is limited since they are bent upon completing the syllabus since students are eventually assessed from what was taught. This limited teacher's creativity and innovative pedagogical skills to foster an innovative, creative and enterprising education for a nationally rooted and globally competent Bhutanese citizen (MoE, 2014).

Given these contexts, unless the Royal Education Council completes its reformation initiatives of a paradigm shift towards providing curricular frameworks rather than centrally prescribed curricula and unless the BCSEA institutes a well-established competency based assessment systems in alignment to the curricular reforms that is being supported by a continuous professional development programmes to the educators; participation in PISA 2021 is seen a venture that is not supported by a strong structural, human resource and systemic frames (Bolman and Deal, 2003).

Empirical Validity

PISA is grounded on the central idea of improving the effectiveness and

efficiencies of education delivery processes and practices. In order to achieve this goal, it is imperative that Bhutan's policy intent of PISA participation in 2021 is supported by empirical information to establish the fundamental studies of theory building for the need to participate in PISA; foundational studies to form conceptual issues and the applied studies for framing assessment and indicator systems (Creemers & Reezigt, 2006).

The research findings on the quality of education in Bhutan by many internal and external agencies primarily point towards improving school infrastructure and resources; curricular and assessment reforms and enhancing professional competencies of teachers.

Although the *Bhutan Education Blueprint 2014-2024* recommends for participation in international testing systems to measure student learning compared to international standards (MoE, 2014), Bhutan's participation in PISA appears to have no other empirical validity to support it. There is a need for a full proof research to establish the readiness level at educational proficiencies; technical and professional competencies, political will and financial backstopping from the Government.

Ethical Merit

His Majesty the Fifth King Jigme Khesar Namgyel Wangchuck has envisaged Bhutanese youths to be Sincere, Mindful, Astute, Resilient and Timeless - SMART (His Majesty's address at the 12th Convocation of the Royal University of Bhutan, 2017). In order to realize those visions, it is imperative that the education system is robust and dynamic to nurture the physical, intellectual and emotional dimensions of the youths to enable them steer their lives with competence and confidence in any circumstances. (MoE, 2009).

The country's socio-cultural tapestry has strong influence from its religious and spiritual ethics. As a tool for human engineering and social re-

construction, education in Bhutan is aimed at promoting higher human ideals of human spirituality; loving kindness; compassionate living respecting the entire ecosystem of life on earth; learning to shed individualism and promote communalism in the spirit of interdependency with the human and non-human species thus, promoting the ideals of a cohesive and sustainable world (Planning Commission, 1998) The Bhutanese education system is anchored on achieving these goals through the execution of Educating for Gross National Happiness (MoE, 2010) rather than simply being responsive to the burgeoning consumerist culture of material economy.

Therefore, it is clear that the Bhutanese education system aspires to groom independent individuals who understand the interconnected nature of reality, without excessive desires and being compassionate (Sherab, Maxwell and Cooksey, 2016) Hence, it is critical that the education system is wholesome, diverse and inclusive.

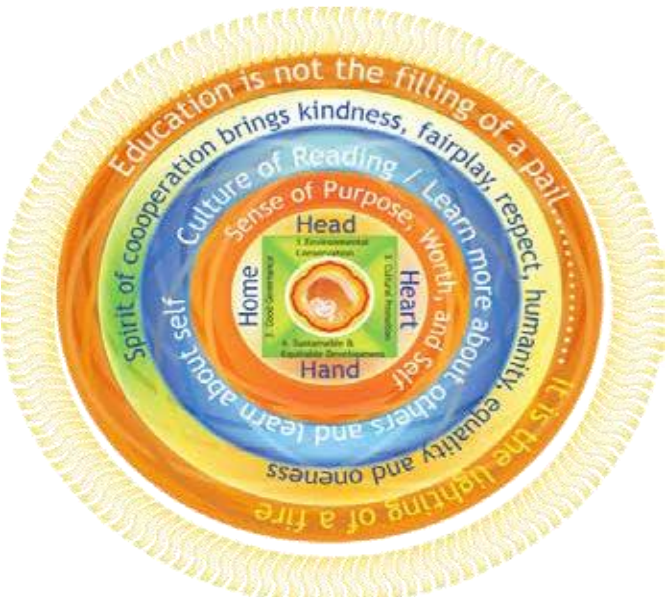

Figure 3: The GNH Mandala. Source: Educating for Gross National

Happiness Handbook. (MoE, 2009).

In the spirit of His Majesty, the King's vision and the emerging socio-economic needs of the country, the national education goal is to nurture young Bhutanese as a responsible and productive citizenry of the nation as well as the world. In order to fulfill those aspirations and also to achieve educational quality and equity, the Ministry of Education launched a ten-year strategic plan – Bhutan Education Blueprint 2014-2024 in 2014.

Given these contexts, it can be concluded that even as PISA claims as a global barometer of educational performance, it has it limitations of taking little or no account of the cultural and contextual influences that fuel the performance of different systems. By conveniently wrapping the differences of countries into causal attributions of measurement, PISA is geared towards homogenizing the education system, which is potentially dangerous for every country's historical, social, economic and cultural heritage. It encourages policy borrowing from systems that is attributed as high performers and distort the native educational aspirations and goals of a country (Strauss, 2015).

Moreover, the education system in Bhutan must be given its due of gestation period for the reform programmes as planned in the Blueprint to be fully rolled out and strengthen within its timeframe from 2014 to 2024. Hence, PISA participation after 2024 could only then be viewed as a pragmatically viable evaluation venture.

Way forward

The findings of the analysis indicate that Bhutan's participation in PISA is

not banked upon an in-depth research to critically weigh its costs and benefits. In this context, the following way forward measures are suggested for the Ministry of Education to consider:

1. Suspend the PISA participation in 2021.

The function of PISA is not perfect as illustrated in the discussion section. In contrast to the long term educational aspiration of character building in sync with the country's rich socio-cultural heritage while upholding the knowledge of the modern era, PISA encourages a short term fixes with a focus on literacy and numeracy skills. PISA primarily measures the objective dimension of education such as literacy and numeracy skills and not the subjective dimension such as ethics, spirituality and morality.

PISA is essentially driven by the economic goal of education and does not encourage education's sacred goal of human empowerment, self-actualization and promoting well-being (Chen, 2018). Moreover, OECD contracts out the execution of PISA to multi-national for-profit companies who are mostly profit oriented thereby, increasing costs and commercializing education.

In this context, PISA fosters educational policy reforms to primarily meet the changing demands of the economy and forces of marketization and hence, commoditized education (Sachs, 2001). PISA is a tool for governmentality of human variability through statistical methods (Tait, 2013) and standardized curricula and standardized modes of assessment, which undermine diversity of thought, creativity and individual talent (Zhao, 2011 in Lee & Heath, 2018).

These limitations of PISA do not conform to the national goals of Educating for Gross National Happiness in Bhutan that seeks to impart quality education through innovation and improvement in pathways

such as school leadership and management; green schools for green Bhutan; curriculum reformation; continuous and holistic students' assessment; co-curricular activities for wholesome education; school and community relationships (Sherab, Maxwell and Cooksey, 2016). Hence, PISA is essentially, not a tool to measure all the aspects of Bhutan's educational aspirations.

In the process of participation in PISA-D, the Royal Government of Bhutan has met the recurrent expenditure of 50,000 Euros as fees, exclusive of the contingent expenses for both the in-house and external PISA-D programme. The government will have to incur an additional 200,000 Euros as the actual fees for PISA in 2021 (MoE, 2017). As the fees and the recurrent expenditures are high for PISA participation, it could be a viable strategy to proportion the PISA budget to fund the education reform initiatives.

Therefore, the Ministry of Education could consider learning from PISA-D experiences of 2017 and focus on provision of quality school resources, forming a cohesive school composition, garnering climate of cordial relationships, promoting professional learning communities, leadership and governance that form the collective attributes of a good school (Gamoran, Secada & Marrbett, 2007) and eventually suspend its policy intent of partaking in PISA 2021.

2. Incorporate the core competencies of 21st century education in the school education curricula

The education system of Bhutan must primarily serve to benefit its people. In keeping with the national educational goals of preparing students who are 'nationally grounded and globally competent', the curriculum experts can draw the ideas of best curricular practices from the leading education

systems in the world and incorporate in the Bhutanese curriculum without sacrificing the rich tapestry of the country's traditional knowledge and values.

Therefore, drawing from the key learning and experiences from the PISA-D participation of 2017, the curricular experts can subtly infuse core competencies of 21st century education such as sharpening students' curiosity, creativity, communication, collaboration, compassion, composure, citizenship, content, critical thinking and confidence (Lee & Heath, 2018) through the ongoing national curricular and assessment reform processes. This would prepare for the Bhutanese education system to be ready for PISA participation in the future.

Conclusion

Education has remained as the cornerstone for Bhutan's sovereignty, unity and its socio-economic growth. However, with the ever changing and rising expectations of the system's cardinal responsibility of adequately preparing the students for the world of work, life and world; the education sector in Bhutan is tasked to provide an equitable quality education.

Therefore, amid several policy recommendations that warranted reforms at the structural, curriculum and teacher preparation fronts; for all logical and pragmatic purposes, it is only befitting that Bhutan's continues in its education reform processes at these three cardinal areas by incorporating the best practices from the world's leading nations in education, and for the time being suspend its quest for PISA participation.

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Teachers' perceptions of contextual factors affecting the learning environment in Bhutanese eighth grade mathematics classes

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Abstract

This article reports a small scale qualitative study about teachers' perceptions of the contextual factors which are influencing the learning environment in Bhutanese eighth grade mathematics classrooms. There are various contextual factors which play a critical role in the success of curriculum implementation in any educational systems. Since teachers are major observers of the educational process, it is imperative to investigate the underlying significance of their perceptions of those contextual factors which affect the classroom teaching-learning process. The study employed semi-structured face-to-face interviews with six teacher participants from three case study schools. The findings showed that numerous contextual factors such as teachers' professional development, leadership and administrative support, and inadequacy of material resources interacted significantly with student and teacher characteristics. The study provides the field teachers, school administrators, educational leaders, and policy makers in Bhutan with new insights into how those contextual factors influence the process of learning in Bhutanese school contexts.

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Context the Study

A modern, secular form of education was introduced into Bhutan in 1961, establishing several schools and expanding them rapidly to meet the basic educational needs of its people, and develop human resources required for its socio-economic development (Namgyel, 2011; Sherab, 2013). To this effect, education leaders in Bhutan sought to develop a uniquely Bhutanese school math curriculum that addressed the Bhutanese contexts and aligned with international foci (Wagner, 2010). In view of the changing needs of the Bhutanese society as well as international trends in mathematics education, the curriculum reform was initiated in 2005 to improve the quality of learning in mathematics (Curriculum and Professional Support Division, [CAPSD], 2008).

This reform aimed to move away from a teacher-centred approach to a more student-centred one in teaching mathematics so that learning becomes more meaningful to learners (Lai, 2010). Hence, it mandated the introduction of current standards-based mathematics curriculum in Bhutanese secondary schools, which started in 2008 for eighth grade. Recently, in order to enrich and improve the process of education, and make learning more enjoyable and relevant, the Bhutanese government has put all its efforts into infusing Gross National Happiness (GNH) values and principles into school education (Rinchen, 2014).

According to Yan and Kember (2003), the classroom learning environment and curriculum as key factors not only influence the way in which students behave in class and their approach to study tasks, but also the nature of teacher-student, and student-student relationships, as well as students' academic self-concept. However, there are other factors within the school contexts which influence these two variables, the other way round. Therefore, any curriculum should be cognizant of contextual factors which include the students' characteristics and teachers' values, the school ethos, the availability of resources and other perceived problems in the existing situation (Yan & Kember, 2003).

The implementation of the current school math curriculum demanded a change in the concept of classroom environment, and thereby in approaches to teaching and learning of mathematics (Tshewang, 2015). Many mathematics teachers were then concerned about how this change would impact on their classroom practices. In fact, such a phenomenon becomes a concern because teachers' perceptions of contextual factors of

the learning environment would significantly influence their students' learning. Thus, the current study aimed at investigating teachers' perceptions of those contextual factors affecting the learning environment in Bhutanese eighth grade mathematics classrooms.

Literature Review

There are numerous contextual factors which have been found to constrain the classroom learning environment in Bhutanese schools (Namgyel, 2011). These factors include support and motivation from the administration, inadequacy of basic resources, workload of teachers, lack of retraining and on-going coaching of teachers, inadequacy of teachers' orientation and training to deliver the new mathematics curriculum, and so on.

The current school math curriculum demands for a lot of material resources to be in place for all classrooms in order to support the teaching-learning process. The basic teaching-learning materials must be made readily available in each and every classroom so that the teachers can use them in organizing a variety of learning activities (CAPSD, 2005). The availability of classroom resources and materials has always helped in making the learning experiences more interactive and meaningful (Tshewang, 2015).

The quality of classroom learning activities, either individually or collectively, depends on guidance provided by the leadership at the school and district level (Manouchehri & Goodman, 1998). For example, the leadership provided by a mathematics subject coordinator, principal or subject expert acts as the primary social influence on teachers in the field. It was argued that one of the fundamental elements of the process of change is the "leadership change" (Maxell & Namgay, 2014, p.32). Thus, the presence of progressive leadership and administrative support can make significant differences in the effective implementation of new initiatives such as the new curriculum (Tshewang, 2015).

Hew and Brush (2007) argue that professional development can change a teacher's attitudes and beliefs towards the new mathematics curriculum as well as provide them with the knowledge and skills to implement it. In addition, professional development programmes also help teachers learn new teaching strategies and cope with the curricular change.

Teachers' attitudes and beliefs can also influence the curriculum implementation, and ultimately the learning environment. Hew and Brush (2007) defined beliefs as those premises or suppositions about something that are felt to be true. Teachers' beliefs typically may include their

educational beliefs about teaching and learning (pedagogical beliefs) and their beliefs about the new curriculum. Research found that though teachers' actions are not always consistent with their stated teaching beliefs, which play an important role in the teaching-learning process (Wahyudi, 2004). Attitudes can be defined as "specific feelings that indicate whether a person likes or dislikes something or someone" (Simpson, Koballa, Oliver, & Crawley, 1994, cited in Hew & Brush, 2007, p.229). According to Jamtsho (2001), people's attitudes are predispositions in the way they react to an object or experience, and more importantly, attitude is a hypothetical construct which one can infer from what people say and do. Thus, teacher attitudes can be conceptualized as teachers liking or disliking of the current math curriculum in the process of its implementation.

Teachers' lack of classroom management and organization skills also influences the quality of the teaching-learning process (Chandra & Mills, 2014). Stronge, Ward and Grant (2011) argue that classroom management should be based on respect, fairness, and trust, wherein a positive climate is cultivated and maintained. They pointed out that a productive and positive classroom is the result of the teacher's consideration of students' academic as well as social and personal needs. Thus, it is important to understand whether teachers are organizing and managing lessons and learning activities aligned with the curriculum framework or not.

The proficiency of English communication skills possessed by students has been found to play a significant role in their understanding of mathematical concepts and word problems (Tshewang, 2015). Although mathematics as a discipline has its own distinct language and vocabulary, but the English language in general has a significant bearing on student learning of mathematics. Since Bhutanese students are taught mathematics in English, it requires them to have a minimum proficiency in it for them to be able to communicate mathematical ideas and concepts.

There is strong evidence to suggest that technology can enhance mathematical learning. According to Chandra and Briskey (2012), the use of ICT provides new options and opportunities for learning mathematics, which could be facilitated by the teachers' willingness to review their pedagogies. For instance, web applications on the internet have been found to create new opportunities for learners who are actively participating to develop their abilities in mathematics (Chandra & Briskey, 2012). The Bhutan Education Blueprint 'Shift Six' mandates that the learners must use ICT facilities to access information and knowledge, and to make education more relevant and easier to administer (MoE, 2014, p.84). It has been found that students made greater achievement gain when they had access to

technology that is used to teach higher order thinking skills, and it also helps in the encouragement of critical thinking in students (Stronge, et al., 2011). Hence, in an era of "technologically-driven mathematics curricula" (Barkatsas, Kasimatis, & Gialamas, 2009), the importance of the use of technology in teaching mathematics is recognized in Bhutanese schools as well (Tshewang, 20015). This is because it has positive impact on the core business of teaching and learning by changing teachers' pedagogical approaches and the types of learning activities they designed and implemented (Chandra & Mills, 2014). Thus, the literature suggests the integration of technology to enhance the practice of effective mathematics teaching.

According to Landon (2011), motivation pertaining to students has been consistently associated with academic competence, and can be exhibited in a student's effort, persistence, and choice of activities. However, the issue of motivation, incentives and rewards can be considered at two levels: first, how the teachers are motivated and encouraged to teach their students; and second, how teachers are able to motivate and encourage their students to learn mathematics (Tshewang, 2015).

Thus, the existing literature indicates that many unique contextual factors influence the classroom learning environment as well as the curriculum implementation in different educational settings. It is imperative that teachers, students, school leaders, and other stakeholders at the ministry and district level all understand how those factors impact on the teaching-learning process, and ultimately the quality of student learning. Hence, the current study aimed to examine Bhutanese eighth grade mathematics teachers' perceptions of those factors, which support or inhibit the classroom learning environment.

Research Objectives and Significance

The current study aimed at

1. examining Bhutanese eighth grade mathematics teachers' perceptions of contextual factors influencing the teaching and learning process.
2. identifying those significant contextual factors which are affecting the classroom environment in Bhutanese schools.

To the best of researchers' knowledge, no past study of teachers' perceptions of the contextual factors of mathematics learning environment has been conducted in Bhutanese school contexts. Hence, the study has established the baseline data for assessing the contextual factors in the

Bhutanese school systems. The study also has a practical significance because it can help in developing strategies for more-productive mathematics classroom learning environments (Tshewang, 2015). It may also prove important in drawing attention of all relevant stakeholders concerned towards the common goal of improving the quality of education in the country and enhancing school children's performance in mathematics.

Methodology

Research Approach

Qualitative research is based on 'constructivist views' or "participatory knowledge claims" (Creswell, 2009, p.107) that involves various approaches such as ethnography, grounded theory, case study, phenomenology, and narratives. The current study employed a case-study approach with semi-structured interviews as its tool. Simons (2009) claims that the main benefit of this approach is the focus on one or a few instances , which allows the researchers to deal with the subtleties and intricacies of complex social situations.

Research Sites and Participants

The study involved six mathematics teacher participants from three different case study schools (SC01, SC02 & SC13), located in different settings of rural, semi-urban and urban respectively. The technique of purposive sampling was employed to select the participants and research sites, in order to maximize the positive responses. It helped in identifying subjects who were more likely to satisfy the needs of the study and allow for flexibility and convenience for the research process (Cohen, Manion & Morrison, 2007) and choosing a case which illustrates some features in which they are interested (Wiersma, 2000 & Silverman, 2010). It was also found useful to know something about the specific people or events and deliberately selects ones because they are seen as instances which may produce the most valuable data (Descombe, 2010).

Data collection

The data was mainly gathered through face-to-face individual teacher interviews. Each of the interviews took approximately 30 to 40 minutes. The interview schedules were decided in consultation with the selected respondents. All interviews were conducted in English, because most of the

subjects including mathematics are taught in English in Bhutanese schools. Each interviewee was contacted a day or two in advance and invited to nominate a time that best suited his/her convenience. The interviews were audio recorded with the permission of the interviewees and at the same time, daily process notes were maintained to supplement the actual interviews and transcription.

Data Analysis and Results

Qualitative data analysis involves a systematic process that organizes the data into manageable units, combines and synthesizes ideas, and develops constructs, themes, patterns or theories (Dukpa, 2000). As suggested by Hobson and Noyes (2011) the study employed the Burnard's method of analysing interview data. As soon as the interview data were collected, they were processed and filed in a way that made them amenable to analysis on a daily or weekly basis. The data were then catalogued and indexed, and for this, each piece of raw data was assigned with a unique serial number for reference purpose. Audio recordings of interviews were then transcribed, allowing sufficient time for the transcription process.

The process of annotations (the researcher putting informal notes and comments alongside of the interviewee's words), and line numbering and coding were used (Descombe, 2010). This helped to locate data in different parts of a transcript and navigate through to particular points. The transcription took place as the research progressed, and this led to developing themes and patterns through coding. Once the transcription was completed, it was reviewed with the audio recordings and field notes to cross-check that nothing was left out and that the non-verbal cues were taken into consideration. The technique of member checking (allow participants see their own transcripts) was also used with participants, and changes were made accordingly in the transcripts.

The interview data analysis involved examination of the contextual factors that influence the classroom environment in Bhutanese eighth grade mathematics classes. These factors could be organizational, instructional, curriculum-related or sociocultural in nature, and can be either enabling or inhibiting to the organization of learning environment. Thus, the emerging factors from the interview data are thematically discussed as follows.

i. Lack of resources and classroom materials

The teacher interviews reveal that the lack of resources and classroom materials act as one of the major constraints in Bhutanese mathematics classrooms, as these materials are provided only in limited quantity. In the absence of basic required materials, there is little opportunity for teachers to

make mathematics learning motivating, enjoyable, and authentic to their learners. The teachers were also of the view that the amount of material supplied to classes does not match the class size, and the teachers find it difficult to give the correct mathematical concepts. This point is supplemented by the comments made by some teachers:

> *The other factors could be in most of our Bhutanese classroom is resource, that is, teaching learning materials. Because this new curriculum is different from one which we had earlier, this curriculum demands for lot of materials, teaching-learning materials. There are so many activities which are to be taught through games. So, in order to carry out these activities, when teachers do not have enough materials, it would be literally difficult. (Teacher: SC02/204).*
>
> *Actually, these materials are being sent by the Ministry, but when we have a large number of children in our classrooms, it is not enough. For example, when we are teaching shapes such as pyramid, prism, and all, we need to give shapes to individual children, then, let them feel and talk about the shapes. But we cannot really provide them individually, because it is not enough. (Teacher: SC02/T202)*

> *The new curriculum was very demanding, and……. it was asking me to give printouts and handouts, and all. But then due to the resources I had a really challenging time. (Teacher: SC02/201)*

Thus, the lack of teaching resources can restrict the teachers' use of those new teaching strategies proposed in the mathematics curriculum, as well as inhibit group-focused learning activities in the process of teaching and learning mathematics**.**

ii. Leadership and administrative support

The lack of strong leadership and administrative support within the school systems definitely inhibits the process of effective curriculum implementation. However, the interview data reveal that there were different opinions expressed by teachers in regard to leadership and administrative support provided by school managers and educational leaders in Bhutan. Some of the teachers were of the opinion that the school administration was

supportive, while some felt that their school management was not fair in terms of nominating appropriate people for workshops and trainings, so that they could contribute to the school accordingly. This is exemplified by the following comments made by the teacher interviewees:

> *Compared to the remote schools, the present school administrators as well as from management side, they are giving their best. Till now I did not face any problems with regard to printing and all. They are always welcoming us to come forward with anything that could help the students learn better. (Teacher: SC02/T201)*

> *Yeah, support is there, from the administration side, and from this year our principal, she was encouraging us to use ICT in our teaching. Recently, we have also introduced ICT room in the school. (Teacher:SC06/T205)*

> *Sometimes, the school management nominates a wrong person and is sent to the orientation programs. Once they come back, they do not teach the same subject in which they were oriented, and the person who has not attended the orientation programs has to take up the subject. And then there is another problem there, Sir. (Teacher: SC02/T202)*

This is indicative of lack of good leadership and administration in some schools, and there are implications for the classroom teaching-learning process. Suppose, when administrators fail to recognize the felt needs of the school and the benefits of positive learning environment, they do not give the required support to teachers. As a result, the classroom teachers cannot implement the curriculum properly, and students as learners and the system as a whole do not benefit.

iii. Professional development workshops and trainings

Professional development workshops and seminars on the on-going basis are very important for classroom teachers' growth and enhancement of their knowledge and skills. The interview data indicates that there is no proper system in place for organizing such training programs and workshops for teachers, and further no reinforcement in terms of its practice and distribution among mathematics teachers. This fact is shown in the following comment made by one of the teacher interviewees:

> *With regard to the orientation of new curriculum, I feel that*

> *there are still teachers in the field who are not oriented with this curriculum. From each school a subject teacher, one teacher is oriented. And actually, the expectations of Ministry of Education and the Dept. of Curriculum, is that each school should nominate a teacher from one school to attain the workshops, orientation workshops, and back in the schools they are supposed to do that. SBIP to be conducted and the same orientation they received in the orientation workshops to be done in the schools. But in most of our schools this is not happening. When this is not happening, the other subject teachers are teaching without the orientation skills of the new curriculum. Therefore, they are teaching based on the concepts and skills that they have to deliver for the old curriculum. For this we need good skills. (Teacher: SC06/T204).*

Some participants were really concerned about the problems faced by their teacher colleagues, who did not have familiarization workshops pertaining to the new curriculum. It was revealed that those who had orientation workshops had no problem in handling the curriculum, but those who did not receive professional training and orientation faced difficulty. This is revealed in the following comments made by one of the teacher participants:

> *I think, to orient teachers in this new curriculum is very important. Because, some of our friends here, they did not receive any orientation programs on this new curriculum, and they are facing problems. ….But, as far as I am concerned, I have received the orientation programs. So, I don't have problems. My teacher colleagues who are not oriented, they have problems. Sometimes, they come and share with me, and then I try to help them. So, training, I think, to give training to teachers is very important, when the curriculum is being changed. (Teacher: SC02/ T202)*

In addition, it is revealed that there was no proper distribution of professional development training and workshops, and subject related school-based in-service programs (SBIPs), workshops or seminars at the school level were also scanty. This is exemplified in the following comments made by some of the teacher interviewees:

> *I have been into teaching for 13 years, and I have never attended any workshop or seminars or retraining. And*

> *again, since starting with this new curriculum, so we are just using manuals, and we are just going through textbooks, and just teaching. So, we never got any training or seminars! (Teacher: SC02/T203).*

> *But, then, it is tragic to say that SBIPs are seldom done for curriculum or subject-wise. Because, most of the things are for like Disaster or other things like Global Hand Washing Day, Health or Games and all, Sir. Subject-wise SBIPs are quite rare and even workshops, and others are done seldom, la. (Teacher: SC02/T201).*

Thus, there is scope for the stakeholders concerned to organize and enhance the system of professional development trainings and workshops for teachers in the form of national based in-service programs (NBIPs), or school based in-service programs (SBIPs), which can benefit school systems as a whole and ultimately the learners.

iv. Teachers' beliefs and attitudes towards the new curriculum

Teacher attitudes and beliefs towards the new curriculum also influence its implementation, and ultimately the classroom learning environment. The teacher interviews indicated the change of their attitudes towards the subject, which is evident from the following comment made by one of the teacher interviewees.

> *I think teaching this new curriculum is interesting, and both teachers and students they really enjoy teaching and learning of mathematics. Actually, I used to hate teaching mathematics, but with this new curriculum, I am enjoying a lot. In fact, I prefer teaching mathematics to other subjects. (Teacher: SC02/T202)*

Hence, if the teachers have positive attitudes and beliefs towards such a new innovation such as the new curriculum, it would definitely be a success and vice-versa (Handal & Herrington, 2003). In order to have an exciting and positive classroom learning environment, the teachers must adopt new teaching strategies and change their mind-sets for good.

Some of the teachers were of the opinion that the new curriculum demands a lot of teacher efforts, time and resources in terms of its effective delivery. This point is exemplified in the following comment by one of the teacher interviewees.

> *From my point of view, it is a student-friendly curriculum. Not a very, very teacher-friendly, because teacher has to work almost more than the students, although, it has been made easy as compared to the old curriculum, but the teacher has to work more than the students. (Teacher: SC06/T205)*

Teachers' beliefs about the new mathematics curriculum can have a direct impact on the implementation of this curriculum. Thus, there is a need to account for the teachers' beliefs regarding the curriculum with new instructional reform practices or policies in order to make mandated reform structures and new curricular approaches successful under the new curriculum framework.

v. Teachers' classroom management and organization skills

The interview data shows that teachers' classroom organization skills were inconsistent with the framework of teaching and learning in the new curriculum. Some teacher interviewees were concerned about their classroom organization skills in terms of their delivery of the new math curriculum. One of the teacher interviewees commented:

> *Children are very much interested in such activities. They look for such activities; they express their positivism, when they are organised into groups. But what is important in carrying out group activities is proper management and instructions have to be given. Otherwise, there are children who get misguided and do not achieve what they are supposed to achieve. (Teacher: SC06/T204)*

vi. Medium of instruction and standard of English language

Ever since the introduction of modern education in a secular form into Bhutan, English and Dzongkha (the national language of Bhutan) have been used as the medium of instruction in Bhutanese schools. Dzongkha is used only to teach the national language of Bhutan to all students across the school levels, while all the other subjects including mathematics, science, and history are taught in English right from pre-primary to grade 12, through to the university level. However, Dzongkha is the second language and English may be the third language for most Bhutanese students, and school subjects are taught in these two languages.

The medium of instruction used for delivery of lessons in mathematics definitely determines the effectiveness of the teaching-learning

process in the classrooms. This in turn has led to challenges in creating positive learning environments and many a time, teachers have to resort to using a local language or national language to explain certain concepts and ideas. This is evident from the following comments made by some teachers.

> *One could be their level of English. Since the medium of instruction is in English, and when students are not good, not so good in English it is challenging for us to teach. Therefore, what I do is I resort to bilingual language; whenever possible I try to explain, and further explain in Dzongkha so that they could learn more. (Teacher: SC02/T201).*

> *I try my best to encourage children to speak in English at all times. But, sometimes when they really need to discuss with their friends, and when they really need to explain the concepts to their friends, sometimes they do it in Dzongkha. But not all the times but, sometimes, when the concepts are really not understandable by other friends, sometimes, they need to use Dzongkha as well to give the correct concepts of the topic.(Teacher: SC02/T202)*

Participants were also of the view that because of the low standard of English language among Bhutanese students, the students were not able to do well in mathematics. This is because the new math curriculum demands a good command of language in terms of communication as one of its process standards. It requires them to not only understand mathematical concepts and skills for themselves, but they also to express and share their ideas with the class as a whole or with their friends and teachers. Due to this issue, many students are reluctant to come forward and do class presentations, discussions, and explanation of their ideas to the class. This point is substantiated by the following comments made by one teacher participant:

> *This mathematics actually is a new and very easy mathematics. Any child, who has the ability of that level can easily perceive. But in our context, may be because the children have the low ability of language skills, because, this curriculum demands more of language ability. If a person has language ability, then through personal readings, the child can easily understand. But, because of this barrier, language barrier, teacher's involvement is also necessarily felt. (Teacher: SC06/T204).*

vii. Use of technology in teaching and learning of mathematics

The MoE's (2014, p.84) Bhutan Education Blueprint 'Shift Six' encourages learners to use ICT facilities to access information and knowledge, and to make education more relevant and easier to administer. The use of technology has been one of the core five principles of NCTM (2000) in the process of implementing a standards-based mathematics curriculum (Tshewang, 2015). The following comment made by one interviewee also substantiates the above principles and the significance of the use of technology in mathematics education.

> *Other thing is, that, I don't know may be IT technology, was not available in earlier curriculum time. But with this curriculum, if all schools in the country are equipped with IT facilities, I think the delivery of the new curriculum would not be, and will not be problem. Because, in our school here, also we have IT facility, using IT facility, we can download information from YouTube, and make children to learn and help them to learn on the particular topic. So, this curriculum demands a lot of IT expertise of a subject teacher. Again, if a subject teacher does not have IT expertise, then presentation and creating presentations or activities of lesson will be difficult. (Teacher: SC06/T204).*

Although there is a good scope for the integration of technology into teaching mathematics, yet there are challenges ahead such as the lack of "specific technology knowledge and skills, technology-supported-pedagogical knowledge and skills, and technology-related classroom management knowledge and skills" (Hew & Brush, 2007, p. 227).

viii. Lack of motivation, incentives, and rewards

The lack of motivation, incentives, and rewards also influences the classroom learning environment in Bhutanese schools. Both classroom teachers and students must be motivated, and rewarded at least verbally, socially and emotionally. This has always contributed to making the classroom environment enjoyable and successful in terms of student learning. The interview data were indicative of the fact that teachers were not given equal opportunities in terms of trainings, workshops or other PD programs that would help teachers to upgrade their pedagogical skills and knowledge. They also felt the need to exchange their professional skills and knowledge with mathematics teachers and professionals from other

countries. This is evident in the following comment made by one of the teachers.

> *If we are given equal opportunities, training, workshops, where we could develop more skills on teaching mathematics, or where mathematics teachers from other countries or other professionals could come and share their views on how to teach or how to go about teaching concepts. Then, I think, this could encourage our teachers to be in the same profession and keep continuing with their works. (Teacher: SC02/T201)*

It is important to consider what kind of incentives and rewards are being received by the teachers and students in the process of teaching and learning mathematics. Rewards in the form of physical things really do not matter, but even verbal praises and a sense of appreciation from the school administration can help motivate teachers and students. The issues of equality and fairness arise when it comes to motivation, incentives and rewards, which always provides a challenge to the school management, particularly pertaining to the opportunities for teacher training and workshops.

Thus, the study provides an understanding of the numerous contextual factors that affect the teaching-learning process in Bhutanese eighth grade mathematics classes. The whole context of national policy-making, explicitly or implicitly contribute to the factors affecting the classroom environment. Since the complex nature of those factors tends to affect both the process of curriculum implementation and the classroom environment, cautious steps may be required when addressing large scale reform and restructure.

Discussion and Recommendations

The study examined teachers' perceptions of those contextual factors influencing the process of teaching and learning in Bhutanese eighth grade mathematics classrooms. Findings of the study were consistent with those of past studies (e.g., Dukpa, 2000; Jamtsho, 2001; Namgyel, 2011; Rinchen, 2014; & Zangmo, 2014). In fact, some of these factors were replicated in the study, hence, understanding the implications of each of these factors is important as it can have a direct impact on teachers' perceptions of their mathematics classroom environments.

DenBrok, Fisher, Rickards and Bull (2005) note that both the teachers and

researchers should have knowledge about the factors that affect the classroom learning environment. This is because such knowledge may help teachers in establishing how their actions appear to their students and how learning environments can be changed in order to stimulate student learning.

First, the findings from this study reveal that the participants considered factors related to inadequate resources such as physical facilities, basic classroom materials, and teaching aids; while in most schools these basic teaching-learning materials have been provided in insufficient quantity. It is noted that many schools in Bhutan still face an acute shortage of teaching-learning resources including basic teaching aids, textbooks, manuals, charts, grids, graph papers, and technology (Rinchen, 2014). Hence, this provision requires further reinforcement from the authorities, and organizations concerned at all levels. It is also felt necessary to enhance classroom teachers' initiative of resourcefulness in terms of improvising some of those materials, which they can use in their own classrooms.

Second, the findings of the study indicate that professional development workshops and trainings for teachers is an essential factor for the effective implementation of current math curriculum, and PD programs in specific subject areas have to be reinforced in Bhutanese school systems. The study reveals that many teachers in the field did not receive enough training and orientation in regards to the implementation of the current math curriculum. Therefore, it is important that relevant stakeholders concerned address the issue accordingly, so that the teachers can improve their classroom practices and understand teaching contexts, and ultimately benefits the learners.

Third, the current study shows that the school systems not only require a strong progressive leadership and administration, but also one with good knowledge about the mathematics curriculum and classroom learning environment. This is because without the school administrators' knowledge about mandated educational reform policies and teaching guidelines under the framework of the current math curriculum, it would be difficult to provide required support to their teachers and students. Hence, it is recommended that school leaders be proactive and knowledgeable about the impact of positive classroom environment on students' learning and its benefits to the school system as a whole.

Fourth, the results of the study affirm that the low standard of English communication skills among Bhutanese students is another factor that makes the classroom learning environment difficult in Bhutanese schools. It is because the current math curriculum demands a certain level of proficiency in the overall English language as one of its process standards.

Hence, it is apparent that the authorities concerned and the classroom teachers must look for the possibility of improving students' English language standard so that they can learn mathematics and other subjects with understanding.

Fifth, it is apparent from the findings that the teachers' beliefs and attitudes towards the new curriculum were also dominant factors affecting the process of curriculum implementation. It is timely for mathematics education to change, supporting the teachers in effecting that change needs to be addressed. Hence, it may serve as a useful starting point to identify teachers' positive beliefs (Chandra & Mills, 2014) about using new pedagogy, curriculum and assessment since this provides the lens for how they see and interpret actions. Thus, teachers' positive beliefs about moving towards a contemporary standpoint of pedagogy, process of mathematics learning, and nature of mathematics as a subject, will always enhance the potential for change (Tshewang, 2015). However, the 'change facilitators' must put in place proper mechanisms such as structured orientation workshops, professional development programs and trainings to achieve this goal.

Sixth, the findings from the study substantiate the fact that the use of technology in the form of both 'mathematical analysis tools' and the real world interfaces can assist in teaching and learning of mathematics (Barkatsas et al., 2009). Hence, the use of ICT has a significant role in making mathematics learning meaningful and enjoyable to the learners, and it has potentially a good scope in Bhutanese classrooms. However, if technology is to be a part of math curriculum reform, then the adequate access to appropriate resources including technology itself (computers, software, peripherals, etc.), accessibility to available technology, and technical support needs to be provided. PD programs may be needed to encourage classroom teachers to recognize the value of technology to support mathematical thinking and working and change their mind set. Hew and Brush (2007) argue that providing workshops and trainings to teachers only may not suffice, but the issue of infrastructure must be resolved in schools in terms of hardware and software along with technical support. However, it is argued that sustained use of ICT by teachers would always lead to the possibilities of fruitful learning outcomes through a shift from didactic practices towards learner-centred approaches (Chandra & Mills, 2014). A recent study by Sherab et al. (2017) also strongly suggests making consistent efforts in improving ICT facilities in schools and support enhancement of teachers' ICT knowledge and skills.

Seventh, it has been observed that there is lack of motivation,

incentives and rewards available to teachers, which has a negative impact on classroom environments, and more importantly in areas where the new initiatives are implemented such as the new math curriculum. For example, providing equal opportunities for training and professional development workshops act as incentives that would motivate them to work harder. Some scholars argue that as long as the issues of motivation, incentives and rewards are not resolved in education systems, the curriculum reform agenda will always remain challenging (Kennedy, Fok, & Chan, 2006). Similarly, the situation might remain the same in regard to the effectiveness of mathematics curriculum reform in Bhutanese school context.

Finally, the overall findings from the study recommend that all relevant stakeholders and authorities concerned value the benefits of creating a positive learning environment for Bhutanese mathematics learners, by considering the important and replicated contextual issues such as inadequacy of material resources, teachers' professional development programs, administrative support to teachers, aligning teachers' beliefs and attitudes towards mathematics, enhancing ICT facilities and use of technology in classroom teaching.

Conclusion

This study shows that the implementation of the current mathematics curriculum in Bhutanese schools is seen to offer considerable potentials for enhancement, engagement and motivation for quality student learning in mathematics. In such a context, for its greater success, it is important to address a number of contextual issues which may not be quickly or easily overcome. The study has made a worthwhile contribution to the field of learning environment research, providing an in-depth understanding of teachers' perceptions about contextual factors which are affecting mathematics classroom learning environment. Its findings could be used by field mathematics teachers in Bhutan to guide the development of more positive classroom learning environments. Thus, it provides the way forward to improving student learning in mathematics by contributing theoretically and practically towards better understanding of the contextual factors in Bhutanese schools.

There are several drawbacks of the study which delimited its quality and generalizability. First, because of time constraint, key stakeholders such as school managers, officials of MoE, students, and curriculum officials, teacher educators could not be included in the study. Second, semi-structured interviews were conducted only with six mathematics teachers

from three selected case study schools of Western Bhutan, which questions the depth and breadth of the interview data. Third, the sample was confined to the eighth grade mathematics teachers only, and there was little scope for data triangulation. However, future researchers may consider such studies with larger samples of all class level teachers and students, as well as principals and other relevant stakeholders of school education, so that the findings of the study can be more comprehensive and generalizable.

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Upper Primary School Student Attitude Towards Health and Physical Education Programme in Bhutan

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Abstract

Student attitude toward Health and Physical Education (HPE) formed during childhood can influence their choices they make in daily lives to be active or to remain sedentary. Therefore, this study investigated the attitude of upper primary students toward HPE for the first time in the Bhutanese education system ever since the programme was introduced in 1999. This is important for Bhutan whose vision is to promote gross national happiness. The study employed a quantitative approach with a survey design consisting five major themes- attitude towards HPE, perception of teacher's instruction, perception of benefits of HPE, attitude towards participation in HPE classes, and perception of support system for resources. A total of 1087 upper primary students (male= 568 & female= 519) responded to the survey from seven dzongkhags. The findings generally showed positive attitude and much higher perceptions of HPE. More specifically Class V students showed much higher perceptions on benefits of HPE compared to Classes IV and VI, while students in urban schools revealed positive attitude towards HPE compared to semi-urban students. Implications of the study and recommendations for improvement are discussed.

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Attitude, Health and Physical Education, Upper Primary Students, Perception

Introduction

Attitude is the most distinctive and indispensable concept in contemporary American psychology (Allport, 1968). The most important way in which attitude influences our lives is our attitude towards physical activity (PA) (Nelson, Benson, & Jensen, 2010). Those who have a positive attitude toward PA are likely to lead a healthy lifestyle as a part of their lives, whereas those who have a negative attitude are not (Phillips & Silverman, 2015). Attitudes formed during childhood can influence the choices one makes in daily lives to be active or to remain sedentary. It is important to identify the attitude of students towards Health and Physical Education (HPE) at an early age. A number of scholars have stressed that student attitude could influence participation in future PA (Cameron, Norgan, & Ellison, 2006; Rady & Schimdt, 2013; Silverman, Keating, & Phillips, 2008; Zeng, 2011). Furthermore, attitude of a student is likely to determine their choice of activities. Existing literature suggests that a person's attitude is developed from their personal belief system. These belief systems are formed at a young age and once these belief systems take hold they eventually impact a person's attitude (Eagly & Chaiken, 1993; Sabini, 1995; Silverman & Subramaniam, 1999). It is imperative that students form positive attitude towards HPE during their formative years, so that they are able to continuously participate in PA.

Student attitude toward HPE has been proven worldwide as one of the gateways to a healthy body with healthy mind. Therefore, this study investigated the attitude of upper primary students toward HPE for the first time in the Bhutanese education system. The HPE is a learning process that contributes to the optimum development of an individual's potential including health, growth and development, and physical and psycho-social competencies through a balanced and coherent range of physical activities (REC, 2016). Research indicates that the HPE makes a significant contribution to the total education of the human being by means of movement, play and sport (Haag, 2003; Sherab, 2001; Gyeltshen, 2013).

Though the potential benefits of HPE programme in the Bhutanese education system was understood and recognised, it took some time for Bhutan to integrate the programme in school curriculum (only in 1999) because of other competing needs and priorities (Sherab, 2001). One of the key reasons for the introduction of HPE in the Bhutanese education system in 1999 was the concern that the school children started adopting a sedentary lifestyle. It was observed that:

> The Bhutanese lifestyle is changing rapidly as development expands. Unlike in the past, many school children now have the tendency for leading a sedentary life. Much of their free time outside the school is increasingly spent on activities ranging from viewing video films to loitering around without many physical activities. Such a sedentary and physically inactive lifestyle especially amongst the school children can be detrimental to their academic attainments because children who are physically fit and healthy can think, concentrate and learn better. (CAPSD (1999, p. 1)

However, the existing research has shown that there were several drawbacks

for successful implementation of HPE. Some of these drawbacks were the lack of appropriate curriculum, facilities, trained and specialized HPE teachers, management support, and not aware of the importance of physical movement (Sherab, 2001) and not much has changed even after twelve years (Gyeltshen, 2013).

However, the Government initiated development of a new HPE curriculum which was introduced in 2008 as an interdisciplinary approach, that deals with the concepts of health, interpersonal relationships, life skills and physical activities (REC, 2012). It emphasizes on the knowledge of nutrition, habits and understanding the core regular physical activities necessary to guide and influence learners to practice physical activities as integral part of their life. The curriculum is based on the ideals of healthy living, and that when cascaded to others in the society develop the community that possesses the fundamental health literacy to lead a healthy life (Sherab, 2001).

Internationally, the need for quality HPE curriculum in schools is increasingly recognized, mainly for the promotion of students' knowledge, skills and attitudes necessary for leading active and healthy lifestyles (REC, 2016; UNESCO, 2015). The development of a sound HPE programme in school can also support in building youths who are psychologically and physically healthy, which makes up two of the nine domains of Gross National Happiness (GNH) – the development philosophy that Bhutan expounds (Gyeltshen, 2013). Therefore, HPE programme has the huge potential to contribute towards the national vision of promoting happiness. To work towards this vision, it is crucial that young children is the schools develop positive attitude towards HPE.

Ever since the HPE was introduced in the Bhutanese primary schools

in 1999 and the implementation of the new curriculum in 2008, nobody has studied student attitude. Considering the importance of implementing such educational innovation successfully from the formative years of education, this study examined the upper primary students' attitude towards HPE.

Significance of the study

This study is the first of its kind in the Bhutanese context and is significant in several ways. The findings of this study add to the existing body of knowledge and benefit various organizations and individuals, both within and outside the education ministry. First, this study intends to contribute to the existing body of knowledge in terms of understanding the Bhutanese students' attitude toward HPE. Second, the findings of this study could be useful to the Ministry of Education (MoE) in making research-informed policy decisions related to the implementation of HPE curriculum in schools. Third, this study would provide insights in reviewing and modifying the existing HPE for upper primary schools to make it more responsive to the developmental needs and interests of students. Thus, making HPE more friendly and lively educational experience for students. Forth, this study may help the school management and the teachers to understand the impact and significance of the HPE in the holistic development of students that are healthy at head, hands, and heart (3H).

Objectives of the Study

This study aimed to explore the attitude of upper primary students toward participating and learning HPE.

Research questions

- What is the upper primary students' attitude toward HPE, perception on teacher's instruction, perception on benefits of HPE, attitude towards participation in HPE classes, and perception on support system for resources?
- Is there any correlation between student attitude towards HPE, perception on teacher's instruction, perception on benefits of HPE, attitude towards participation in HPE classes, and perception on support system for resources?
- Is there any difference in the attitude of upper primary students in terms of their class level, gender, and location of the school?

Literature Review

The main purpose of this study was to explore the Bhutanese upper primary students' attitude toward school HPE. Existing literature indicates that student attitude toward HPE is an important determinant of their participation in physical activities outside of school. For instance, research in Kuwait has shown that students consider physical education (PE) classes as fun, makes them feel happy and satisfied, keeps them fit and healthy, and acquire more friends (Mohammad & Mohammad, 2012). While anecdotal evidence show that this could be true in Bhutan, currently there is lack of research. A research by Pirot (1993) in Western Australia for secondary level found that both girls and boys held positive attitudes toward compulsory

physical education; however, boys' attitudes were more positive than girls. Research also suggests that as the class level increased, attitudes towards compulsory PE were less positive for both boys and girls

collectively. A similar study by Ramiz (2009) in Turkish high schools indicated a significant difference in students' attitude toward PE. The attitude mean scores of boys were higher than those of girls. These differences in attitude in terms of gender and class level have implications on successful implementation of the HPE. Would this be similar with the Bhutanese upper primary students? It is important that such differences are identified and addressed at the earliest.

A recent study by Tulin and Merve (2016) in Ardahan, Turkey concluded that students' class, gender, place of residence, parents' level of education, level of income and number of siblings did not affect the PE and sports lesson attitude scores of secondary school students who were between the ages 11 and 14 years. Due to lack of research in Bhutanese context, it is not sure if the situation could be similar. However, it could be tentatively speculated that there could be differences in terms of students' class level and gender.

Teachers play an important role in successful implementation of any educational innovations (Sherab, 2017; Yero, 2010; Fullan & Hargreaves, 1992; Fullan, 1999). Yero (2010) rightly argues that "teachers have always had the power to determine the tone and direction of a school, to create exemplary worlds within the classroom, and to scuttle reform movements that failed to fit their mental models" (2010, p. xiv). If HPE is to be successfully implemented in the Bhutanese primary schools, it is important that HPE teachers are knowledgeable and skilled and that they are able to motivate their students to actively participate in HPE classes. One way to measure whether HPE teachers are able to motivate their students is to examine student attitude towards HPE and their perceptions, which is the intention of this study.

There is plenty of student attitude research on HPE at the high school level (Atan & Imamoglu; 2016; Zeng, Hipscher, & Leung, 2011; Ramiz, 2009; Rikard & Banville, 2006; Villegas, 2001; Pirot 1993) which shows that students usually prefer a wide variety of sport and fitness activities, an increase in level of challenge in PE classes, and an increase in student motivation for participating in activities outside of school (Rikard & Banville, 2006). They also found that student attitudes were accepting or tolerant of participation in fitness activities due to known health benefits. Most students liked PE classes that included some form of game play. In addition, they stressed the need for adding interesting activities that included active participation while having fun. Student recommendations included strategies for improving instruction and for grouping students by skill levels for appropriate challenge. Another study in California (USA) mentions that high school students were active only when they were enrolled in PE classes and were rarely physically active outside the class (Villegas, 2001). Such finding has implications on school HPE. If schools do not have a strong HPE, students are likely to lead a sedentary lifestyle outside of the school. This in turn has implications on the overall development of a nation. As such Bhutan has been already making a huge investment on the treatment of lifestyle related diseases such as diabetes, hypertension, and cancers (Yangchen, Tobgay, & Melgaard, 2017).

Among the significant importance that HPE has on the holistic development of the children, health related fitness programme plays a vital role in promoting a healthy lifestyle in the early education. Colquitt and Langdon (2012) explored student attitudes toward PE among students in Georgia (USA) after the state implemented a policy requiring statewide fitness testing with the purpose of addressing the social and emotional health

of students- as advocated in the Coordinated School Health Model. They concluded that student attitude toward PE can serve as a facilitating factor for health-related fitness. So, finding out student attitude toward the HPE is important considering the health benefits that they acquire from the programme.

Lack of facilities is seen to be one of the prominent drawbacks in implementing HPE in schools successfully (Sherab, 2001). According to Sherab (2001) due large class size (on average 40 to 50 students in a class) in the Bhutanese context, provision of basic infrastructure and sufficient equipment play a significant role in implementing the HPE. Limited space restricts free movement, therefore when the class becomes too congested it is not safe to conduct most activities. Hastie and Saunders (1991) examined the effects of two different environmental conditions upon the classroom behaviours of teachers and students in Australia. Student involvement showed significantly more motor appropriate activity and more cognitive and less organizational activity in classes where there were unlimited amounts of equipment available irrespective of class size. The teacher decision making and resultant pupil opportunity to respond were strongly influenced by environmental variables and that such environments can be both systematic and predictable. Besides teaching style of the instructor, curriculum and school infrastructure were also main determinants of student attitude towards PE (Bozoğlu & Göktürk, 2016). This study aimed to explore if Bhutanese upper primary students' attitude is being determined by factors such as their teachers' teaching style, curriculum and resources.

Quite surprisingly there is lack of research on upper primary school students' attitude toward HPE. Literature search using Google Scholar and ResearchGate found only two such studies. For instance, a study by Phillips

and Silverman (2015) in United States that explored upper primary student attitude found an overall positive attitude toward PE. Their study also concluded that the attitude toward PE did not differ in terms of gender. In terms of class level, class IV students exhibited positive attitude compared to class V students. Another study by Adamcak and Bartik (2014) in Slovakia concluded that as students move higher up in terms of class level (especially from primary to secondary) their attitude towards PE declines as they undergo transition facing different learning environment. This is something that this study explored in the Bhutanese context.

Methods and Materials

Research approach and design

The study employed a quantitative approach with the self-administered survey design (Cooksey & McDonald, 2011; Creswell, 2012). The stratified random sampling in terms of class level, location, and dzongkhag were employed and members were randomly selected from each group for data collection. Permission for the conduct of surveys were obtained from the Director of the School Education, MoE and the respective school principals. The two researchers visited the schools for survey administration except for the two remote dzongkhags of Pemagatshel and Mongar. For these two dzongkhags, HPE teachers from a few schools were contacted via Facebook and the questionnaires were sent to them through email. Prior to the survey the researchers explained to the students the purpose of the survey and the process for responding to each of the items in the survey to avoid any confusion. A total of 1087 (72.5% response rate)

students responded to the survey out of 1500 questionnaires distributed.

The questionnaire had a total of 28 items, first two were related to demographic information while the other 26 were based on a 5-point Likert type items ranging from Strongly Disagree (1), Disagree (2), Neither Disagree nor Agree (3), Agree (4), and Strongly Agree (5), measuring five different themes: i) attitude towards HPE (6 items); ii) perception of teacher's instruction (4 items); iii) perception of the benefits of HPE (7 items); iv) attitude toward participation in HPE classes (5 items); and perception of support system for resources (4 items).

Data Analysis and Findings

Statistical Package for Social Science (SPSS) version 23, was used for analysis. After entering the data from the questionnaire into SPSS database, a thorough screening process was undertaken to confirm that the data were entered correctly and to understand the distributive analysis of the items. A few wrong entries were sorted out after crosschecking with the original responses in the questionnaire. Items showed no substantive none normality in terms of values. The cases of missing values were also observed to be minimal and without any patterns. The presentation and analysis of data are grouped into three categories answering each of the three research questions: i) overall level of student attitude and perceptions related to different themes; ii) correlation analysis to check if the five themes have any significant relationship or not; iii) MANOVA analyses to compare student attitude and perceptions in terms of gender, class level and location of the school.

Demographic Information

A total of 1087 upper primary students responded to the survey from eight dzongkhags (see Table 1).

Table 1: Demographic characteristics (n=1087)

Characteristic	Category	n	%
Class level	4	380	35.0
	5	342	31.5
	6	365	33.6
Gender	Male	568	52.3
	Female	519	47.7
Location	Urban	730	67.2
	Semi-urban	357	32.8
Dzongkhag	Samtse	87	8.0
	Chukha	262	24.1
	Paro	124	11.4
	Thimphu	184	16.9
	Haa	251	23.1
	Pemagatshel	81	7.5
	Mongar	98	9.0

Level of student attitude and perceptions

To understand the overall level of student attitude and their perceptions of HPE, the score for each item under each of the five themes (theme 1= 6 items; theme 2= 4 items; theme 3= 7 items; theme 4= 5 items; and theme 5= 4 items) were aggregated to compute a mean score for each theme (see Table 2).

Table 2: The five themes with mean and SD

Sl. No.	Theme	N	M	SD
1	Attitude towards HPE	1087	4.26	.59

2	Perceptions of teachers' instruction	1086	4.14	.63
3	Perceptions of benefits of HPE	1087	4.36	.52
4	Attitude towards participation in HPE classes	1058	4.00	1.38
5	Perceptions of support system for resources	1085	4.06	.77
	Valid N (listwise)	1056		

As shown in Table 2 above, all the themes scored a mean between 4.00 and 4.36. For a five-point Likert scale items, all the means appear to be on a higher side. However, relatively speaking the student *attitude towards participation in HPE classes* showed the lowest mean with highest standard deviations (M= 4.00; SD= 1.38). This is followed by the student *perceptions of support system for resources* (M= 4.06; SD= .77). This is an indication that students who participated in this research comparatively did not show a robust attitude towards participation in HPE. They tend to show hesitation to participate in HPE classes actively because they are not good in movement skills, do not want to show their body, do not like to interact with others, do not like to wear sports attire, and that their HPE teacher does not like them. Students also showed comparatively lower perceptions of the kind of support they receive to attend HPE in their schools. More specifically the findings showed that schools do not have a good place to conduct HPE classes, no adequate equipment, no regular HPE classes, and no trained HPE teacher. Higher standard deviations of these two themes compared to the other three themes also indicated that these students have differences in their opinion when it comes to the attitude towards participation in HPE classes and their perceptions of support system.

Meanwhile the two themes that showed the highest means were student *perceptions of benefits of HPE* (M= 4.36; SD= .52) and their *attitude towards HPE* (M= 4.26; SD= .59). Such findings suggest that these students

are able to understand the benefits of HPE and that they also exhibit a strong positive attitude toward HPE. Much lower standard deviations demonstrate that these students have a similar opinion that the HPE benefits them by gaining confidence, making friends, improving knowledge on movement and sports skills, developing healthy habits, and help understand the value of regular participation in physical activities. The findings also showed that upper primary students have positive attitude towards participation in competitive activities, playing fun activities, playing sports, HPE classes should be more than one period a week, HPE is for everybody, and that all students get equal opportunities to participate during HPE classes.

Correlation Analysis Between the Five Themes

A correlation analysis was conducted to see if there are any significant correlations between student attitude towards HPE, their perceptions of the benefits of HPE, their attitude towards participation in HPE classes, and their perceptions on support system for resources. As shown in Table 3, significant positive correlations were found between different themes except for students' attitude towards participation in HPE classes and their perceptions on support system for resources. This is an indication that the increase in students' score for one theme is likely to increase the scores for all the other themes. For instance, an increase in students' attitude towards HPE is likely to increase their perception of teacher's instruction, their perception of the benefits of HPE, their attitude towards participation in HPE classes, and their perception on resource support system for HPE. Therefore, it is imperative that schools and HPE teachers give their best to inculcate positive attitude towards HPE, higher perceptions of teacher's instruction, higher perceptions of the benefits of HPE, positive attitude towards

participation in HPE classes, and higher perceptions on support system for resources. Meanwhile, students' attitude towards participation in HPE classes does not seem to have any relation on their perception of whether the schools get good support in terms of resources or not for HPE classes.

Table 3: Correlations between different themes

		HPE programme	Instruction	Benefits	Participation	Support
HPE programme	Pearson Correlation	1	.559**	.332**	.768**	.125**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	1087	1086	1087	1058	1085
Instruction	Pearson Correlation	.559**	1	.302**	.545**	.168**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	1086	1086	1086	1058	1084
Benefits	Pearson Correlation	.332**	.302**	1	.091**	.241**
	Sig. (2-tailed)	.000	.000		.003	.000
	N	1087	1086	1087	1058	1085
Participation	Pearson Correlation	.768**	.545**	.091**	1	.007
	Sig. (2-tailed)	.000	.000	.003		.828
	N	1058	1058	1058	1058	1056
Support	Pearson Correlation	.125**	.168**	.241**	.007	1
	Sig. (2-tailed)	.000	.000	.000	.828	
	N	1085	1084	1085	1056	1085

**. Correlation is significant at the 0.01 level (2-tailed).

Comparison of student attitude in terms of their class level, gender and location

A total of three one-way MANOVAs (Multivariate Analysis) were conducted between the five themes (attitude towards HPE, perception of

teacher's instruction, perception of the benefits of HPE, attitude towards participation in HPE classes and perception on support system for resources) as dependent variables and three demographic characteristics (class level, gender, and location) as independent variables to explore if there were any statistically significant differences in the scores of the five dependent variables. Inspection of Box'M Test showed significance ($p < 05$) for two MANOVAs (class level and location) indicating that observed covariance matrices of the dependent variables were not equal across groups. However, an examination of the standard deviations for various groups showed that differences were minimal. Levene's tests for each of the five dependent variables were produced to check homogeneity of variances. While two of the dependent variables (gender and location) were not significant ($p >.001$) for each MANOVA, attitude towards HPE, attitude towards participation in HPE class, and perception on support system for resources in terms of class level showed significant ($p > .001$). However, inspection of the standard deviation for these three themes showed relatively small differences between the grouping categories, which suggested that violation of the assumption of homogeneity of variances had not been very serious. Thus, the findings indicated that the MANOVA should be interpreted.

Results of Multivariate F-tests

The overall MANOVA F-tests (see Table 4) showed significant difference for class level and location and marginal significance for gender.

Effect	Wilks Lamda	F	Hypothesis df	Error df	Sig.	Partial Eta

						Squared
Class	.938	6.811	10.000	2098.000	.001	.031
Location	.933	15.148	5.000	1050.000	.001	.067
Gender	.985	3.244	5.000	1050.000	.007	.015

Table 4: MANOVA results showing significant differences

MANOVA effect	**Dependent variable**	**Type III Sum of Squares**	**df**	**Error df**	**F**	**Sig.**	**Partial Eta Squared**
Class	Benefits of HPE	7.072	2	1053	13.539	.001	.025
	Support systems for resources	12.749	2	1053	11.010	.001	.020
Location	Attitude towards HPE programme	13.192	1	1054	38.966	.001	.036
	Teacher's instruction	15.725	1	1054	42.616	.001	.039
	Benefits of HPE	4.731	1	1054	17.977	.001	.017
	Participation in HPE classes	17.087	1	1054	9.001	.003	.008
	Support system for resources	11.582	1	1054	19.985	.001	.019

Results of Univariate F-tests

Univariate F-tests were examined for class level, location, and gender to identify which theme contributed to the significance. Furthermore, Posthoc Tukey HSD multiple comparisons tests were consulted for class

level to identify which categories were significantly different. According to the results of univariate F-tests as shown in Table 5, benefits of HPE and support system for resources showed significant differences on class level. Attitude towards HPE programme, teacher's instruction, benefits of HPE, and support system for resources showed significant difference and participation in HPE classes showed marginally significant differences on location. However, examination of the effect size as measured by Partial Eta Squared (see Table 5) for all the significant variables indicated that the actual variance explained in the mean values between various categories were very small. Meanwhile, none of the themes showed significant differences on gender.

Table 5: Tests of Between-Subjects Effects with significant results

Inspection of mean and standard deviations for each of the grouping variable showed the following results:

In terms of class level, the mean for perceptions of benefits of HPE and support system for resources differed significantly. Consultation of Posthoc Tukey multiple comparison tests showed that class 5 students' mean was significantly higher (M = 4.48; SD = .51) than for Class 4 students (M = 4.31; SD = .51) as well as for class 6 students (M = 4.31; SD = .52). Furthermore, Class 4 students' mean for perception on support system for resources was significantly higher (M = 4.21; SD = .77) than for Class 5 students (M = 3.99; SD = .82) as well as for Class 6 students (M = 3.98; SD = .70).

In terms of location, the mean for urban students were significantly higher than the mean for semi-urban students for all the five themes (see

Table 6).

Table 6: Mean and SD for location of the school

Theme	Urban		Semi-urban	
	Mean	SD	Mean	SD
Attitude towards HPE	4.33	.57	4.09	.61
Perception of teacher's instruction	4.22	.63	3.96	.56
Perception of benefits of HPE	4.41	.50	4.27	.54
Attitude towards participation in HPE classes	4.09	1.36	3.82	1.41
Perception on support system for resources	4.14	.76	3.91	.76

Discussion

While there is lack of research in the Bhutanese context, there have been numerous studies conducted to understand student attitude toward HPE in other contexts. This is an indication that student attitude plays an important role in the success of the school HPE. However, most of these research works are at the secondary schools (Atan & Imamoglu; 2016; Pirot, 1993; Ramiz, 2009; Rikard & Banville, 2006; Villegas, 200; Zeng, Hipscher, & Leung, 2011) and not much at the primary school level (Adamcak & Bartik, 2014; Phillips & Silverman, 2015). Therefore, this study adds to the existing literature on upper primary student attitude toward HPE from the Bhutanese perspective. Understanding primary school student attitude is more important as they are in their foundation years. When students in the primary school develop positive attitude, it is likely that they also become active outside of the school. These students will not only experience success in their HPE classes throughout their school life, but also become active and healthy adults. This has the potential to contribute towards achieving the national vision of gross national happiness.

Findings from this study corroborated with earlier findings of Phillips and Silverman (2015) and Adamcak and Bartik (2014) that upper primary

students generally exhibit a positive attitude toward HPE. Furthermore, this study also showed that upper primary students in Bhutan have higher perceptions about their teacher's instruction, benefits of HPE classes, and support system for resources. Such findings indicate that HPE is likely to be successfully implemented in the Bhutanese schools. However, relatively speaking student attitude toward participation in HPE classes and their perception of support system for resources were not as robust as other themes.

This study found that student attitude toward HPE, their perception of teacher's instruction, perception of benefits of HPE, attitude towards participation in HPE classes, and perception on support system for resources were positively correlated against each other. This is an indication that each of these themes have an influence over the other and that relevant stakeholders such as the MoE, REC, school management and teachers provide more emphasis on supporting students experience success in their HPE. Meanwhile, student attitude towards participation in HPE classes and their perception of support system for resources did not show any relationship, indicating that student perception toward support system for resources is unlikely to affect the nature of student attitude toward participation in HPE classes.

The overall findings from this study showed that student attitude and perceptions differed in terms of class level and location of school while gender did not show any significant differences. In terms of class level, evidence from this study indicate that class V students had much higher perceptions in terms of benefits of HPE compared to the Classes IV and VI students. As shown by earlier research (Adamcak & Bartik, 2014; Hodgkin, 2014; Subramaniam, 2018), both Classes IV and VI are in a transitional

period and hence they experience decline in their perception of how HPE benefits them in terms of gaining confidence, making friends, improve my knowledge on movement skills, improve sport skills, develop healthy habits, and importance of participating in regular PA. Class IV students face the transition from lower primary to upper primary and Class VI students from upper primary to lower secondary. However, it is important that in-depth research in the future be carried out to explore deeper meaning behind such differences. In terms of student perception on support system for resources, Class IV students exhibited much higher perceptions compared to Class V and VI students. This finding corroborated with earlier findings that with increase in class level there is decrease in student attitude (Subramaniam, 2018). Furthermore, research also shows that as students enter the age of puberty, they tend to develop negative attitude towards HPE. However, this issue merits further investigation.

Findings from this study confirmed earlier findings of Chatterjee (2013) that students in urban schools revealed positive attitude toward HPE compared to their counterparts in the semi-urban schools. Furthermore, this study found that urban school students had much higher perceptions of teacher's instruction, benefits of HPE, and support system for resources. These findings could be attributed to better facilities and infrastructure in the urban schools compared to the semi-urban schools (Chatterjee, 2013). According to Eraslan (2015) one of the plausible reasons could be related to parents' lifestyle. Parents who exercise and lead active life seems to directly influence the attitude and perceptions of their children toward HPE.

Conclusion

Student attitude plays an important role in determining their future actions. It is therefore important that relevant stakeholders understand student attitude and address any pertinent issues. Findings from the current study revealed for the first time Bhutanese upper primary students' attitude towards HPE, which is an addition to the existing knowledge. This also helps to further expand on the limited understanding of the upper primary students' attitude towards HPE at the international level. Finding from this study has practical as well as policy implications. Teachers and schools need to put in more effort to raise the attitude of the students in terms of participation in HPE classes and provide required resources for the successful conduct of HPE classes. It also has implications for semi-urban schools as well as for the parents. Semi-urban schools need to focus on improving facilities and infrastructure and it is important for parents to model active life style. More such research needs to be carried out at the national level to further validate the current findings.

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Efficacy of the Four-Year B. Ed Primary Programme at Paro College of Education

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Abstract

This tracer study was conducted to explore the efficacy of the four-year B.Ed programme at the Paro College of Education which was launched in 2009. The study employed a sequential mixed methods approach to understanding the efficacy of the four B.Ed Primary programme graduates of the first four batches, 2012-2015 (N=502) beginning with a survey of the teacher graduates (n = 185) followed by in-depth interviews (n = 4) to understand their lived experiences. The findings showed that there are issues related to teachable subjects, professional development programmes, teachers' workload, the irrelevance of some modules, lack of technological know-how, lack of instructional support, gap between theory and practice, and low self-efficacy beliefs. Some other issues in terms of language competency, assessment tools, faculty assessment practices, school curriculum orientation, teaching practice, and optional modules were also identified for review.

Recommendations are provided where relevant to review and redesign the teacher education programme that would produce future teachers who have the knowledge, attitudes, behaviors and skills required to encounter the ever-evolving role of teachers.

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Context of the study

Paro College of Education (PCE) started as a Pre-school Care Training Centre in 1975 with 15 student-teachers. Alongside, a demonstration school was also run as a part of the Centre where the student-teachers could practice their pedagogical knowledge. In 1985, the Centre launched the Primary Teacher Certificate (PTC) Programme (class X graduates) to train primary teachers, followed by *Zhungkha* Teacher Certificate (ZTC) programme to train Dzongkha teachers for secondary schools in February 1993.

To meet the increasing demands for qualified primary teachers, the PTC programme was gradually phased out in August 1999 and was replaced by the Bachelor of Education (B.Ed) Primary programme, initially introduced in 1993 at the erstwhile National Institute of Education, now called Samtse College of Education. The intention was also to create opportunities for higher secondary school graduates who have the attitude and the aptitude to become good primary teachers with undergraduate qualifications.

For 16 years (1993 to 2009), the three-year B.Ed primary programme was a blend of the B.Ed Secondary and the best parts of the PTC course. The structure and content of the programme were similar to that of the B.Ed Secondary (majoring in

two teachable subjects) except that, one major subject was substituted by the primary curriculum. However, the general consensus was that the graduates of this programme were not adequately equipped to teach the primary classes as half of their training programme was focused on teaching one secondary subject. Furthermore, research has shown that while the PTC graduates did well in pedagogy, they lacked in content knowledge (NIE, 2001). At around the same time (in 2000), the Ministry of Education (MoE) started the one-year teacher apprenticeship programme for the high school graduates who were selected to join the three year B.Ed programme. This apprenticeship programme was instituted mainly to relieve the pressure of teacher shortage in the schools (Sherab & Halloway, 2006). With a one-week induction programme, they were sent off to various schools with independent teaching responsibilities. As a result, these pre-service student teachers took four years to complete their teacher training. Due to various problems associated with the apprenticeship programme (see Sherab & Halloway, 2006), the MoE and the two teacher training colleges decided to do away with the apprenticeship programme and instead went for four-year B.Ed.

Thus, the four-year B.Ed programme was launched in 2009. This was a move intended to meet the national demands, the education policies, and the academic regulations of the Royal University of Bhutan (RUB) to make the programme more useful, practical and applicable to the job market. The first batch of this four-year programme graduated in 2012 and since then four batches, a total of 502 students, have passed out and are mostly employed by the MoE. PCE has for over the last four decades fulfilled its obligation of preparing teachers for the primary schools as well as some batches for the secondary schools in Bhutan. As of 2015, the number of teachers graduating from PCE has exceeded well over 5000 (MoE, 2014).

However, with rapid economic, political and societal changes, the quality of teacher graduates is being questioned and the employability of the PCE graduates is no more guaranteed as in the past. A recent introduction of the Royal Civil Service Examination for the teacher graduates has denied employment to some of the

teacher graduates. While the intent and quality of such selection examination can be questioned, teacher education providers cannot afford to be lax and complacent as in the past. Such developments ask important questions to education colleges in terms of the quality of programmes. Are we adequately preparing pre-service teachers for the realities of the 21st-century classroom that is ever becoming dynamic? Are our programmes evidence-based? In such cases, all around the globe, tracer studies have been used as a means of maintaining curriculum relevance and providing targeted benefits to graduates to enhance the marketability of teacher training programmes and employability of their graduates (Bolaane, Chuma, Toteng & Molwane, 2010). Therefore, this tracer study was aimed at achieving the following objectives.

Objectives:

- To find out if the programme prepared B.Ed Primary graduates well to teach at the primary level;
- To evaluate the relevance and effectiveness of the B.Ed primary programme;
- To examine if graduates use the knowledge and skills they have learned during their studies (the link between theory and practice;
- To collect feedback from the graduates to improve the quality of the study programme; and
- To understand the opportunities and challenges of teaching at the primary level.

Literature:

According to Millington, (2006) a tracer study is a graduate or alumni survey that attempts to trace the activities of the graduates or previous students of an educational institution. The Association of African Universities (2002), and Boaduo, Mensah and Babitseng (2009), explain that tracer studies enable the contextualization of graduates of a particular university through a system that is dynamic and reliable in order to determine their life path or movement. It also enables the evaluation of the results of the education and training provided by a particular institution and examines and evaluates the current and future career and employment opportunities/prospects of graduates (Boaduo, Mensah & Babitseng, 2009). According to Schomburg (as cited in Millington, 2006) graduates' job titles, years of employment, nature of employment, income levels, and biographical data can be revealed through tracer studies.

The literature related to tracer studies in the Bhutanese context is limited. It is because the quality of the training programmes was never questioned and the employment of the graduates was always guaranteed thus far. Therefore, a few graduate tracer studies done by the colleges of education came from a strong desire to provide beneficial information and facts regarding the programme and the graduates. The PCE conducted one such study in 2001 on a three-year B.Ed programme. The study indicated that the performance and enthusiasm of the teachers were high in the initial years but gradually dwindled (Wangchuk, 2002). Wangchuk's tracer study explored the link between the training programme and the field realities. Findings showed that almost all the graduates faced problems in the initial years but the majority of them overcame with the professional support from the principals and senior teachers.

The study further revealed that 30 per cent of the graduates surveyed, taught in the upper primary classes despite being trained to teach lower primary levels and majority (60%) of the graduates were weak in teaching poetry and grammar. Findings also showed that many graduates were reluctant to teach Environmental

Studies (in Dzongkha) and Science. While the four year B. Ed programme introduced in 2009 is slightly different to the three-year programme, there are many similarities. Therefore, the main objective of the present study was to find out if there has been any improvement as well as to understand the overall efficacy of the four-year programme.

Another small scale tracer study carried out for the first batch of B.Ed four year programme graduates of the Samtse College of Education found their graduates to be competent in teaching primary classes, although most of them were more technically competent in teaching upper primary classes (Wangmo, Subba, Penjor, Jurme & Yangdon, 2015). The programme helped build graduates' confidence and competence in teaching different subjects in terms of content, methodology, life skills, professional and personal skills. The study also revealed that more modules were required in Science and language subjects. While the programme philosophy and structure is similar between the two Colleges, there could be variations in terms of actual delivery. So, it was considered crucial for the PCE to conduct a tracer study to explore the efficacy of the four-year programme.

Existing literature indicates that the traditional model of teacher education has been largely critiqued for lack of links as well as a balance between theory and practice (Darling-Hammond, 2006; Korthagen, 2011; Korthagen, Loughran, & Russell, 2006; Korthagen & Kessels, 1999; Pantic & Wubbels, 2010). According to Ben-Peretz (1995, as cited in Korthagen, et al. 2006, p. 1021) "traditional approaches to teacher education are generally characterized by a strong emphasis on theory that is 'transferred' to teachers in the form of lectures on psychology, sociology, and general education." Discussing the issue of the gap between theory and practice, Korthagen (2011, p. 32) rightly argues that "the idea of simply transmitting important pedagogical knowledge to teachers, hoping that they will apply this knowledge in their practices, does not really work." Although a lot of academic dialogue has taken place ever since the issue was first brought to limelight by Dewey in 1904 (as cited in Korthagen, 2011), the issue of the lack of a link

between theory and practice still seems to be relevant in the Bhutanese context. While there is a dearth of literature on the teacher education programmes in Bhutan, there is adequate anecdotal evidence to suggest that Bhutan still follows traditional models of teacher preparation and that there is a gap between theory and practice. As a result, the quality of teacher graduates has been questioned by stakeholders (MoE, 2014).

Therefore, this tracer study was designed to empirically confirm if there is any such issue in the PCE programme. It is timely that the current teacher education model is revisited to align with the realities and needs of the 21st-century classroom. Teacher education is central to any education system. A nation's education system largely depends on the products of the teacher education system. Teachers' knowledge and skills, beliefs and values, assumptions and experiences shape the atmosphere of the classroom (Yero, 2010), students' learning and ultimately the nation's education system. Therefore, this study aimed to fill in the knowledge gap in terms of teacher education pedagogy in the Bhutanese context.

Research question:

Thus, this study addressed the following questions:

- Does the four-year B.Ed programme prepare graduates well to teach at the primary level?
- Is the four-year B.Ed programme relevant and effective in terms of curriculum, lecturer quality, assessment system, teaching and learning materials, teaching and learning strategies, and college facilities?
- What are the impacts of the programme with regard to knowledge and skills to be used in the schools, and graduates' self-readiness??
- What are the opportunities and challenges of teaching at the primary level?

Methodology

Research approach:

This tracer study of the four-year B. Ed graduates (N= 502) employed a sequential mixed methods approach beginning with a survey of the teacher graduates (n = 185) followed by in-depth interviews (n = 4) to understand their lived experiences. A combination of both the positivistic as well as interpretive perspectives has been felt necessary for a complete understanding of the nature of the programme and its impact.

Data collection tools:

One of the main data collection tools for this tracer study was a paper-based self-administrative graduate survey questionnaire designed to mainly meet the research objectives outlined above. Further, an interview guide was developed for in-depth interviews.

Sampling:

Sampling for the survey was mainly done through graduates' placement records collected from the MoE. Furthermore, graduates were also traced through the researchers' social media connections such as Facebook and WeChat. Stratified random sampling based on the region (East, North, South and Central), year of graduation, and gender, were used to select graduates for survey participation. One of the research team members visited a particular region for the survey. For an in-depth interview, purposeful sampling of four graduates (all from the Northern region) was selected. Interviews were mainly used to further understand and gauge plausible reasons for the survey findings.

Ethical consideration:

Ethical clearance was obtained from the Centre for Educational Research and

Development. Further, access to the research sites was sought from the MoE through a written letter by the Director General, Department of School Education and survey participants were provided with a participant information sheet and interview participants signed the consent form.

Data presentation and analysis:

Data analysis and interpretation is presented in terms of demographics, subject/s taught, additional responsibilities, demand for PD programme, school infrastructure and facilities, professional support, preparation in terms of professional content, subject-wise methodology, and to be a responsible and resourceful animator, accessibility of learning materials, practical applicability of various methods, use of smartphones, and teacher self-efficacy beliefs, teacher graduates' recommendations to strengthen the programme, teacher graduates' perceptions of whether they would recommend their son/daughter to attend the programme. In presenting the data, the survey respondents are referred to as SR1, SR2…and SR185, and the interview respondents as IR1, IR2, IR3 and IR4.

Demographics

A total of 185 graduates of 2012-2015 responded to this study survey (see Table 1).

Table 1: Demographic (N=185)

Characteristic	Category	n*	%
Gender	Male	73	39.5
	Female	112	60.5
Year of graduation	2012	27	14.6
	2013	34	18.4
	2014	64	34.6
	2015	60	32.4

Number of schools served	1	139	75.1
	2	33	17.8
	3	4	2.2

*Totals do not add up to 185 due to missing values

Current Teaching Subject/s

There are a greater number of graduates teaching English and Mathematics while subjects like Dzongkha, EVS, Science, Social Studies and HPE were comparatively taught by a lesser number of graduates (Table 2). On average, these graduates have been teaching 29.7 periods per week which roughly translates to about five hours of teaching every day.

Table 2: Current teaching subject (N=185)

	Dzongkha		English		Maths		EVS		Science		Social Studies		HPE	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
No	132	71.4	52	28.1	65	35.1	101	54.6	109	58.9	122	65.9	114	61.6
Yes	53	28.6	133	71.9	120	64.9	84	45.4	76	41.1	63	34.1	71	38.4

Additional Responsibilities

More graduates have taken up clubs and housemaster/mistress responsibilities while a smaller number of graduates are given other responsibilities (see Table 3). This means that teachers spend number of hours in the school besides their regular teaching workload.

Table 3: Additional responsibilities (N=185)

	Store		Sports		Cultural		Staff Secretary		Club		SMB	
	n	%	n	%	n	%	n	%	n	%	n	%
No	153	82.7	137	74.1	144	77.8	152	82.2	43	23.2	137	74.1
Yes	30	16.2	47	25.4	40	21.6	32	17.3	141	76.2	47	25.4

Additional responsibilities continued…

	Housemaster		Community service		Mess		Teacher Librarian	
	n	%	n	%	n	%	n	%
No	65	35.1	154	83.2	163	88.1	147	80.0
Yes	119	64.3	30	16.2	21	11.4	36	19.5

Subject-wise Demand for PD Programmes

Number of graduates have been looking forward to attending PD programmes in English, followed by Mathematics and Science (Table 4). All the four interviewees argued that they need PDs on 'teaching sound' to primary children while two of them suggested PDs on classroom management.

Table 4: Demand for in-service PD programmes (N=185)

'	Dzongkha		English		Maths		EVS		Science		Social Studies		HPE	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
No	150	81.1	64	34.6	103	55.7	151	81.6	113	61.1	152	82.2	131	70.8
Yes	35	18.9	119	64.3	81	43.8	34	18.4	72	38.9	33	17.8	53	28.6

School Context (infrastructure and facilities)

The teacher graduates' perceptions of the school context in terms of the school location school, number and size of classrooms, ventilation/lighting, sanitation, water supply, electricity, playground, hostel, dining hall, staffroom, staff quarter and library facilities was measured using a five-point Likert type scale (1= Very poor; 2= Poor; 3= Satisfactory; 4= Good; and 5= Very Good). Findings indicate that the graduates' perceptions were just above satisfactory (M= 3.35; SD= .73) with the existing school infrastructure and facilities. This was further confirmed by the interviewees who did not have anything negative to share about infrastructure and facilities. However, it is important to note that all the interviewees were from urban and semi-urban schools. It is most likely that rural and remote schools would have different perceptions.

Professional Support

The professional support that the graduates received from stakeholders were measured using a four-point scale (1= None; 2= Once; 3= two to four times; and 4= More than five times). The frequency of professional support they received appeared to be minimal especially from EMOs and DEOs (Table 5). However, these graduates appeared to be receiving more professional support from their colleagues in the school and from the principal. All four interviewees supported the perception that they receive satisfactory support from all three stakeholders. Conversely, IR2 thought that it would be more beneficial if they received support from the Royal Education Council (REC).

Table 5: Professional support

Sl no.	Items on professional support	N	Mean	SD
1	Professional support received from the head teacher	179	2.96	.91
2	Professional problems discussed with colleagues	182	3.44	.78
3	Professional support discussed with children's parents	181	2.66	.85
4	DEO's classroom visits this academic year	179	2.28	.80
5	EMO's classroom visits this academic year	177	1.56	.74

Preparation in terms of Professional Content

The professional preparation in terms of knowledge, skills, experiences in relation to current teaching subject/s, and experiences in relation to the present school situation were measured using a four-point scale ranging from: Not relevant (1); Partially relevant (2); Relevant (3); and Very relevant (4). Generally, findings showed that preparation in terms of professional content was just relevant (M= 2.99; SD= .49). This is further supported by data from interview and open-ended comments. The findings are grouped into two categories: relevance and irrelevance of the programme.

The relevance of the Programme

Sixteen respondents (including 4 interviewees) indicated that all the modules were relevant and useful in teaching and confirmed that they were still using them. A few respondents were positive that the programme was relevant to them. For instance, SR58 maintains that "if a teacher is creative, one's knowledge and skills can be integrated into other subjects that makes [a] lesson more meaningful." Similarly, SR49 stress that it "depends on the individual, if we know how to use it, there is nothing as useless."

According to IR1 the modules such as Creative Arts, Reading and Writing, Mathematics have been categorised as useful modules. The strategies in Mathematics (IR1 & IR2) and English (IR4) used by lecturers in the college were similar to the strategies used in the school, therefore, they are useful. However, IR4 asserts that the methods used in Mathematics are not so applicable. IR2 and IR3 highlight that the knowledge gained from 'Child Psychology' has helped in understanding and dealing with children. They further acknowledged that Teaching Practice (TP), teaching strategies, teaching skills and methods learned were all relevant and useful. For IR3, skills gained from HPE modules has helped him in organising sporting activities.

In terms of specific teaching strategies, demonstration, lecture methods, values and attitudes, role play, use of teaching-learning materials, and storytelling were cited as good strategies. Participants also endorse that activities such as cultural shows and club activities were useful given that they had to often organise such activities in their schools.

Irrelevance of the Programme

Findings demonstrate about thirteen modules as irrelevant. The modules are listed and discussed in the order of their unpopularity in terms of the frequency of comments.

1. Knowing, Learning, and Teaching

A total of 34 respondents viewed this module irrelevant for three reasons. First, it is too philosophical, theoretical, and impractical. Second, the content of the module is vast, confusing and difficult to understand. It is found to be difficult to teach as well as to learn. The graduates were not sure of how, why and where to use the knowledge gained. Third, this module does not have any direct relation to their teaching.

2. Bhutanese Education System

Findings suggest that the Bhutanese Education System module is not relevant because it is not directly applicable in their teaching. For instance, SR1 states that the module is of "no use in the field when teaching other subjects", and along the same line, SR168 clarified that, "I could not use the idea acquired in any field." Some graduates were of the opinion that it is not necessary to have this module since the content of this module is learned in the process of learning other modules.

3. Curriculum Studies

The Curriculum Studies module was also found to be irrelevant as it is not applicable in the field. For instance, SR156 and SR157 argued that "designing of the curriculum is done by others." Even if the teachers are involved in the curriculum design, it happens only "after many years" (SR23). Such a finding is an indication that these teachers are not aware of the underlying principles and philosophies of why pre-service teachers have to learn about designing and framing curriculum documents. Perhaps there is a lapse in the delivery of the module wherein the importance and its applicability are not understood by the students.

4. Multigrade Teaching

'Multigrade teaching' is yet another module viewed as not relevant mainly due to lack of multigrade classes. While this is true to these graduates, some others (SR62; SR89; SR65) who teach in multigrade situation think that the content learnt in the module is not applicable in a real multigrade situation, or rather the module is not enough to train students to deal with multigrade situations efficiently. This is an indication that this module has to be either strengthened or be done away completely.

5. Health and Physical Education (HPE)

Given the current situation in the schools, findings revealed that the HPE modules are also irrelevant. This is mainly because graduates do not have to teach as there are specialised HPE teachers in the schools and also that the College started a specialised course to prepare HPE teachers.

6. Environmental Studies

Some of the graduates (e.g., IR2; SR6; SR47; SR159) viewed the Environmental Studies module as irrelevant. Firstly, they are not competent to teach the subject in Dzongkha and secondly, they find the EVS content similar to that of Dzongkha. They rather suggest that the time allocated could be given for other important modules.

7. Early Childhood Education

Two respondents felt that the ECCD module is not relevant because they do not have to teach in the ECCD centres and moreover that there are separate ECCD facilitators in their schools to guide and teach small children.

8. Dzongkha

IR3 and SR4 felt that the Dzongkha modules are not required because they cannot teach Dzongkha. Moreover, there are trained Dzongkha teachers to teach Dzongkha at the primary level. Findings also showed that Dzongkha is one of the subjects that was least taught by these graduates.

9. Creative Arts

SR17, SR18, and SR132 think that the modules on Creative Arts are not relevant. These graduates argue that they do not have to teach arts since there is a trained art teacher in every school. Furthermore, findings maintain that there is hardly any difference between the two Creative Arts modules.

Preparation to be a responsible and resourceful animator

The preparation to be a responsible and resourceful animator in the society was measured using a four-point scale ranging from- Not relevant (1); Partially relevant (2); Relevant (3); and Very relevant (4). Findings showed slightly above relevant (M= 3.05; SD= .51) indicating that the preparation of graduates to be a responsible and resourceful animator in the society needs to be further strengthened.

Accessibility of learning materials

Teaching-learning materials are an important part of the teaching-learning process. Teacher graduates' perceptions of whether the learning materials are accessible or not were measured by using four-point scale (1= Not accessible; 2= Rarely accessible; 3= Accessible; and 4= Very accessible). The score (M = 2.95; SD = .53) indicates that the learning materials are accessible. Interview data corroborated with the survey findings that the materials are enough and available, but sometimes they prepare whatever is not enough. Some of the common stationeries that they get are, cello-tapes, marker pens, charts, and scissors from the

school and when it is not enough, they buy their own.

Subject-wise Methodological Preparation

The teacher graduates' perceptions of subject-wise methodological preparation were measured using a five-point scale (1= Never; 2= Rarely; 3= Sometimes; 4= Often; 5= Always; and N for Not Applicable). Mathematics and HPE scored the least with a mean of 2.92 and 2.91 (Table 6). However, the scores for other subjects in terms of preparation to teach using various student focused methods are also not robust. All subjects scored just above average with small standard deviations.

Table 6: Preparation at PCE

Sl no.	Preparation to teach using various methods	N	Mean	SD
1	English	175	3.21	.64
2	Dzongkha	157	3.11	.69
3	Mathematics	166	2.92	.58
4	Science	157	3.03	.59
5	EVS	159	3.04	.64
6	Social Studies	151	3.09	.62
7	Health and Physical Education	151	2.91	.70

The subject-wise practical applicability of various methods

The teacher graduates' perceptions of the subject-wise practical applicability of various methods were measured using a five-point scale (1= Never; 2= Rarely; 3= Sometimes; 4= Often; 5= Always; and N for Not Applicable). Practical application of various methods in daily teaching for all subjects scored (Table 7) between a mean range of 3.14 (HPE) and 3.62 (Social Studies).

Table 7: Practical application of various methods

Sl no.	Practical application of various methods in daily teaching	N	Mean	SD
1	English	137	3.56	.50
2	Dzongkha	60	3.38	.68
3	Mathematics	116	3.20	.54
4	Science	79	3.49	.55
5	EVS	90	3.46	.62
6	Social Studies	71	3.62	.54
7	Health and Physical Education	68	3.14	.60

Use of smartphones

The teacher graduates' perceptions of the use of smartphones were measured by using a five-point scale (1= Strongly disagree; 2= Disagree; 3= Neither agree nor disagree; 4= Agree; and 5= Strongly Agree). It is encouraging to note that the graduates are using smartphones for teaching and learning (Table 8). However, students are not allowed to use smartphones in the class.

All the four interviewees agreed that smartphones are a good tool for learning but they do not allow the students to use them. Firstly, R1 said that it was a distraction for the students because they do not know how to use them judiciously. R2 reasoned that their school has Wi-Fi and IT labs available for students to use as and when they like. Similarly, R3 confirmed that their school keeps the IT labs open even on weekends to provide students access to the internet for learning. In case they need to use it for something important, they allow them to use the device in the teacher's presence. R4 further reasoned that owning a smartphone can widen the gap between the rich and poor. Students who cannot afford would be negatively affected. So, it was decided in the teachers' meeting that the students would not be allowed to use smartphones.

Table 8: Use of smartphones

Sl no.	Component	N	Mean	SD
1	I use smartphones for my personal use (teacher)	180	4.10	1.07
2	I use smartphones for teaching-learning	180	4.20	.79
3	I use smartphones for teaching-learning in the classroom	180	3.96	.96
4	Students are allowed to use smartphones in the class	179	1.60	1.12

Teacher self-efficacy beliefs

Teacher graduates' self-efficacy beliefs (SEB) was measured by employing the original version of teachers' sense of SEB instrument developed by Tschannen-Moran and Woolfolk (2001) using a nine-point scale (1= "Nothing" (no influence); 3= very little; 5= some influence; 7= quite a bit; to 9= A Great Deal of influence). In addition to this, teachers' SEB scale to design and teach GNH values lessons developed by Sherab (2017) was also employed. The scores for both the scales were just around 'quite a bit of influence' (Table 9).

Table 9: Teacher self-efficacy beliefs

Sl no.	Component	N	Mean	SD
1	General Teacher Self-Efficacy Belief (classroom management, instructional strategies and student engagement)	184	7.24	.90
2	Teacher Self-Efficacy Belief for infusion of GNH values	184	6.96	1.39

Graduates' recommendations

Analysis of the feedback offers a range of areas for attention in relation to the intervention that PCE needs to undertake to ensure that the programme is up-to-date and relevant to the current context. The following are some of the areas that the graduates have identified for potential intervention:

Reform Teaching Skill/Strategy Module and Practices:

Participants predominantly mentioned the need for reform in the teaching strategy and skill modules. The current skill and strategies module offered does not adequately prepare them for the real classroom situation. Graduates (n=55) emphasized the need for the introduction of Transformative Pedagogy (TPd) in the B. Ed curriculum. This they would like to either incorporate it into the existing modules like Teaching Skills and Strategies or suggested it be offered as a separate module. Majority of the respondents perceived TPd to be effective and applicable in their classrooms because it is child centred (SR41), are able to engage students and its fun (SR52 & SR53).

Perhaps the other motive for their assertion on wanting the inclusion of TPd curriculum could be because of the current drive in the nation's education system to promote quality education. All the four interviewees supported the idea that the TPd was found to be effective in the school. According to IR1, Kagan's Structure helped children learn from each other and provide equal participation to all students unlike when she was in school. However, R2 and R3 said that the Cooperative Method was already taught at the PCE and it was just that the name 'Kagan's Structure' had not been spelt out.

Another common response in line with this theme is for the faculty to adopt and practise what they preach. It is apparent that many would like to observe every faculty member incorporate a variety of teaching strategies in their own teaching instead of relying only on the lecture method. This according to the graduates does not help in boosting their motivation to learn. Some graduates also suggest providing a balance between theory and practice in their lessons. Majority of the modules are thought to be theory oriented with the faculty using lecture and presentation method most of the time.

Subject Specialization:

The need for subject specialization is the second most predominant area that the majority of the graduates felt the College needs to initiate. The analysis shows two clear reasons for their suggestion. They feel that specialization in one or two subjects would enable them to focus and concentrate on the specific subject area. It would also allow them to delve deeper and enhance their content knowledge, which in turn would enable them to teach effectively. The current curriculum orients pre-service teachers to a variety of modules but does not prepare them adequately. SR80 rightly comments on the breadth and lack of depth of subject specialization, "I would like to suggest the college to provide electives to the B. Ed general students because I experience that we are like a jack of all and master of none."

Not having the opportunity to specialize in a specific subject area seems to have hindered their scope for further studies as they are not able to compete with other secondary teachers who have specialized subjects for teaching. Since the general four-year B. Ed course does not specialize in any specific subject area, they are disadvantaged as one of the criteria for selection of candidates for further studies is always subject specialization. There seems to be confusion in terms of the term 'specialization'. Perhaps these graduates and other relevant stakeholders do not understand that the B. Ed primary course itself is a specialization- specialization in Primary Teaching.

Language Competency:

As English and Dzongkha are the media of instruction in the schools, the graduates felt the need for every graduate to be competent in their spoken and written language. Several graduates offered the observation of not being confident in their professional practice due to poor language skills. To help with the improvement of language proficiency, especially in English, they recommend the College to provide a solid grounding in grammar and phonetics, while some

suggestions have been on having more modules in English instead of other professional modules. Some examples of striking statements from the graduates are:

> I would suggest PCE to give more opportunities to build competency in both English and Dzongkha languages (SR178)
> Focus more on academic particularly the language to promote speaking skills which is a important tool to inspire and motivate our students (SR59)
> It would be grateful if PCE could orient the B. Ed Pry on English content (language subject-verb agreement, writing compositions and letters/statements) which is relevant in the field
> Teaching content relevant to the English text: facing problem to teach English content (SR74)
> Focus more on language- Communication is a must for teachers (SR88).

Another important finding of this study suggests that the graduates are incompetent to teach Dzongkha. If they have to continue teaching Dzongkha, they suggest the College develop interesting Dzongkha modules to equip them with necessary knowledge and skills. Otherwise, they recommend Dzongkha to be taught only by Dzongkha teachers.

Assessment:

The necessity for proper training on assessment and faculty's assessment practices featured quite frequently in the graduates' comments. Most of them seemed not to be adequately trained in assessing their students, specifically in developing and using various Continuous Assessment (CA) tools. More time and thorough training on the development and usage of CA tools such as rubrics are suggested (SR31, SR130, SR163).

Graduates have further questioned the credibility of the faculty's own assessment practices. Being lenient, biased and assessing assignments without proper CA tools. Some of the prominent comments are shared below:

> Assessment should be done fairly especially with the TP marks (SR123).
> Relook into the assessment process… getting demotivated and losing interest in the learning when lenient tutors grade their trainees blindly. There are few

> lecturers who are not fit (SR85). To be strict while assessing student teachers' assignments and presentations (SR31).

Assessment issues were also raised by the interviewees. For instance, IR3 suggest "tutors must take measures to avoid duplicating or plagiarizing seniors' assignments. The tutors could change the pattern of assignments or change the assignment topics from semester to semester." It has been noticed that students who copy assignments have always received higher marks than the others.

School Curriculum Orientation:

About ten graduates felt the need to thoroughly orient trainees to the school curriculum such as textbooks, manuals and workbooks. From their experience, it is clear that graduates with a good orientation to school curriculum materials are more confident and successful in delivering their lessons compared to those who are unfamiliar with the school curriculum materials. Additionally, regular curricular review for maintaining the relevancy of the courses in the College is also recommended.

Administratively, graduates also seem to suggest the College's lack of awareness of the realities of the school situation. One graduate mentioned that most of the strategies implemented in the field are quite different from what they learn in the College. Thus, time to time interaction and visit some of the schools are recommended.

Compulsory Module for ICT, Action Research Project and Counselling:

Some of the modules currently offered as optional modules are recommended to be launched as compulsory modules. Specifically, modules such as ICT and Action Research project as well as Counseling to be compulsory modules for the B. Ed primary. Some of the reasons for their suggestions are:

> ICT in teaching-learning should be a compulsory module (Why?) its 21st century where we can make the best use of social media and electronic gadgets (SR135).

Include technology-based teaching, it is needed with our world moving with technology (SR102).

Need to make ICT and research module compulsory for all teachers as it is useful (SR121).

Making ICT more accessible, familiarize with the new skills and strategies which suits the current context (SR12).

GNH and Life Skills

Given the current importance of life skills, an overwhelming number of teacher graduates advocated bringing in GNH values and life skills module into the teacher education. According to SR23, "philosophy of GNH is relevant while planning, teaching in the classroom, and in the school. So, it must be taught [in the college]." Based on their experiences, many graduates (e.g., SR50, SR84, SR92, SR96) insist that life skills module must be combined with GNH values to prepare future teachers to deal with the infusion of values into their teaching subjects.

Selection Interview

Besides the curriculum, quite a number of graduates described the benefits of screening the suitable teacher candidates through written as well as oral interviews. The first benefit discussed by the graduates reflected the process of filtering and allowing the best students to join the profession. Interviews would help identify the people with the right attitude and enrolling those genuinely interested in the teaching profession. Similarly, a teaching degree is viewed differently than other degrees. A teacher is a role model for students. So, it is important for a teacher to possess certain personal qualities such as good communication skills and the need to be morally and mentally sound. Thus, oral interviews will probe to see if the candidate is academically and holistically fit to be a teacher.

Secondly, focus and effort can be garnered more towards quality rather than on quantity; making the graduates more competitively marketable in the current job market.

Teaching Practice

R2 suggested that the Teaching Practice (TP) marks be moderated. The TP marks, which is based on the individual SL and Mentor teacher are usually quite high. This can make a big difference in the overall result, which impacts the RCSE result upon graduation. Furthermore, R4 suggested that the total number of lesson plans required during TP needs to be reduced to allow the student teachers to focus on learning content and the actual practice of skills.

Whether the graduates would recommend their daughter/son to pursue B.Ed

Teacher graduates' perceptions on whether they would recommend their daughter/son to pursue B.Ed course appeared to be divided. A good number of participants were willing to recommend B.Ed because teaching is a lifelong learning process, a noble profession, and one never stops learning. It helps one grow intellectually, physically and emotionally (SR136, SR150). Likewise, SR180 viewed it positively:

> Yes, being a teacher is not easy. To be equipped with the skills, strategies and determination needs a long course of study in the education itself. Four years would provide enough time for changing one's attitude towards teaching and those who remain determined are the ones with the budding heart of a true teacher.

This view was further supported by SR56, "there are many important modules which can really help [pre-service] teachers to grow spiritually and professionally". Teaching also provides wholesome and spiritual education. Many respondents shared that, teaching inculcates in them the values to shape themselves and the nation; imparts wholesome education; a sense of responsibility and patriotism; and to act as agents of change (SR15, SR34). Similarly, SR54 justified that:

> The knowledge got from this college is just mind blowing and for a person to keep on learning he or she should be put on this avenue to acquire a large number of values and knowledge. A sense of belonging and love for all human beings can be automatically stored in their mind. I would surely

recommend my child to take B.Ed.

According to SR140 teaching is "a sole profession for creating all the other professions, so I would want my child to be a part of the change for the better generations."

On the other hand, there were a sizeable number of graduates (n=31) who were not willing to recommend their daughter/son to pursue the B.Ed course. This was mainly because they felt that the duration of four years is too long, monotonous and they forget some important strategies learnt during their [initial] study period. They prefer the course to be around three years by taking out some of the least important modules.

Furthermore, they did not want their children to undergo the course since there is no job security unlike in the past. If the graduates cannot pass the RCSC examination, they are basically jobless (SR8, SR72). These respondents were of the view that the teaching certificate is not accepted by other agencies outside the MoE. The demand for teachers in the country is also decreasing every year. As a result, most graduates are left without jobs. Instead, they prefer their children to study other undergraduate programmes since they will have more options and opportunities to compete for jobs. They felt that if teacher graduates are not selected by the Government, the avenues for making use of their teaching skills were dismal.

These graduates have also experienced the job of a teacher to be substantial having to shoulder extra workload besides teaching with limited or no benefits. To make matters worse, they feel that teachers are blamed for students' poor performance and disciplinary problems (e.g., SR30). The other reason why they do not want their children to undergo B.Ed is that they feel that society does not value the profession and worth of a teacher. Society does not treat teacher graduates and other graduates at par. As a result, they are not motivated to be teachers. They have the perception that even though their contribution is big but, what they earn is less. So, "I [SR83] do not want my children to have only one career option."

Discussion and Recommendations

This tracer study is the first of its kind to understand and evaluate the efficacy of the four-year B.Ed primary programme introduced in 2009. As shown by the existing literature (Association of African Universities, 2002; Boaduo, Mensah & Babitseng, 2009), findings from this tracer study provide insights into the existing practices in terms of the four-year B.Ed programme and the necessary measures that the College could initiate to redesign and revamp the existing programme to make it current and relevant to the needs of the ever-evolving education system.

First, findings suggest that there are issues related to *teachable subjects*. Currently, these graduates are trained to teach all primary subjects. They spend an enormous chunk of their training time (almost 50%) studying these subjects. However, not all graduates get the opportunity to teach all these subjects. Findings showed that many of these graduates were not teaching subjects like Dzongkha, EVS, Science, SS and HPE. It is now time that the College considers such issues. Perhaps one of the recommendations that came out vividly from the graduates is on the area of subject specialization even for primary teachers. This issue needs to be thoroughly discussed and reviewed in the interest of the general education system.

Second, findings reveal that there is a *demand for PD programmes* for subjects like English, Mathematics and Science. These are some of the important core subjects in the primary schools and if teachers find themselves incapable of teaching these subjects effectively, it is likely that their students also remain incompetent in these subjects as they progress to higher levels. Although there is no research conducted, there is adequate anecdotal evidence to show that Bhutanese students perform poorly in these subjects. Therefore, it is important that stakeholders address this issue at the earliest possible time to help build a strong foundation in these important subjects.

Third, this programme is an outcome of the merger of the two-year PTC and the three-year B. Ed primary programmes. While the main intent of the programme was to provide the best teacher education, this study has shown that there are various aspects that have potentially created a negative impact on the graduates in particular

and the education system in general. As presented above (see irrelevance section), this study has identified some gaps which need to be addressed. For instance, *modules like Knowing, Learning and Teaching, Bhutanese Education System, Multigrade Teaching, HPE, EVS, Dzongkha, and Creative Arts* need to be properly reviewed weighing its pros and cons. Findings corroborate the findings of the earlier tracer study conducted at the Samtse College of Education (Wangmo, et al., 2015).

Fourth, findings from the current study affirm that the teacher graduates' *workload* in terms of teaching hours, as well as the time spent on additional non-academic workload, needs to be reconsidered. This issue has been there for many years now (Sherab & Dorji, 2013) and if not addressed there is a risk that these graduates get burn-out during their initial years itself. Therefore, it is imperative that these beginning teachers experience a smooth transition from being pre-service teachers to being full-fledged in-service teachers so that they gradually develop a life-long yearning for teaching and learning. This could also probably be one of the reasons for the teacher attrition rate getting higher in Bhutan. According to the recent statistics, a total of 345 teachers left the system in 2017 which is on an average almost one teacher leaving the system on a daily basis (Sherig Bhutan, Facebook post 4th April 2018). Such an alarming development is a cause for grave concern and the MoE must take timely and appropriate measures.

Fifth, it is apparent from the findings that it is time now that the College review *Teaching Skills and Teaching Strategy modules*. It would be useful to incorporate more collaborative transformative strategies and pedagogy that would prepare graduates to successfully and meaningfully engage their students in the teaching-learning process. It is also apparent that the subject-wise methodological preparation also needs to be reviewed. The findings highlight that the tutors need to model student-centred teaching-learning approaches.

Sixth, findings substantiate the fact that the entire B. Ed primary programme is reviewed keeping in mind the ongoing rapid development in the field of *information technology*. What is relevant and current today becomes irrelevant and

obsolete tomorrow. Knowledge and skills keep changing on a daily basis. So, future teachers should be taught to be prepared to face such challenges instead of shying away. For instance, when meaningful and effective lessons are conducted through a blended learning approach with the use of modern gadgets and internet facilities, a large proportion of face-to-face contact requirements and use of textbooks is minimized. It is crucial that the College and the RUB, in general, reconsider its academic policies. The recent initiative of the REC in making the teaching of History text-book less is a positive development. Findings corroborate with the earlier study (Sherab, et al. 2017) that MoE has banned students from using smartphones in the schools. It is apparent that the use of smartphones could lead to misuse and create problems. If considered positively, the value and appropriate use of such modern gadgets provide opportunities for the schools and teachers to teach students some highly valuable life-skills. Future teachers should be trained to successfully overcome such challenges instead of shying away from the anticipated problems.

Seventh, the study demonstrates that the graduates receive adequate professional support from their principals and colleagues. Conversely, findings assert that the graduates receive comparatively lesser professional support from EMOs, DEOs and the REC. These are important stakeholders, and their continuous professional support would be crucial especially for novice teachers for a smooth transition. Instead of focussing on administrative issues, EMOs, DEOs and the REC could provide more *instructional support* at the classroom level.

Eight, findings imply that the graduates doubt the practical applicability of various teaching and learning methods that they have learnt. If the graduates do not find what they have learnt practically applicable in the school setting, it is an indication that their training programme has not been able to meet the demands of the field realities. This is an indication that there is an apparent gap between what they learn and the field realities- A *gap between theory and practice,* which is one of the perennial problems worldwide (Darling-Hammond, 2006; Korthagen, 2011;

Korthagen, Loughran, & Russell, 2006; Korthagen & Kessels, 1999; Pantic & Wubbels, 2010; Ben-Peretz, 1995, as cited in Korthagen, et al. 2006). Such findings demonstrate that the programme is reviewed to make it relevant and practical. Hence, reducing the gap between theory and practice.

Ninth, it has been observed that the teacher education programme needs to focus on building teacher graduates' *general sense of self-efficacy belief* which includes three critical aspects of the teaching and learning environment- classroom management, instructional strategies and student engagement. Without a robust sense of teaching SEB, teacher graduates are likely to doubt their teaching capabilities that would in turn negatively impact on their students. Findings also conclude that these graduates doubt their SEB and thereby their inability to infuse GNH values into their teaching subjects. As shown by earlier research (Sherab, 2013), this is also an indication that teacher education programme should prepare future teachers on how to effectively incorporate GNH values and principles into their daily teaching. One of the alternatives could be merging GNH values with the current life-skills module. While there is a lack of evidence, such findings also suggest that the low SEB be connected to the Bhutanese culture of maintaining a low profile and being modest. This is something that needs to be further explored.

Tenth, it is apparent from the findings that the *morale and the status of the teachers* need immediate attention. While the majority of graduates wanted to recommend the teaching profession to their own children, there was a sizeable number (more than 17%) who did not want to recommend their children to take up teaching. This could be attributed to (out of many) lower status accorded to the teaching profession, growing competition for teaching job, heavy workload, fewer opportunities compared to the graduates of other disciplines, and unattractive pay packages for the sizable amount of work. It is more likely that such teachers would leave the profession sooner or later. Such findings merit extensive studies on teacher morale so that appropriate measures are taken.

Finally, the overall findings recommend that the B.Ed Primary programme

structure be reviewed considering the *important and overlapping issues* such as the language incompetence (English and Dzongkha) of graduates, lack of skills to design assessment tools, assessment practices followed by the faculty, a need for school curriculum orientation, teaching practice, and reconsideration of optional modules such as the ICT, action research project and counselling among others. For instance, action research is a mandatory requirement in the schools (MoE, 2014) and it is important that teacher education colleges prepare teachers accordingly. Furthermore, the new IWP (Individual Work Plan) for the teachers demands evidence-based contributions. This is an indication that the teacher education programme provides adequate opportunities to the student teachers for hands-on experience in conducting action research.

Conclusion

As discussed in the preceding sections, it is time for the College to carry out an evidence-based review of the B.Ed Primary programme to make it more dynamic by incorporating some of the latest developments in the field of teacher education. Given the current situation and the likelihood of future developments, it is important that the teacher education programme focuses on a more flexible approach to teacher preparation. Teachers have to undertake complex tasks on a daily basis and they encounter a diversity of students. As shown by the existing literature (Darling-Hammond, 2006; Korthagen, 2011; Pantic & Wubbels, 2010) if the teacher education programmes continue to fail in striking a balance between theory and practice and do not make the programme relevant to the changing needs of the system, it is likely to produce ill-prepared teachers. Such development would be fatal to the nation and could lead to teacher attrition (Darling-Hammond, 2006). Although there is no research conducted, there is enough anecdotal evidence to suggest that this could perhaps be one of the reasons for the growing teacher attrition rate in Bhutan too. Therefore, teacher education programme needs to be designed to prepare future teachers with the knowledge, attitudes, behaviours and skills required to accomplish such complex tasks of 21st Century teaching and learning.

Limitations and Delimitations

There are several limitations and delimitations that may have affected the quality of this study. First, due to limited time and funds important stakeholders such as the school management, officials from the MoE, students, and teacher educators were delimited. Second, semi-structured interviews were conducted with only four graduates, all from the Western region. Therefore, the depth and breadth of qualitative data are questionable. Third, there is a dearth of literature on tracer studies both at the national and international levels.

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RABSEL – the CERD Educational Journal Guidelines for Manuscript

RABSEL – the CERD educational journal

The CERD *Educational Journal* is published twice a year in spring and autumn by the Centre for Educational Research and Development, Paro College of Education, Royal University of Bhutan. The Journal welcomes contributors which promote the exchange of ideas and rational discourse between practicing educators, researchers, planners, administrators, educational thinkers and practitioners, learners and policy makers from Bhutan and abroad. To this end the Journal publishes articles on empirical and theoretical studies, research reports, commentaries and scholarly reviews that attempt a systematic analysis or synthesis of educational processes and systems from different viewpoints and approaches.

Notes for Contributors

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Project reports

These articles will be shorter and more preliminary reports about interesting

educational projects (innovative courses, learning communities, etc.). Several of these reports could be published in each issue. The focus of a project report is on the progress or outcomes of an academic innovation that addresses issues in education.

PREPARATION OF MANUSCRIPT

1. The complete title of the paper, the names of the author(s), institutional affiliations, e-mails, and other identifying material should be typed on a separate sheet/the title page only to assure anonymity in the review process. The first text page of the article should have the complete title of the manuscript, but not the names of the author(s).

2. The length of manuscripts should be not more than 5000 words.

3. All manuscripts should be sent with an abstract of *150–200 words* and 4 to 5 keywords. The abstract should be placed preceding the paper.

4. Articles should be double spaced and 12-point, Times New Roman font. Do not use forced section, page breaks, or automatic footnotes.

5. Make sure to provide complete, APA-formatted references and text citations, making sure the two correspond exactly. Pages 207–281 of the *APA Manual* (fifth ed.) detail these guidelines.

6. Change all instances of passive voice to active voice whenever possible, as these changes will be necessary before publication. Spell out each acronym at its first use.

7. Set all margins to 1 inch.

8. Format for 8½ in. x 11 in. paper. Do not format for A4 paper.

9. Please type all copy upper and lower case—do not use all capitals or small capitals.

10. Place all figures and tables in a separate file. Tables need not be double spaced. Indicate the location of tables and figures in text in boldface, enclosed in angle brackets, on a separate line.

Example: **<Fig. 1 here>**

All figures must be camera-ready, suitable for reproduction. Figures will not normally be redrawn by the publisher.

11. Please use your tab key and centering functions to do head alignment, paragraph indents, etc. DO NOT USE THE SPACE BAR.

12. Use endnotes as sparingly as possible. Number them with Arabic numerals starting with 1 and continuing through the article; for example: "(see Note 1)." Do not use footnotes.

Artwork

Figures must be provided as production-ready. Do not use rules or tick marks smaller than 1 point in size. Acceptable electronic formats for figures or other art are: TIFF, EPS, Word, or Excel. If you have trouble loading Excel files, copy and paste them into a Word document. Scans must be of high resolution. Scans done at lower resolutions will have a very poor print quality even if they look crisp and clear on a laser printout.

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