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**Volume 22, Issue – 1**
**Spring 2021**

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# Bhutanese Pre-service Teachers' Self-Efficacy Beliefs towards Teaching Secondary Mathematics

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## Abstract

*Prospective teachers' self-efficacy beliefs determine the success of teaching and learning in their future professional practices. Teachers with high self-efficacy are believed to have more confidence and success in teaching as compared to those teachers with low self-efficacy. Thus, this study aimed at examining the Bhutanese pre-service teachers' self-efficacy beliefs towards teaching secondary[1] mathematics. The study employed a survey design within the positivist methodological framework. The study consisted of 81 pre-service teachers who responded to the secondary mathematics teachers' self-efficacy beliefs questionnaire (SMTSEBQ), an abridged version of several past instruments. This instrument assessed their perceived self-efficacy in terms of process standards of school mathematics. Findings of the study revealed that the Bhutanese pre-service teachers generally perceived their self-efficacy beliefs towards teaching mathematics somewhat positively. Comparison of the pre-service teachers' mean scores on the five SMTSEBQ scales in terms of gender revealed that there was a statistically significant difference for Problem-solving, and Reasoning-Proof scales. In regard to programme level, there was a statistically significant difference in their self-efficacy beliefs on the four scales, except for the Communication scale. The study is distinctive because it is the first study investigating into the pre-service teachers' self-efficacy beliefs towards teaching secondary mathematics in Bhutanese context.*

**Key words:** Self-efficacy, mathematics self-efficacy, problem solving, reasoning and proof, Communication, connection, and representation

## Introduction

Pre-service teachers' self-efficacy belief has direct implications on their future professional practices in dealing with the school mathematics curriculum. It is generally believed that the teachers with high self-efficacy are usually more confident and successful in teaching secondary mathematics than those with low self-efficacy. The current study examined Bhutanese pre-service teachers' self-efficacy beliefs towards teaching secondary mathematics in reference to five process standards of school mathematics (i.e., problem solving, reasoning and proof, communication, connections, and representation). These process standards determine the effectiveness of implementing the curriculum in the classrooms. The process standards describe ways that students should acquire and use content knowledge, thus these standards are integrated throughout all of the content standards (National Council of Teachers of Mathematics [NCTM], 2000).Hence, the prospective

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mathematics teachers should be well-oriented and self-confident with these process standards so that they can teach school mathematics curriculum effectively.

Literature argues that pre-service teachers' mathematics self-efficacy influences their mathematics ability, as well as their impact on classroom practices (Beswick, 2006; Cakiroglue, 2008). This implies that having low mathematics self-efficacy may lead to low self-confidence, thereby hindering the actual teaching performance. It is also argued that those students with higher levels of self-efficacy have been found to be more motivated to learn and more likely to persist when presented with challenging tasks (Bandura, 1997).Similarly, Bhutanese prospective teachers are generally believed to have possessed low self-efficacy beliefs towards teaching secondary mathematics, but there is not much study and evidences on it. However, Tshewang, et. al (2017) found out that many beginning teachers have experienced a certain dilemma while applying five process standards in teaching school mathematics curriculum.

As teacher educators, the researchers have the role of fostering student teachers' self-motivation and self-efficacy beliefs towards teaching mathematics. If prospective teachers are not able to develop higher self-efficacy beliefs during their training course, this will definitely impact their ability to teach mathematics as full-fledged teachers. Hence, it was felt necessary to examinee pre-service teachers' self-efficacy beliefs towards teaching secondary mathematics, which in turn would significantly influence their future professional practices.

**Theoretical Perspectives**

The current study aimed at investigating Bhutanese pre-service teachers' self-efficacy beliefs towards teaching secondary mathematics, because they have the role towards building their students' mathematical knowledge, skills, and attitudes towards the subject. The theoretical framework of the study delves into the concepts of self-efficacy, mathematics self-efficacy, sources of self-efficacy, and benefits of enhancing teacher self-efficacy, and process standards of mathematics curriculum.

The term 'self-efficacy' in teaching context generally refers to teachers' confidence in their own teaching abilities in their respective subjects (Giles et al., 2016). Bandura (1986) defines self-efficacy as "people's judgment of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). He also argues that people's feelings, thinking and behaviour in regard to things they do is determined by their self-efficacy (Bandura, 1997). These aspects of self-efficacy beliefs constitute the key factors of personal agency and are instrumental to the goals individuals pursue and the control individuals have over their environment (Bandura, 1997). According to May (2009), mathematics self-efficacy is commonly defined as individuals' beliefs or perceptions regarding their mathematics abilities. Giles, et al. (2016) and Enochs, et al. (2000) explain mathematics teaching self-efficacy as a teacher's beliefs in his or her ability to teach mathematics effectively.

Bandura (1997) identified four main sources of self-efficacy: mastery experiences, vicarious experiences, social persuasion, and physiological states. *Mastery experiences* relate to students' repeated successes in previous mathematics courses which provide them basis to believe that they

will succeed in future mathematics studies as well. *Vicarious experiences* refer to students' involvement in observing social models similar to themselves succeeding with particular tasks. Students will feel more confident in mathematics if they see other students they perceive as similar to themselves succeeding in mathematics. *Social persuasion* refers to encouragement, both positive and negative, from peers, teachers, and parents. *Physiological state* refers to the student's physical state such as fatigue, pain, or nausea.

According to Zimmermann, et al. (2011), the benefits of enhancing self-efficacy beliefs of prospective mathematics teachers are abound in the literature, the high mathematics teaching self-efficacy has been associated with the positive impacts on student performance. The teacher with high self-efficacy beliefs has been found to possess more beneficial characteristics than those with lower self-efficacy (Giles et al., 2016). Research also found that self-efficacy beliefs affect educational performance through their effects on motivation, achievement and self-regulation (e.g., Giles et al., 2016). Several achievement studies have also demonstrated that self-efficacy beliefs are positively correlated with academic achievement (e.g., Jinks & Morgan, 1999; Pajares &Schunk, 2000; Zimmerman et al.,1992).

Teacher efficacy is found to relate to a variety of desirable student outcomes, such as achievement and motivation, making teacher efficacy an important factor in high-quality mathematics instruction (Newton et al.,2012). Teachers who dislike mathematics are found to avoid planning or teaching the subject (Trice & Ogden, 1986), while teachers with high teaching mathematics efficacy engage students in inquiry and student- centered teaching, which are linked to higher achievement (Swars, et al., 2007). Implementation of effective instructional practices in mathematics has been linked to teacher efficacy (Enon,1995), and highly efficacious teachers are more effective mathematics teachers than teachers with a lower sense of efficacy (Swars, 2005). Further, Chang (2015) found that fifth-grade mathematics teachers' efficacy significantly influenced both their students' mathematics self-efficacy and mathematical achievement, which was consistent with findings of previous studies linking teacher's mathematical self-efficacy to students' attitudes and abilities (Ashton & Webb, 1986; Rosenholtz, 1989).

The current Bhutanese school mathematics curriculum is guided by standards set by the National Council of Teachers of Mathematics based in United State of America (Curriculum and Professional Support Division, 2005). For teaching and learning of mathematics, the NCTM(2000) explains the five process standards as given below:

*Problem solving* is the first process standard of school mathematics curriculum. Solving problems is not only a goal of learning mathematics but also a major means of doing so. Students require frequent opportunities to formulate, grapple with, and solve complex problems that involve a significant amount of effort. Mathematical *reasoning and proof* offer powerful ways of developing and expressing insights about a wide range of phenomena. Mathematical *communication* is a way of sharing ideas and clarifying understanding. Through communication, the ideas become objects of reflection, refinement, discussion, and amendment. *Connection* is defined as student's ability to connect mathematical ideas to their everyday life situations and apply them accordingly. Finally, *representation* refers to student's ability to represent mathematical ideas in a variety of ways: pictures, concrete materials, tables, graphs, number and letter symbols and spreadsheet displays.

Many past studiesin other countries focused on elementary pre-service teachers' self-efficacy beliefs, while there have been a few studies regarding the preparation of secondary teachers in teaching mathematics (Ginsburg et al.,2008). To the best of researchers' knowledge, no such study inquiring about prospective teachers' self-efficacy in teaching secondary mathematics has been conducted in Bhutanese contexts. The study of self-efficacy beliefs of the pre-service teachers on process standards of mathematics curriculum can determine their beliefs and confidence in teaching mathematics.

## Objectives and Significance

The focus of the current study was on examining pre-service secondary teachers' self-efficacy beliefs towards teaching mathematics in terms of problem solving, reasoning and proof, communication, connections and representation. Its main objectives were to investigate:

1. Pre-service teachers' self-efficacy beliefs towards teaching secondary mathematics; and
2. Gender and programme level difference in their self-efficacy beliefs towards teaching secondary mathematics.

To date, there is no study conducted in Bhutanese contexts, examining pre-service teachers' self-efficacy beliefs towards teaching secondary mathematics. Hence, the study has established the baseline data for assessing the secondary mathematics teachers' self-efficacy beliefs in Bhutanese schools. It is significant in providing insights to teachers, teacher educators, and educational leaders about how teacher self-efficacy beliefs affect secondary mathematics classroom learning atmosphere and student learning outcomes. More importantly, it will be useful in improving strategies and programmes at the pre-service level, which will enhance student teachers' self-efficacy in teaching mathematics.

## Research Methods

The study was an investigation of Bhutanese pre-service teachers' perceptions of their self-efficacy beliefs in teaching secondary mathematics. It was guided by the positivist ontological, epistemological and methodological framework (Cohen et al., 2000), employing a survey design with the questionnaire as the research tool. The study was situated at one of the teacher education colleges of the Royal University of Bhutan. The population of the study involved 81 student teachers, who were enrolled for the Bachelor of Education (Secondary) programme. It included both male and female student teachers from the three different programme levels, i.e., year 2, year 3, and year 4 B.Ed secondary pre-service teachers at the college.

The pre-service secondary mathematics teachers' self-efficacy beliefs questionnaire (SMTSBQ) was developed, based on the pre-service Science Teaching Efficacy Belief Instrument (STEBI) developed by Enochs and Riggs (1990) and adapted by Ravikumar (1992).In addition, the ideas for developing the instrument were drawn from the Mathematics Self-Efficacy and Anxiety Questionnaire [MSEAQ] (May, 2009), Student and Teacher Questionnaire on Beliefs about Learning and Intelligence (Bonne, 2012), and Teacher Self-efficacy Scale (Bandura, 1986, 1997). However, as

and when required the original items of those questionnaires were adapted and modified in order to suit the context of the study. The SMTSBQ questionnaire was administered only once because the study was constrained by the limited timeframe. The instrument was pilot tested before it was finalized for its actual administration.

The survey data gathered through administering the SMTSEBQ questionnaire was analysed and interpreted using both the descriptive and inferential statistics, supported by SPSS Software. Hence, in order to examine the participants' self-efficacy beliefs towards teaching secondary mathematics, the mean and standard deviation for each SMTSEBQ scale were calculated, and compared these statistics in terms of gender and programme level, and finally drew the conclusion (Koul & Fisher, 2003). The significance of difference in their self-efficacy beliefs in terms of gender and programme level was compared computing the F-test statistic and the partial eta squared statistic for each scale of the SMTSBQ questionnaire.

It is argued that any researcher has ethical obligations to anticipate during data collection, analysis and reporting, and to explain about the study to those studied (Erickson, 1998).According to Anderson (1998), "the responsibility of ethical research ultimately lies in with the individual researcher" (p.17). Hence, the participants' individual time, rights, privacy and confidentiality in the process of study were respected (Cohen et al.,2000). The study was conducted only after obtaining written approvals from the College Research Ethics Committee and classroom tutors, and the *informed consent* of all participants were sought prior to data collection.

## Data Analysis and Results

The analyses were carried out on the data collected from 81 secondary pre-service teacher participants. The data were processed by being coded to statistical software, SPSS. In analysing the data, the mean and standard deviation, and one-way variance analysis (ANOVA F-test) were computed. In addition, the partial eta$^2$ statistic test was conducted to identify magnitude of difference in participants' views in terms of gender and programme level.

### *Overall self-efficacy beliefs towards teaching secondary mathematics*

In order to gain an overall understanding of pre-service teachers' self-efficacy beliefs towards teaching secondary mathematics in Bhutanese context, the descriptive statistics (mean and standard deviation) for each SMTSEBQ scale were calculated. For each scale there were five items which were responded on the basis of five-point Likert scale ratings of 1 to 5 (which correspond to 'Strongly Disagree', 'Disagree,' 'Not

Sure,' 'Agree' and 'Strongly Agree.'Table 3 presents the average inter-item mean and standard deviation for the pre-service teachers' perspectives on each SMTSEBQ scale.

**Table 3:** Overall scale-wise self-efficacy beliefs of participants

|  | N | Mean | Std. Deviation |
|---|---|---|---|
| Problem solving | 81 | 3.96 | 0.50 |
| Reasoning & proof | 81 | 3.84 | 0.48 |
| Communication | 81 | 4.40 | 0.46 |
| Connections | 81 | 3.84 | 0.46 |
| Representation | 81 | 3.96 | 0.48 |
| Valid N (List-wise ) | 81 |  |  |

For the given sample, the Communication scale had the highest mean (M = 4.40; SD = 0.46) and the Reasoning-Proof and Connections scales the lowest mean (M = 3.84 each; SD = 0.48 & 0.46). The means for all other scales ranged in between these values. The results suggest that across the items under all the scales, the majority of participants responded with 'Agree' or with 'Neutral'. In other words, the means obtained for each SMTSEBQ scale was very close to 4, indicating that the participants perceived their self-efficacy beliefs towards teaching secondary mathematics somewhat favourably in terms of these scales. The standard deviations for all the five scales were less than 0.50, which suggests that there was not large diversity in pre-service teachers' self-efficacy beliefs. The study generally revealed that pre-service teachers have neither very high nor very low self-efficacy beliefs towards teaching mathematics in Bhutan.

### *Gender differences in pre-service teachers' self-efficacy beliefs*

To examine participants' self-efficacy beliefs towards teaching secondary mathematics for each SMTSEBQ scale in terms of gender, the means, standard deviations, and F-test statistic were computed. Table 4 presents the means, standard deviations and F-test values for the five SMTSEBQ scales, and the partial $\eta^2$ statistic from ANOVA as a measure of the estimated effect size of male-female difference.

**Table 4:** Comparison of participants' self-efficacy in terms of gender

|  |  | Male (n=42) |  | Female (n=37) |  | Difference |  |  |
|---|---|---|---|---|---|---|---|---|
| *Scales* | N | Mean | SD | Mean | SD | F | p | $\eta^2$ |
| Problem solving | 81 | 4.10 | 0.51 | 3.79 | 0.44 | 8.11 | 0.01* | 0.10 |
| Reasoning & proof | 81 | 3.94 | 0.49 | 3.71 | 0.46 | 4.30 | 0.04* | 0.05 |
| Communication | 81 | 4.46 | 0.44 | 4.35 | 0.49 | 1.09 | 0.30 | 0.01 |
| Connection | 81 | 3.89 | 0.42 | 3.78 | 0.50 | 1.25 | 0.27 | 0.02 |
| Representation | 81 | 4.00 | 0.43 | 3.90 | 0.54 | 0.83 | 0.37 | 0.00 |
| Valid N (list-wise) | 81 |  |  |  |  |  |  |  |

*$p< 0.05$ is significant*

The results indicate that the male participants perceived their self-efficacy beliefs towards teaching mathematics more favourably than their female counterparts. This is explained by the male sample means for all the five scales were slightly higher than the female sample means. Male–female mean differences were larger for the scales of Problem-solving, and Reasoning-Proof, and F-test indicates statistically significant differences between male and female's self-efficacy beliefs. When the $\eta^2$ statistic from ANOVA was calculated to provide an estimate of the magnitude of the difference between male and female pre-service teachers' perspectives, gender appears to have had a little influence on their views.

### *Programme level difference in pre-service teachers' self-efficacy beliefs*

Pre-service teachers' self-efficacy on the SMTSEBQ scales was also compared in terms of programme level. Table 5 shows the average inter-item means and standard deviations, and F-test statistic values for the five scales. It also shows the effect size (partial $\eta^2$) for each of the five SMTSEBQ scales. The programme level difference in pre-service teachers' self-efficacy beliefs on the five SMTSEBQ scales indicated that means were higher for 4th year than 3rd year, and for 3rd year than 2nd year. In other words, the 4th year student teachers had the higher self-efficacy beliefs than those of 3rd year and 2nd year student teachers. One-way analysis of variance (ANOVA) for the differences in student teachers' SEBs in terms of programme level revealed statistically significant differences for *problem-solving*, *reasoning and proof*, and *connection and representation.*

**Table 5** : Comparison of participants' self-efficacy beliefs in terms of programme level

| | | *2nd year (n=28)* | | *3rd year (n=24)* | | *4th year (n=29)* | | *Difference* | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Scales* | *N* | *Mean* | *SD* | *Mean* | *SD* | *Mean* | *SD* | *F* | *p* | *$\eta^2$* |
| Problem solving | 81 | 3.64 | 0.48 | 4.08 | 0.44 | 4.17 | 0.41 | 11.56 | .00* | 0.23 |
| Reasoning & proof | 81 | 3.66 | 0.52 | 3.81 | 0.48 | 4.04 | 0.37 | 4.98 | .01* | 0.11 |
| Communication | 81 | 4.31 | 0.55 | 4.51 | 0.40 | 4.41 | 0.41 | 1.18 | .31 | 0.03 |
| Connection | 81 | 3.65 | 0.54 | 3.84 | 0.44 | 4.03 | 0.29 | 5.30 | .01* | 0.12 |
| representation | 81 | 3.65 | 0.53 | 4.14 | 0.36 | 4.10 | 0.36 | 10.72 | .00* | 0.22 |
| Valid N (list wise) | 81 | | | | | | | | | |

*$p < 0.05$ is significant*

According to Peer and Fraser (2015), the partial $\eta^2$ statistic from ANOVA indicates an effect size in terms of the proportion of variance in a dependent variable explained by an independent variable. The effect sizes reported in Table 5 suggest that the programme level generally had little influence on student teachers' SEBs towards teaching mathematics, which gives us clues about what aspects require improvement.

Thus, the results reported clearly reveal that pre-service teachers generally perceived their self-efficacy beliefs towards teaching secondary mathematics somewhat favourably on all the five SMTSEBQ scales. In terms of gender difference, their SEBs was statistically significant on the scales of Problem Solving and Reasoning and Proof. In terms of programme level, their SEBs showed a statistically significant difference on Problem Solving, Reasoning and Proof, Connections, and Representation scales. This implies that the 4th year pre-service teachers perceived their SEBs towards teaching secondary mathematics more positively than those of 3rd year and 2nd year pre-service teachers. This can be explained by the fact that the 4th year student teachers are exposed to much more training and experiences (such as school practicum, micro-teaching), knowledge and skills, research and scholarly activities as part of their programmes at the college than the 3rd year and 2nd year students.

## Discussions and Conclusion

The purpose of this article is to report on the pre-service teachers' self-efficacy beliefs towards teaching secondary mathematics based on the five SMTSEBQ scales. The results show that the only scale which has the average inter-item mean value of 4.40 is Communication scale and for the other four scales the mean ranges from 3.84 to 3.96, while the standard deviation for all scales is less than 1. This finding is indicative of the fact that Bhutanese prospective secondary teachers have low self-efficacy belief in most of the process standards, apart from communication standard. This contradicts the findings of many past studies (Dede's, 2008; Doruk& Kaplan, 2012; Temiz, 2012; in Korkmaz& Ünsal, 2016) which revealed that mathematics teachers have high self-efficacy beliefs for teaching. In addition, Ünsal, et al, (2016) argue that mathematics teachers stated opinions on having high self-efficacy beliefs concerning the teaching process. This suggests for further improvement of Bhutanese pre-service secondary teachers' self-efficacy beliefs in the process of their professional training at the college.

The results indicate that the male participants perceived their self-efficacy beliefs towards teaching mathematics more favourably than their female counterparts, which is explained by the male sample means for all the five scales which were slightly higher than the female sample means. However, the male–female differences were observed larger for the scales of Problem-solving ($F=8.11$, $p=.01<.05$), and Reasoning-Proof ($F=4.30$, $p=.04<.05$). Hence, the F-test results indicated statistically significant difference between male and female's self-efficacy belief for these two scales. In line with these findings, there are studies suggesting that self-efficacy differs with regards to gender (Akbulut, 2006; Ünsal et al., 2016).

The findings in regard to programme-level difference in pre-service teachers' self-efficacy beliefs towards teaching secondary mathematics on the five scales of the SMTSEBQ indicated that the 4th year student teachers had higher SEBs than those of 3rd year and 2nd year student teachers. While, the one-way analysis of variance (ANOVA) test results revealed that there is a statistically significant difference for the scales of *problem-solving* ($F=4.30$, $p=.04<.05$), *reasoning and proof* ($F=4.30$, $p=.04<.05$), *connections* ($F=4.30$, $p=.04<.05$) and *representation* ($F=4.30$, $p=.04<.05$). This finding suggests that the programme level has educationally significant influence on their SEBs towards teaching secondary mathematics. In other words, professional seniority variable affects

pre-service teachers' perspectives on their self-efficacy beliefs concerning the teaching process. Similarly, several past studies argue that mathematics teachers' teaching process self-efficacy beliefs increase as their professional experiences increase (Ünsal et al.,2016; Fives &Buehl, 2010).

Overall, the participants in this study displayed somewhat high self-efficacy towards teaching secondary mathematics. However, this study reinforces the need to enhance Bhutanese prospective teachers' SEBs in terms of using five process standards of teaching mathematics. It may be facilitated by offering various professional development opportunities to pre-service teachers pertaining to school mathematics curriculum. Creating certain opportunities for them to interact with the curriculum experts would also boost their SEBs towards teaching mathematics, which that may contribute to maximizing the learning potential for students in mathematics. In addition, teacher educators concerned must be responsible to enhance their student teachers' self-efficacy in teaching mathematics. To this effect, teacher educators can reflect on this study to understand the gap that exists between the pre-service teachers' SEBs and their future professional practices which ultimately implicates the student learning in mathematics.

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# TOWS Matrix Analysis to Strengthen the Scouting Program in Bhutan

**Karma Tenzin***

**Abstract**

*The purpose of this study was to assess the Scouting program in Bhutan in order to identify the key issues tha[2]t affect the Scouting program and recommend a workable strategy to Bhutan Scouts Association (BSA). Scouting for Bhutan is not simply a youth engagement program but a vision of the great monarchs. The Scouting program in Bhutan was initially started in response to His Majesty, the Fourth King, Jigme Singye Wangchuck's concern for youth in the face of emerging challenges for the young people, the future of Bhutan. His Majesty, the King Jigme Khesar Namgyel Wangchuck is the Patron of BSA and the Royal Patronage inspired numerous initiatives such as Scout Leadership Training Program and others that helped to revitalize Scouting in Bhutan. This paper presen[3]ts TOWS matrix analysis of the responses and views of different stakeholders gathered through key informant interviews (n=157), focused group discussions (n= 270), and survey (n= 350). The analysis is carried out within the framework of strategic priorities of World Organization of Scout Movement (WOSM). The findings suggest that the BSA has been witnessing increasing number of dropout rates attributable to several causes such as the lack of recognition and reward; monotonous programs; time constraint; incompetent Scout leaders; and poor adult and peer support. The dropout or leakage of Scouts is noticed to be occurring mostly in transition from Nachung Scouts to Nazhoen Scouts. The proposed recommendations are aimed at fulfilling the vision and mission of BSA by addressing the attrition through quality programs, enhancing the competency of leaders and strengthening the good governance practices.*

**KEYWORDS:** Bhutan Scouts, Scouts Attrition, Strategies to Strengthen Scouting Program

## Introduction

The population of young people (age, 10-24) constitutes 56% of the total population of Bhutan (NSB, 2018). Young people in Bhutan like in any other countries are considered an important national asset. The fact that they are an important ingredient in the happiness-driven development dynamics of the country cannot be better justified than in the golden lines of Bhutan's visionary 4th King His Majesty Jigme Singye Wangchuck, "the future of Bhutan lies in the hands of our younger generation" (Department of Youth and Sports, MoE, 2010). It is further valued when His Majesty the King Jigme Khesar Namgyel Wangchuck, the Patron of BSA states that, "the wealth of our country is our human resources. Our future will invariably be shaped by the talent and skills, disposition for hard work, commitment, and dedicated service of our young generations" (Kuensel, 2016).

Youth being the main human capital of the nation, Bhutan government considers it as a sacred responsibility to ensure their growth unaffected by the youth-related challenges such as: unemployment, substance abuse, deteriorating human values, deteriorating culture and tradition,

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crime and theft, suicide, poor sense of common national identity, rural urban migration, and others facing the youths today (Dhradhul, 2017). Toward this end, the Royal Government of Bhutan not only provides free education but initiates many non-formal education programs such as Scouting, catering to their holistic development.

Scouting is a voluntary, non-political educational movement for young people open to all without distinction of origin, race or creed, in accordance with the purpose, principles and method conceived by the Founder, Baden Powell[4]. The purpose of the Scout Movement is to contribute to the development of young people in achieving their full physical, intellectual, emotional, social and spiritual potentials as individuals, as responsible citizens and as members of their local, national and international communities. As the largest youth movement branded as "Creating a Better World", Scouting contributes to the education of young people, through a value system based on the Scout Promise and Law, to help build a better world where people are self-fulfilled as individuals and play a constructive role in society (WOSM).

Ever since the start of the movement in 1907 by Lord Stephenson Smyth Baden-Powell, Scouting has played an instrumental role in the development of young people and contributed to making of this world a better place for all to live. The youths of Bhutan are not an exception.

Scouting in Bhutan was formally started in 1996, in response to His Majesty the fourth King's concern on several issues on education and emphasis on the need to adopt a systematic and comprehensive program to address emerging youth related issues. Subsequently, it was launched as a school-based program supported by Asia Pacific Region, World Scout Bureau as a channel for holistic development and value education for Bhutanese youths. Within a very short span, the program achieved considerable progress both in terms of membership as well as the type of programs conducted. Bhutan Scouts Association (BSA) became a full-fledged member of the World Organization of Scouts Movement on 26th July 1999 during the 35th World Scout Conference at Durban in South Africa (BSA, 2017).

Scouting in Bhutan is categorized into five sections namely: 1) *CheyChey* Scouts (for students of Pre-Primary -class III); 2) *Nachung* Scouts (for primary school children of Classes IV - VI); 3) *Nazhoen* Scouts (for secondary school children of classes VII- XII); 4) Rovers (for colleges and Institutes); and Community Based Scouts (for out of school youths and adults).

Currently His Majesty the King of Bhutan is the Patron of the Bhutan Scouts Association and therefore it receives the highest support from the government. Further, Scouting is identified by the Ministry of Education as a means to enhance values education and the wellbeing of the youth (MoE, 2014). Towards that end, the ministry mandates all schools to have the Scouting program.

**Strategy Formulation**

A strategy is literally a plan of action designed to achieve a major or overall aim. The strategy for Scouting has been steering the direction for the movement and ensuring that there is a clear idea of where to go and how to get there (WOSM, 2014). The strategy of Scouting is a common language that helps National Scouts Organizations (NSOs) to offer quality Scouting to more young people, focus on recruiting and retaining Scouts and Adults in Scouting, promote Scouting brand, and strengthen the

organizations (Diaz, 2011). As shown in Figure 1 below, the SWOT analysis of the Scouting program in Bhutan revealed the prevalence of high attrition of Scouts especially as their level of education increased. It supplements the findings of Mobile Scout Camp Report 2017 and Monitoring Report 2018 conducted by BSA and same is being authenticated by the survey administered to Dzongkhag/School Commissioners, Scout Scouts, Scout leaders, non-students and teachers.
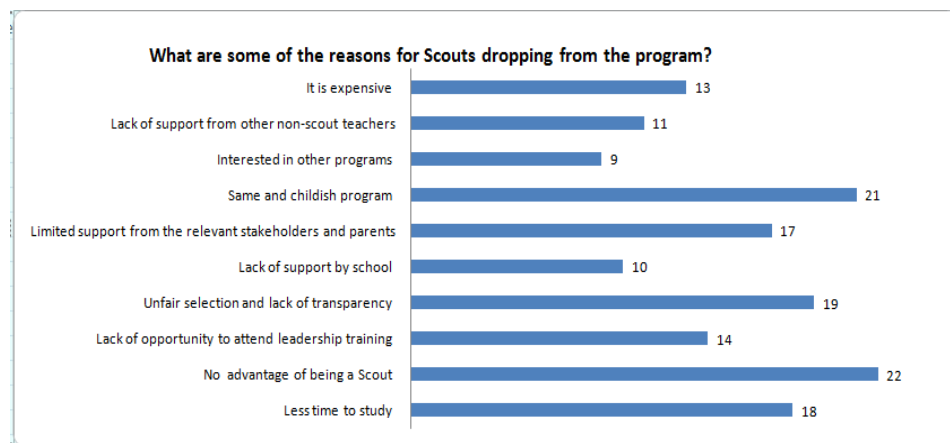


**Figure 1:** Reasons for dropping from Scouting Program

Therefore, this paper will discuss strategies to improve retention of young people in the Scouting program towards achievement of the overall WOSM mission of "educating young people to become self-fulfilled individuals who will play constructive role in society." This strategies would help to accomplish the vision and mission of BSA as stated below:

**Vision:** "Bhutan Scouts Association, by 2030, be a premier and inclusive youth organization, providing quality program through competent leaders, producing responsible citizens, contributing towards Gross National Happiness."

**Mission:** "The Mission of Scouting is to contribute to the education of young people, through a value system based on the Scout Promise and Law, to help build a better world where people are self-fulfilled as individuals and play a constructive role in society."

The vision and mission of BSA is very much in line with the broader vision and mission of Ministry of Education which is stated as:

**Vision:** An educated and enlightened society of GNH, built and sustained on the unique Bhutanese values of '*Tha dam-Tsig Lay Gju-Drey*'

**Mission:**

1. Develop sound educational policies that enable the creation of a knowledge-based society.
2. Provide equitable, inclusive and quality education and lifelong learning opportunities to all the children and harness their full potential to become productive citizens.

3. Equip children with appropriate knowledge, skills and values to cope with the challenges of 21st century.

**Strategic Options**

TOWS matrix using data gathered from relevant stakeholders is used to generate strategic options for retention of *Nazhoen* Scouts. It is a complementary tool of SWOT used to develop strategic options combining the internal and external analysis of an organization; S-O (Strengths-Opportunities), W-O (Weaknesses- Opportunities), S-T (Strengths- Threats) and W-T (Weaknesses-Threats).

According to Mulder (2017), TOWS matrix compares external opportunities and threats to the internal strengths and weaknesses; how to use strengths to benefit from the existing opportunities, how to benefit from their strengths to avoid or lessen (potential) threats, how to use opportunities to overcome weaknesses, and how to minimize weaknesses and avoid potential threats. The TOWS matrix for BSA is presented in Table 1:

**Table 1:** TOWS matrix for BSA

| TOWS Matrix of BSA | Strengths (S) | Weaknesses (W) |
|---|---|---|
| | S1: King is the Patron/ Chief of Scouts easing the solicitation of government's support | W1: Discrepancies in the program due to inconsistent monitoring and evaluation from the headquarter |
| | S2: BSA is a member of WOSM & APR and receive financial and technical support | W2: No or limited impact studies done on Scouting program and difficult to convince the stakeholder about the importance of the program |
| | S3: The program is funded by the government | W3: Lack of human resource management |
| | S4: Has adequate trained Scout leaders to support school based Scouting | W4: Lack of adequate Scout materials resulting to inefficient program delivery (References, Policies and Standard Operating Procedures) |
| | S5: Huge membership potential for successful program | W5: High attrition of Scouts effecting the mission of BSA |

| Opportunities (O) | S-O Strategic options | W-O Strategic options |
|---|---|---|
| O1: Government's focus on youth development<br><br>O2: Compatibility of Scouting and religious values<br><br>O3: Involvement of parents in the program<br><br>O4: Using technology and different medias to improve communication<br><br>O5: Engaging former Scouts to promote Scouting brand<br><br>O6: High interest for partnership by external agencies | SO1: Cater to personal development of youths<br><br>SO2: Review the youth program policy inline with the strategic plan of WOSM and APR mandates<br><br>SO3: Collaborate with external agencies for sustainable funding<br><br>SO4: Enhance the competencies of Scout Leaders and professionalism of BSA officials<br><br>SO5: Network with formal Scouts and parents<br><br>SO6: Institute awards and recognition system<br><br>SO7: Provide cultural and religious inspiration by conducting spiritual retreats | WO1: Strengthen evaluation and monitoring system<br><br>WO2: Conduct stakeholder orientation to create awareness of the importance of the program<br><br>WO3: Innovate creative modes of communication and networking<br><br>WO4: Standardize Scouting practises and digitalise couting materials for easy and fast access<br><br>WO5: Partner with parents and formal Scouts to motivate young people<br><br>WO6: Systemize accountability of adults in Scouting |
| Threats (T) | S-T Strategic options | W-T Strategic options |
| T1: Lack of legal binding to ensure autonomy in planning, program execution and utilization of fund<br><br>T2: Rising cost of scouting compounding the lack of support by parents<br><br>T3: Changing needs of the young people | ST1: Seek government's endorsement of constitution of BSA<br><br>ST2: Raise fund to reduce financial burden to parents<br><br>ST3: Design need based Scouting programs<br><br>ST4: Organize exchange programs | WT1: Outsource an impact study of Scouting program to understand the changing needs of the Scouts and update the program |

**The Strategies**

As of today, the Scouting program has an established network. However, over the years attrition of Scouts has been a concern for BSA and so is the need for recruitment and retention strategy. Therefore, urgent need to address the attrition rate of Scouts especially during the transition from *Nachung* to *Nazhoen*Scouts is felt. Unlike profit-oriented organizations whose aim is to maximize financial benefit, retention of Scouts in the program is for their successful engagement in the learning process to achieve the purpose of the Scouting movement.

It is critical that the learning processes in the Scouting program are objectively mentored to enhance skill development relevant to young people's need. As much as the learning process is desired to be innovatively learner centered, it must be supported by adults in Scouting. Therefore, training of adult leaders and orientation of stakeholders are also an integral part of the learning processes.

The learning process in Scouting takes within the framework of Scout method which encompasses the following elements:

1. Scout promise and law; *a commitment to a set of shared values*
2. Learning by doing; *a practice-oriented learning*
3. Personal progression; *a progressive learning challenge*
4. Team system; *a collaborative learning and sense of responsibility and belonging*
5. Adult support; *partnering with young people for meaningful learning opportunities*
6. Symbolic framework; *development of unique identity*
7. Nature; *an outdoor learning and relationship with environment and*
8. Community involvement; *fostering commitment and responsibility to the community*

**Scout Methods**

The Scout methods are key part of Scouting that guide the learning process to be meaningful experiences for youths based on our shared values that are in consistence with the purpose and principles of Scouting. They help to provide Scouts with rich, active, and fun filled learning experiences through various innovative activities (see Table 3):

**Table 3:** Suggested Activities for different Scout Methods

| Sl. No | Scout Method | Activities |
| --- | --- | --- |
| 1 | Scout Promise and Law | Duty to God, Duty to others and Duty to self, Self-reflection exercises |
| 2 | Learning by Doing | Cooking, Pioneering, Survival skills training, Leadership roles, Communicating with others and Self exploration |

| 3 | Personal Progression | Self-reliance, Self-governing and Self-learning activities, Proficiency badge system and Advancement activities |
|---|---|---|
| 4 | Team system | Patrol system, Court of honor |
| 5 | Adult Support | Educational support, Emotional Support, Informational support and Appraisal support, Engaging and empowering of youths in decision making |
| 6 | Symbolic Framework | Songs, Yells, Unique customs and symbolic rituals, Common uniform |
| 7 | Nature | Environment conservation activities, Outdoor activities, Stream adoption, cleaning champaign, Awareness and education programs, Plantation and protection of trees |
| 8 | Community Involvement | Tree planting with local community, Community events (Fete, quiz etc), Community service, Awareness campaigns, Fund raising |

Considering the issues affecting the Scouting at large and against the reasons for increasing the attrition of Scouts, the following strategies are proposed to improve the retention of *Nazhoen* Scouts.

**Analysis of strategic options**

The strategic options generated using the TOWS matrix is further analyzed in line with the five strategic priorities towards fulfilling the vision 2023. Following are the growth strategies formulated considering the successful Scouting practices in India, Nepal, and Philippines. These strategies are expected to address the high leakage or dropping of Scouts especially from *Nachung* to *Nazhoen* level. As indicated in the strategy map below (Figure 2), improving the quality of the program, enhancing the competency of leaders and restructuring the governance mechanism of the association are identified as three priority initiatives to strengthen the Scouting program. The objectives and the suggested activities against the stated vision are outlined in Figure 2.
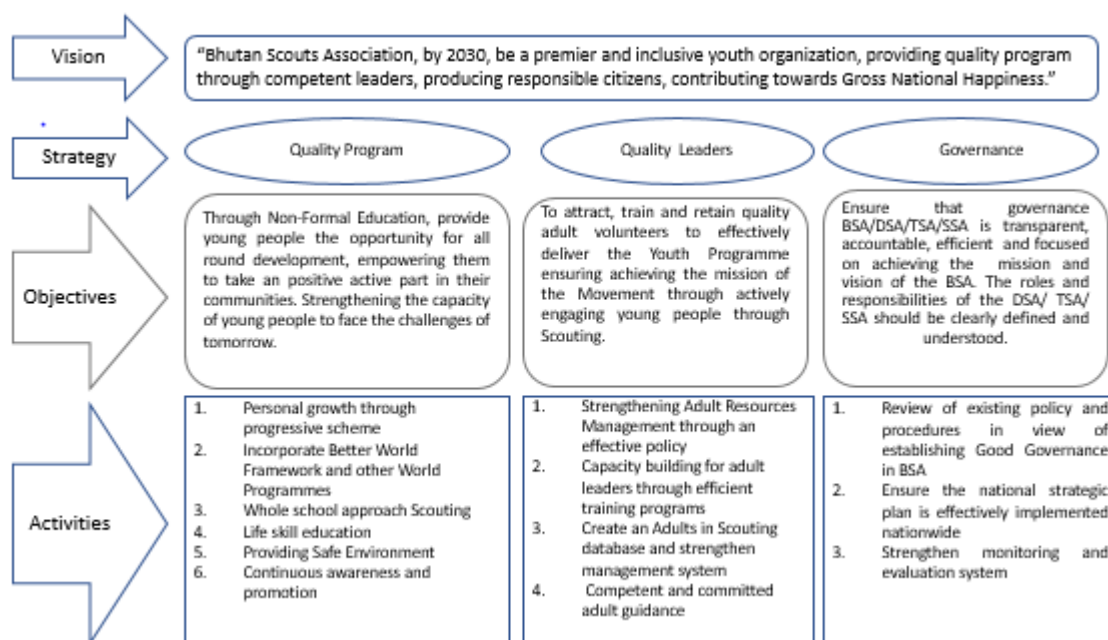
**Figure 2:** Strategy Map

Mission Model Canvas (see Table 2), is used to visualize the components required to fulfill the strategic options identified in Figure 1.

**Table 2:** Mission Model Canvas

| PARTNERS | ACTIVITIES | VALUE PROPOSITION | BUY-IN/ SUPPORT | BENEFICIARIES |
|---|---|---|---|---|
| -The key partners are:<br><br>1. Ministry of Education<br>2. World Organization of Scout Movement (WOSM)<br>3. Asia Pacific Region (APR) Scout Bureau<br>4. Dzongkhag/Thromde Scout Associations (DSA) | 1. Assess strength, opportunities, weakness and threats<br>2. Identify key issues affecting Scouting program in Bhutan<br>3. Develop strategy to improve retention of Nazhoen Scouts<br><br>**RESOURCES** | -Scouting enhances our youths to be:<br><br>1. Mentally awake<br>2. Physically strong<br>3. Morally straight<br>4. Spiritually sound<br>5. Emotionally stable<br>6. Kind in words<br>7. Pure in thought<br>8. Loyal and trustworthy<br>9. Respectful<br>10. Responsible | 1. Apprise Chief Scout Commissioner<br>2. Present it to various stakeholders during annual conference<br>3. Orientation of Scout leaders<br>4. Awareness sessions for parents and others | -Five categories of Scouts<br><br>1. Chey Chey Scout (Pre-primary to Class III),<br>2. Nachung Scouts (Class IV to VI),<br>3. Nazhoen Scouts (Class VII-XII),<br>4. Rovers (Tertiary |

| | | | | |
|---|---|---|---|---|
| 5. All public and private schools<br>6. Nation as a whole<br>7. Parents<br><br>-These key partners help Integrate the programs for the development of young people through actions<br><br>taken for the community as much as it is development of the community through the actions of the young people<br><br>-Partnership creates opportunities for development initiatives to tackle relevant issues affecting young people and the community | **-Human Resource**<br><br>1. Focal partners (Dzongdag[5], Education Officers and Principals): well oriented on purpose and fundamental principles of Scouting<br><br>2. Motivated Adult Scout Leaders<br><br>3. Supportive parents<br><br><br>**-Finance**<br><br>1. Budget for planning and implementation of programs<br>2. Fund for capacity development of Scout leaders | 11. Resilient<br>12. Loving and kind<br><br>-Scouting contributes the education of young people through the value based on the Scout Promise and Law, to help build a better world where people are self-fulfilled as individuals and play a constructive role in Society.<br><br>-Scouting helps youths excel in studies and channel their energy for positive development | **MARKETING / DEPLOYMENT**<br><br>-Enhance public image by:<br><br>1. Organizing camps<br>2. Involving parents in the program<br>3. Publications and media advocacy<br>4. Instituting reward systems<br>5. Strategising employability and livelihood incentives | level) and<br>5. Community Scouts (Out of school youths and adults).<br><br>- |

| COSTS | FUNDING STREAMS *List your sources of funding.* | | FUTURE | MISSION METRICS / ACHIEVEMENT |
|---|---|---|---|---|
| -Infrastructure development<br><br>-Human resource development (Capacity building cost)<br><br>-Operating expenses | **CURRENT**<br><br>-Royal Government of Bhutan<br><br>-WOSM<br>- Donation<br><br>-           APR<br>-Fund raising | | - RGoB/ WOSM/ APR<br><br>-WOSM<br><br>- APR | -Lessened attrition of Nazhoen Scouts<br><br>-Lesser |

| | | | *youth related problems* |
| | | | *-Happy and peaceful society* |

### 1. Quality Program

The relevancy of the program must be complimented by effective implementation plan and process. It is important to renew the program at par with WOSM/ APR standards and ensure that they are attractive to young people. Impact evaluation of the program is essential to facilitate and enhance youth participation. Scouting seeks to contribute to self-education of young people and development of their physical, intellectual, emotional, social and spiritual capacities on assumption that each person is born with a unique potential which can be constructively nurtured (WOSM, 1998).

In accordance with its' fundamental principles which are "Duty to God", "Duty to others" and "Duty to self" the education process of the Movement assists the young people to achieve:

1. Physical development; able *to take responsibility for the growth, functioning and health of one's body*
2. Intellectual development; *perceive patterns, connections and relationships between phenomena, event, ideas etc. and solve problems*
3. Emotional development: *acknowledge, recognize and express feelings and emotions*
4. Social development; *take an active and constructive role in the society and contribute towards better life for all*
5. Spiritual development: *respect varying perspectives of religion and integrate spiritual values into one's daily life*

All the Scouting activities are purpose driven and following are some key areas of development (see Table 4) for holistic development of young people (Scouts Australia, 2011):

**Table 4:** Suggested Key Areas for Purposes of Scouting

| Sl. No | Purpose | Key Areas |
|--------|---------|-----------|
| 1 | Physical Development | Identifying needs, Maintenance (Keeping fit and healthy), Effectiveness |
| 2 | Intellectual Development | Collecting information, Processing information, Problem-solving |

| 3 | Emotional Development | Self-discovery and awareness, Self-expression, Responsibility and self-control |
|---|---|---|
| 4 | Social Development | Relationships and communications, Cooperation and leadership, Solidarity and service |
| 5 | Spiritual Development | Wisdom, Worship, Spiritual discovery |

It is important to ensure that the activities are attractive because the prospect of taking part in exciting activities with friends is the main reason why young people join the Movement (Scouts Australia, 2011). A good program should be challenging, attractive, rewarding and useful.

A cause for low retention rate of Scouts that has come out very strongly from the survey response of existing Scouts, as well as non-Scouts and Scouts who has dropped out of the program was that the program is monotonous and not interesting. This is against having a well segmented Scouting program in place, available trained Scout leaders and program frameworks to facilitate the implementation of the programs (*CheyChey* Scouts; *Nachung* Scouts; *Nazhoen* Scouts, Rovers and CBS).

Further analysis of the root cause, pinned the shortfall of BSA not having an operational strategic plan, monitoring and evaluation plan, standard operating procedures (SOP), program and training policies and human resources management systems (Adults in Scouting) which include training of competent leaders.

Upon analysis of the root causes, the following strategies are proposed to make the Scouting program more attractive to Scouts and gain support of the stakeholders:

## 2.1 Enhance Personal Growth through Progressive Scheme
Scouting in general helps youth develop into well rounded individuals better prepared for challenges in life. It helps young people discover their talents and understand their interest so well to be useful in making right decisions.

The second phase of study conducted from 2018 to 2019 to measure an impact of Scouting on personal development of young people by WOSM with Scouts of France, Mexico, Netherlands and Saudi Arabia (Table 5) further validates the finding of a similar study carried out with Scouts of Singapore, Kenya and the United Kingdom in 2017. As underscored by Ahmad Alhendawi, the Secretary General of WOSM, the average scores of the study speak for itself that Scouts are more likely than non-Scouts to have a higher level of personal development in the areas spanning from leadership to empathy, physical to spiritual (WSB, 2019).

**Table 5:** The research result France, Mexico, Netherlands & Saudi Arabia

| Definition | Average Score |
|---|---|

| Able to make choices and to control personal and social life as an individual and as a member of society | Scouts scored 6% higher than non-Scouts |
|---|---|
| Able to show concern for others, able to act with them and for them, and able to put oneself in the other person's shoes (empathy) | Scouts scored 9% higher than non-Scouts |
| Able to take responsibility for one's actions, keep commitments, and complete undertakings | Scouts scored 6% higher than non-Scouts |
| Able to assert oneself in respect of values, a cause or an ideal, and to act accordingly | Scouts scored 7% higher than non-Scouts |
| Able to respect other paradigms by virtue of their gender, ethnicity, religion, language, or culture | Scouts scored 8% higher than non-Scouts |
| Engaged in regular physical activity | Scouts scored 18% higher than non-Scouts |
| Learning from nature | Scouts scored 10% higher than non-Scouts |
| Having a positive attitude and perception of a meaningful life | Scouts scored 6% higher than non-Scouts |
| Engaged in contemplation and talking to families and friends about life and religion | Scouts scored 13% higher than non-Scouts |
| Feeling a part of a wider global community | Scouts scored 9% higher than non-Scouts |

**Source:** WOSM

The significant difference in scores between Scouts and non-Scouts in both phases of the impact study by World Scout Bureau (WSB, 2019) can be attributed to skills the young people acquire from Scouting such as leadership, time management, good governance, communication skills, and team management. These skills contribute to the personal growth and progression of the Scouts and hinge them to the program lowering the attrition of *Nazhoen* Scouts.

The Handbook for Leaders (BSA, 2002) has detailed specification of different advancement and proficiency badges for different sections; (e.g., in *Nazhoen*, the *Maugalbu, Sharibu, Kuengao* and *Toenpa*) to facilitate Scouts to acquire various skills and values for their positive personal growth and progression. However, it is not effectively implemented in the field and this has hampered the growth and progression in young people and thereby failed to retain them or gain the confidence of the stakeholders. Therefore, effectively implementing the advancement scheme would be a significant reward and recognition for the young people to join the program and continue their membership.

During the survey done for this study, 27% of the respondents which is highest, reported that lack of recognition and reward lowers the retention of Scouts in the program. This is not unique to

BSA, rather it is a detrimental factor with other NSOs as well and much so because recognition is a basic human desire. Therefore, besides continuing with the existing reward and recognition schemes it is important to institute more timely and attractive incentives to retain the young people in the program.

While instituting new incentives may take time and incur cost, a jump start solution could be implementing the existing advancement schemes and proficiency badges. These programs specify what Scouts are expected to learn and understand at particular levels, what they will accomplish at different levels and how and when they can advance to the next level.   This strategy would not only excite and motivate the young people to continue Scouting but most importantly help convince parents, one of the most important stakeholders. The parents have to be convinced that Scouting in fact is an education for life that nurtures their children to become a good human being and thus garner their support.

## 2.2 **Promote Whole School Approach Scouting**

The   number of schools practicing the whole school approach, Scouting is increasing in Bhutan as encouraged by BSA. This is purely motivated by the evidential experience of Scouting program contributing to the development of young people and inspiring spirit of volunteerism in them. Further this approach helps to reach out to every student in the school which otherwise is deprived either due to students not understanding the importance of the program or deterred by peer influence.

Under this approach, all students of a school become *CheyChey* Scout, *Nachung* Scout or *Nazhoen* Scout depending on their class levels and 100% retention of Scouts are assured. For effective implementation of the program, a committee of Scout leaders chaired by a senior Scout Leader preferably Leader Trainer (LT) or Assistant Leader Trainer (ALT) and if not, a senior Wood Badge holder may be formed. The committee will draw a plan of action and accordingly schedule the sessions with due consideration of the numbers of Scout leaders available and different levels of Scouts (Bronze Star, Sliver Star and Gold Star *CheyChey* Scout; *Karma, Dawa and NimaNachung* Scouts; and *Maugalbu, Sharibu, Kuengoa* and *ToenpaNazhoen* Scouts). The sessions could be conducted  at a convenient time or it can be a troop session on a selected day.

## 2.  **Quality Leaders**

A good number of respondent Scouts (65%) reported that they dropped out of the program because some Scout leaders were too strict while the others were less proactive; some school authorities and teachers felt that they were wasting time being engaged in the Scouting program; and their peers made fun of them or the public had low regard for them. This indicates that the retention of Scouts in the program is  correlated to the competency of Scout leaders to provide the right motivation and that BSA lacked the professionalism to address such issues. Toward this end, the following course of actions could be adopted to attract and retain quality adult leaders to effectively deliver quality Youth Programs towards achieving the mission of the Movement.

## 2.1    Strengthening Adult Resource Management through an effective policy

The success of the Scouting program of any NSO depends on the support of adults and therefore it is important that adult resources are effectively managed. However, BSA does not have a Scouting Policy that guides acquisition, training and personal development, and management of the adult resources necessary for accomplishing the mission of the Movement (WOSM, 1993). Therefore, it is vital for BSA to have Adults in Scouting Policy to streamline the adult resource management.

According to 'World Adult Resource Policy', adult resource management is a process of acquisition, training, personal development and management of adult resources to cater to the association's overall management. The policy could be successfully implemented by forming a National Adult Resource Committee who will ensure selection of right candidates, provision of adequate trainings, timely and need based upgradation of skills and productive use of the adult resources.

The recent training analysis of BSA records a total of 1809 Scout leaders trained so far, 341 of them are either inactive or do not have a unit as expected. The situational analysis of the stated fact boils down to lack of effective adult resource management policy that would enhance the efficient use of resources. Absence of one such policy has led to any teacher being trained as Scout leaders, not based on their own interest in Scouting but because their Principals had nominated them as financial incentive for his or her good performance in the school

If strengthened, an efficient adult resource management can help BSA recruit leaders with the right aptitude, retain them and promote membership growth of the Scouts. It is particularly important because effective management of adult leaders would play a vital role in realizing the vision 2023 for BSA to achieve 100,000 memberships in the Scouting program. It is up scaling a total of 37,957 additional members from current membership of 62,043 within the span of four years (2020-2023).

At 1:40 ratio of Scout leaders and Scouts, reactivating the existing inactive leaders alone can increase the membership of Scouts by 54,560 (341 inactive leaders x 40 Scouts x 4 years) which is still higher by 16,603 Scouts. Such efficient management of resources can cut down the considerable cost incurred in training some 500 final year graduates of Paro College of Education (PCoE) and Samtse College of Education (SCoE). However, it is not to be understood that the training of graduating student teachers is not cost effective. There is return on investment in the form of filling up the avoidable shortage of adult leaders and supporting the cause of Scouting as one of the important stakeholders for the successful implementation of the program.

## 2.2    Capacity building for adult leaders through efficient training programs

The Figure3 below shows the important role of adult Scout leaders for successful a Scouting program. Therefore, the following strategies are proposed to enhance the capacity of the adults in Scouting.
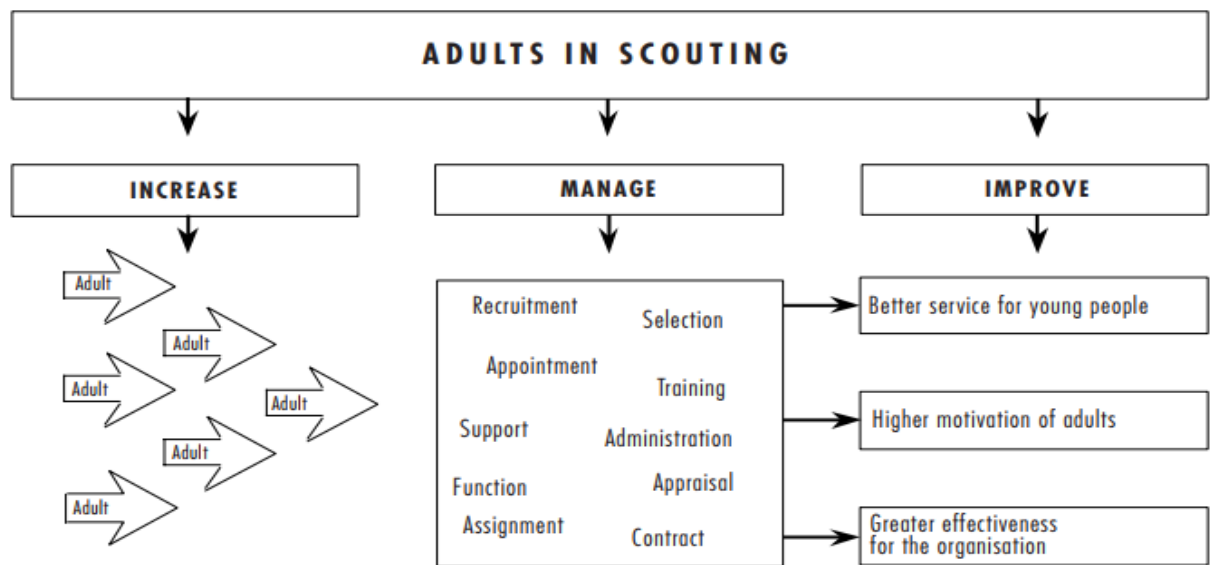
**Figure 3:** Role of Adult Scouts in Scouting

## 2.3 Refresher Course for Scout Leaders

As most of the Scout leaders are teachers, dealing with Scouts should not be an issue. However, a timely refresher course would help the Scout leaders understand the changing need and interest of Scouts better and update themselves with the latest information to provide better services. Such courses will further enhance their competency and a competent leader can deliver better. The refresher courses could be provided between different levels of trainings they are mandated to undergo to become a BULT/ WB/ ALT or LT leaders as reflected in the scheme for training of unit leaders as represented in Figure 4below:

**4 BEADS AFTER SUBMITTING THE POST COURSE ASSIGNMENT**

**LEADERS TRAINERS TRAINING (FORMAL TRAINING-7 DAYS)**

**PRE-COURSE ASSIGNMENT (SELF LEARNINMG -2 YEARS)**

**3 BEADS AFTER SUBMITTING POST COURSE ASSIGNMENT (SELF LEARNIMNG-2 YEARS)**

**ASSISTANT LEADER TRAINERS TRAINING (FORMAL TRAINIG -7 DAYS)**

**PRE-COURSE ASSIGNMENT (SELF LEARNING -2 YEARS)**

**2 BEADS AFTER SUBMITTING POST COURSE ASSIGNMENT**

**WOOD BADGE COURSE (FORMAL TRAINING-7 DAYS)**

**POST COURSE ASSIGNMENT (SELF LEARNING-2 YEARS)**

**BASIC UNIT LEADERS TRAINING (FORMAL TRAINING -7 DAYS**

SELF TRAINING

**Figure 4:** Scheme of Training for Unit Leaders

## 2.4 Specialization courses for Scout leaders

An opportunity for the Scout leaders to specialize in different areas of Scouting such as pioneering, hiking, camping, cooking, orienteering, knots and lashings, games and songs, life skills and value education would be gr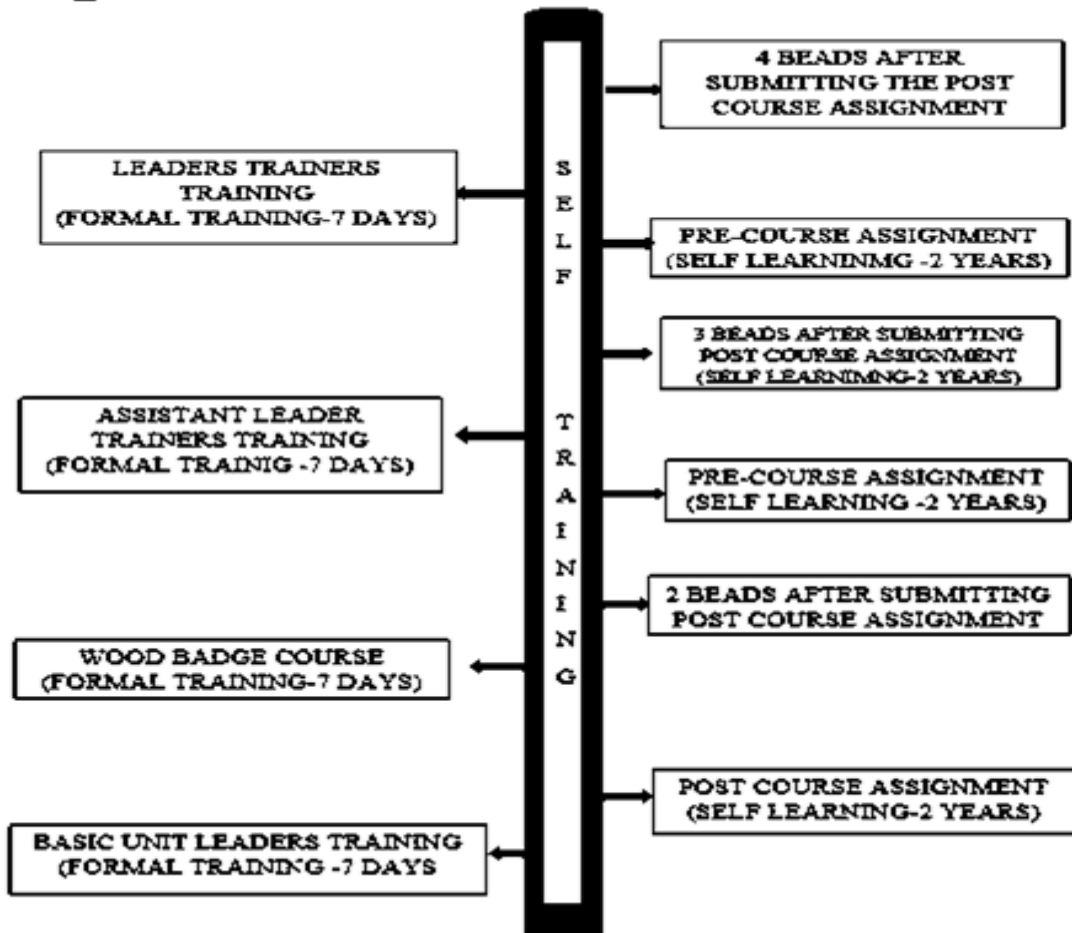eat. It would not only build up the human resource capacity within the association but would motivate the leaders. Motivated leaders in turn would inspire Scouts to be involved actively in the program.

To do this, the first and foremost, BSA will pool in the Leader Trainer and Assistant Leader Trainers according to the numbers of activities identified to be specialized in to be trained as facilitators. The trained facilitators will then go to the regions and conduct trainings for the selected Scout leaders from respective DSAs/ TSAs in different categories. These trained leaders will form a core of expertise in their respective area of specialization and support DSAs/ TSAs through conduct of training and orientations to the Scouts and Scout leaders.

## 2.5 Professional Development (PD)

A professional development for BSA officials would help enhance the performance of an association. It would provide a platform to review and renew the plans, programs and policies of the association

in respect to changing needs of young people and expectations and demands from the field.  It is also an opportunity to assess on-going programs, discuss mitigation measures for improvement and evaluate the impacts of completed programs.

The goals and objective of such PD programs could be set according to the following learning focus- knowledge learning- (technology, policies, organizational goals, etc.); Skill learning - (time management, planning and programming skills, confrontation skills, etc.); and attitude learning- (group cohesiveness, optimism, respect, team work, etc.).

## 2.6    Capacity Building Programs

As the NSO, it is important to understand the good practices of other NSOs as well. Therefore, an exchange of ideas, techniques and methods of youth program, training schemes, human resource management and other relevant practices amongst the NSOs are one form of capacity building. For the same purpose, initiating a capacity building exchange programs could be initiated by visiting or hosting other NSOs to learn and share the Scouting practices and cultures of respective NSOs.  The experiences and exposure gained from such exchanges would enable NSOs to perform better, motivate Scout leaders and serve youths better.

## 3.  Good Governance

Against the mandate of the governance of BSA/DSA/TSA/SSA to be transparent, accountable, efficient and focused on achieving the mission and vision of the BSA, the survey result revealed 'lack of transparency in selection for training and program' as one significant factor affecting the Scouting program. This indicates that governance mechanism of BSA need to be improved and the following are two possible way forward to improve the system.

## 3.1 Review of Policies and Standardization of Operating Procedures & Terms of Reference

Internal analysis of the organization has revealed that BSA does not have or updated documentation of policies such as youth program policy, training schemes, and adult leaders. The operational procedures are not uniform and there is no clear terms of reference for various appointments made by BSA.

Since these shortfalls bear a direct implication on the implementation of any program regardless of whether it is at NSO, DSA/ TSA or SSA levels, it is important to review or draft the policies at par with standards of WOSM/ APR to enable BSA to offer attractive and timely youth programs. Lack of uniformity in standards of Scouting practices and procedures also has created confusion amongst the Scouts affecting their interest in the program. Similarly, due to lack of clear terms and reference regarding their roles and responsibilities, it is difficult to hold them accountable for matters related to BSA appointees like National Program Committees, DSA Secretaries, and Regional Training Coordinators.

This could be taken care by Program and Training section of BSA by forming a National Taskforce Committee to periodically review the Plans and Policies, SOPs and ToRs of BSA to aligned with the bigger picture of WOSM and APR; and also keeping in mind the field realities. Any initiatives may be apprised and approved by the Taskforce Committee and consulted with relevant

stakeholders. This would help streamline various practices and procedures and avoid misinterpretations and confusions.

The Task Force Committee may comprise of the Chief Commissioner and International, Program and Training Commissioners of BSA, National Program Committees, and Regional Coordinators.

## 3.2 Strengthen Monitoring and Evaluation System

The lack of or inconsistent monitoring and evaluation of Scouting program due to financial constraint as well as human resource shortage has hindered the successful implementation of the programs. When BSA could not provide the much-required technical support to DSA/ TSA and SSA, they were not able do much to prevent the Scouts from losing interest in the program and opting to join other programs.

Therefore, as monitoring and evaluation are essential component of a progressive program, it needs to be strengthened. To better address the inadequate resource issues, it may be decentralized to Regional Coordinators or DSA/ TSA for timely and wider coverage. The Regional Coordinators or DSA/ TSA will monitor the Scouting program under respective regions in accordance with monitoring and evaluation norms and matrix provided by BSA. The reports of the same will then be submitted to BSA for verification and necessary interventions. The details of the monitoring and evaluation are provided in Table 6.

**Table 6:** Considerations for Monitoring and Evaluation

| Monitoring | Evaluation |
|---|---|
| ✓ Do people assigned to the activity / tasks understand their roles and responsibilities? <br> ✓ Which activity / task that should have been completed has not been done and why? <br> ✓ Which activity / task is behind schedule and why? <br> ✓ Are there activities and tasks that will be critical to the success of the plan? If so, list them. <br> ✓ Are there any major unforeseen circumstances affecting the effective implementation of the plan? If so, identify them. | ✓ WHEN to evaluate? <br> *(Regularly, periodically, at the end of each phase)* <br><br> ✓ WHAT to evaluate? <br> *(Actions vs Outcome; Objectives vs Achievements; Achievements vs Vision)* <br><br> ✓ HOW to evaluate? <br> *(Surveys; visits & meetings, interviews, workshops)* <br><br> ✓ WHO will evaluate? <br> *(Evaluation Committee, Program Coordinators, Board, External Experts)* |

## Conclusion and Recommendations

The conclusions and recommendations herein are drawn from SWOT analysis of BSA; information gathered from primary and secondary sources through administering survey questionnaire to Scouts, Scout Leaders, Dzongkhag and School Commissioners, Non-Scouts, and Parents; focus group discussion with Scouts and BSA officials; key informant interview with senior Scout leaders of Bhutan, India, Nepal, and Philippines NSOs; review of publications on Scouting by WOSM, APR and other NSOs; and correlating the findings of this study with those from the mobile Scouting and monitoring programs conducted by BSA in 2017 and 2018 respectively.

Scouting is the largest youth program in Bhutan and the membership is constantly growing. Indeed, the current growth rate is 27% which is 12% up against the required growth rate of 15% (BSA, 2020) to reach the set target. However, as revealed by the study there is huge leakage of Scouts especially during the transition phase from *Nachung* Scout to *Nazhoen* Scouts.

While such leakages or dropping of Scouts are unavoidable owing to the ever-changing needs of today's young people compounded by increasing number of competitively attractive programs, a collective stakeholder responsibility can help improve the retention of Scouts in the program. A timely initiative such as giving a bonus mark in their exams to Scouts and considering two absences as one for Scouts that used to be practiced in India and Philippines respectively would safeguard the leakages resulting to low attrition of Scouts.

In proportion to the number of Scouts leaders trained by BSA, the Scout Leader-Scouts ratio stands at 1:32 when the acceptable ratio of WOSM/ APR is 1:40. However, in the field there are schools still without a trained leader and materials required for running the troop. Such existing gaps between planning and implementation affecting the quality of the program needs to be addressed at the earliest.

Similar to the Scouts dropping out of the program, trained Scout leaders do not step forward to run the troop or drop the program. Such incidences call for the need to attract, train and retain quality leaders to deliver the program and productively engage the young people.

A good governance of an organization would strengthen the communication between various stakeholders, bring about uniformity and enhance transparency and accountability in all Scouting practices and procedures at all levels.

In summary, the following are the recommendations to generally reduce leakage of Scouts at all levels and specifically to curtail high attrition of Scouts from *Nachung* to *Nazhoen* level. These recommendations are based on the findings from the study and Scouting practices of India, Nepal and Philippines.

To strengthen the Scouting program in Bhutan by augmenting the existing program standards, capacity of leaders and practice of good governance, BSA should:

1. Effectively implement the advancement and proficiency badges schemes to motivate the Scouts and enrich their learning experience.

2. Institute award schemes to recognize outstanding Scouts (e.g., King's Award or Scout of the Year at national level and Best Scout Award at DSA/TSA/SSA levels).
3. Make the program more interesting by incorporating World Program as Better World Framework.
4. Institutionalize Whole School Approach Scouting in all the schools.
5. Formulate national level policies, SOPs and TORs and orient the stakeholders.
6. Conduct capacity building programs for Scout leaders and BSA officials.
7. Publish annual reports for information sharing and record of events.
8. Review and Seek government's endorsement of constitution bylaws of BSA.
9. Institute efficient monitoring of program implementations, evaluate impact of the programs conducted, and provide feedback for future improvements.
10. Formulate and implement strategic communication and marketing plans.

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# Reflections on Educational Reforms: A Journey of Profound Awakening

## *In humble tribute to His Majesty Jigme Khesar Namgyel Wangchuck's 42nd Birth Anniversary*

## Sonam Tobgay[1] and Sangay Dorji[2]

As I serve my country, I have a number of priorities. Number one on my list is education. Education is empowering - it's a social equalizer and it facilitates self-discovery, which leads to realizing one's full potential. Good education gives you confidence, good judgment, virtuous disposition, and the tools to achieve happiness successfully. A good school gives a child a fair shot at success and ensures that a person's achievement in life will not be predetermined by his or her race, parentage and social connections.

(His Majesty Jigme Khesar Namgyel Wangchuck, 2014-Bhutan Education Blueprint, 2014 - 2024: Rethinking Education).

## Abstract

*A review of literature reveals that education is undergoing radical change affecting both the organization of educational institutions and the content and delivery of curriculum. Considerable interest is being shown in the reengineering and reinventing of education by leading thinkers and scholars world-wide. Leaders and managers in educational institutions are increasingly faced with the challenge of having to operate in a rapidly changing world and within new and uncertain frameworks. Terminologies such as "educational system", "educational reform" and "educational change" have distinct meanings and implications. Educational reform implies that the reform initiative is an attempt to correct a deficiency in the existing educational system without changing the essential elements of the system. Educational change is a socio-political transformative process of change resulting in an educational system significantly different from the one before the change initiative. In educational reform most aspects of the educational system remain the same and is understood to be inherently a political process. For discussion purposes these terminologies have been used interchangeably in this article.*

## Introduction

This article presents a brief review of some dominant existing literature on education and educational reforms and is not intended to suggest any solution to initiating education reform in Bhutan. To this end, the impact of the pandemic may have far reaching consequences for the way education is conducted in the future.

### *The Royal Kasho on Education Reform*

The Royal Kasho of the Druk Gyalpo Jigme Khesar Namgyel Wangchuck on educational reform decrees:

In order to initiate a transformative re-conceptualization of our education system, I hereby grant this Kasho on the auspicious occasion of the 113th National Day in Punakha Dzong on 17th December 2020, corresponding to the Third Day of the Eleventh Month of the Male Iron Rat Year, in the exercise of the powers bestowed upon me by the Constitution. It expresses my deepest conviction about the irreplaceable role of education in the process of nation-building. I trust that a time-bound Council for Education Reform will prepare a visionary and workable roadmap for the twenty-first century to support the Royal Government of Bhutan in this august endeavour.

Furthermore, the former Education Minister (2008 -2013), Thakur S. Powdyel, on his Facebook Post of February 2, 2021 stated the sacredness and significance of the Royal Kashos as:

"Heavier than the mountain and more precious than gold"... This native Bhutanese wisdom best describes the depth, the breadth and the significance of the two precious Decrees granted by Druk Gyalpo Jigme Khesar Namgyal Wangchuck to the people of Bhutan on the auspicious 20th day of the 12th month of the Iron Male Rat Year of the Bhutanese calendar corresponding to the 1st day of February 2021, consequent upon the Royal Address of His Majesty the King during the momentous 113th National Day celebrations at the historical Puna Dewa Chhenpoi Phodrang on December 17, 2020"[6]. His Majesty King Jigme Singye Wangchuck's royal vision conveyed through the Royal Kasho/Decree is timely and exerts a sense of urgency about the need for a reform in the nation's education system.

**Literature Review**

In general, with increasing scrutiny of the education system and seemingly lagging outcomes, education is a site of conflict and thus deemed imperative to consider new, innovative approaches to improving and expanding education opportunities (Apple, 2016). The reform agenda would create ample opportunity for the education research council to study changes and investigate theoretical perspectives as well as exploring a variety of methodological approaches to empirical work and data analysis (Ranson, 1995).

The National Commission on Excellence in Education (1983) emphasized,

> The educational foundations of our society are being eroded by a rising tide of mediocrity that threatens our future as a Nation and as a people. What was unimaginable a generation ago has begun to occur -others are matching and surpassing our educational attainments (p.1).

The constantly evolving debates on educational reform share a common concern for the promotion of quality education. The process of educational change is much more complex than one can expect, even when apparent successes have exhibited fundamental flaws (Fullan, 2007). Generally viewed, education reform is the goal of changing public education and, at its core, is a belief that the needs and merits of students must be primary in all policy and actions that govern education (Cohen & Hill, 2008). Jarvis (1995) contended that education reform is theory as well as

practice and provides the flexibility and freedom to educators to innovate and must aim to elevate and educate every child. Education plays the role of a key enabler in advancing the dialogue in sharing best practice, peer reviews, evidence-based and coherent policies and strategies that can effectively address the problem of inequality and exclusion worldwide (Visvizi et al., 2018).

Reform calls for numerous changes such as more funding, better trained teachers, desegregation, smaller class sizes, experienced teachers, well-maintained infrastructural facilities and the need for stability (Rouse, 2000). The primary focus of educational innovations should be on teaching and learning theory and practice designed to produce the needed high-quality learning outcomes across the system (Serdyukov, 2017). Lin (2006) contends that there is a great need for educators to reconceptualize education in the 21st century. Stronger curriculum, strong professional development, higher standards for entry into teaching and broad accountability for results would form part and parcel of the worthy reforms and promising interventions must be welcomed (Neary, 2002). Educational reforms set ambitious goals for student learning. In order to prepare students for handling the complexity of modern societies, Haug and Mork (2021) argue that policy documents and educational reforms around the globe call for the 21st century skills. Defined as the integration of science, technology, engineering, and mathematics into a new cross-disciplinary subject in schools, the study of STEM offers students a chance to make sense of the integrated world we live in rather than learning fragmented bits and pieces of knowledge and practices about it (Dugger, 2010). In the global context, the changing educational landscape and the increasing interconnectedness and interdependence of the world place unprecedented demands on teacher education programmes to prepare teachers to educate for the 21st century global citizenship (Guo, 2014). Jerald (2009) advocated that key players in the reform process must not only include local and ministerial policymakers but also teachers. Arguably, a teacher is believed to be next to parents as the most important influence on a child's life and thus it is critical not only in ensuring the quality of every educator but also in implementing a strong, data-driven, performance-based accountability system that teachers are rewarded and retained (Epstein, 2014). Lightfoot (2004) asserted that, "…everyone believes that parents and teachers should be allies and partners. After all, they are both engaged in the important and precious work of raising, guiding, and teaching our children" (Introduction, p. xx-xxi).

For former Education Minister, Thakur S. Powdyel:

> A human teacher is critical in the scheme of education, even though we have learnt a lot from technology and state-of- the-art resources as even the most efficient machines do not have feelings and sentiments and possess values that a human being has; so, in my scheme of things, the teacher occupies the center stage of education. We may have the finest resources, state of the art equipment and technology but if we do not have a motivated teacher, a passionate teacher, a teacher who celebrates teaching has fun with teaching and with children. That is the kind of teacher that will bring powerful lessons to the class and engage children in meaningful, imaginative and purposeful ways. This is the kind of teacher we are looking for today in the world. In an ideal situation, education should lead the society but today, unfortunately it is the society, factories, the corporations, the employing agencies that are calling the tune. I feel it is not right.

Education ought to think bigger, think wider and think deeper. Education must be a few steps ahead of the society, supposed to be nobler, it is supposed to be sublimer than what is the current engagement of the markets, factories and corporations[7].

In the same vein, Davies and Ellison (1997) purported that education should be at the forefront of the society's attempts to come to terms with this new reality of radical change. Good teachers are born, not made (Sparks & Hirsh, 2000) and that teachers can be assisted to, "grow professionally or coordinating a formal professional development program to improve teachers' skills, knowledge and capabilities" (Verschueren & Koomen, 2012, p.9).

According to Hargreaves and Fullan (2015, Preface xii), "people care about the quality of teaching. And this notion is putting teachers and teaching at the forefront of change". Kelchtermans (2005) argued that the professional and meaningful interactions of teachers with their professional context contains a fundamental political dimension and that emotions reflect the fact that deeply held beliefs about good education are part of teachers' self-understanding. There is also a higher call on teachers that, "...Teachers should be pursuing moral purpose with greater and greater skill, conceptualizing their role on a higher plane, than they currently do" (Fullan & Fullan, 1993, p.13). Hamano (2008) argued that it is critical for teachers to learn new methods of instruction and that teacher education needs to be strengthened to allow them to acquire these new methods. Barnes and Cross (2021) asserted that teacher quality often emerges as a central issue in how education systems might be reformed to better address challenges faced by modern economies and social structures undergoing constant global change. Toropova, Myrberg and Johansson (2021) considered that teacher job satisfaction merits closer attention as it is closely related to teacher retention, which also contributes to the well-being of teachers and their students, overall school cohesion and enhanced status of the teaching profession. As Bushe & Kassam (2005) observed, there is a need to change the way we think before there is a change in behaviour, "Curriculum, teacher expertise, and assessment have all been weak links in past education reform efforts" (Rotherham & Willingham, 2009, p.19) and that "devising a 21st century skills curriculum requires more than paying lip service to content knowledge" (p.20). Orr and Cleveland-Innes (2015) recommend adopting unique appreciative leadership that includes strength-based practice, searching for the positive in people and organizations, and the role this plays in organizational innovation and transformation. Sharonova and Avdeeva (2019) pointed out that as capabilities of smart technologies expand and deepen reality:

> They also change teaching practice, the functions and status of the teacher. The teacher ceases to be a source of knowledge, he, like students, involved in the search game of extracting information from Big Data and creating new knowledge. Network communication of students and teachers forms network consciousness and network identity on the basis of previously unknown principles. The main thing there is not the Institute of education, but interaction (p.2).

Fullan (1994) advocated that neither top-down nor bottom-up strategies for educational reform work and that a more sophisticated blend of the two would provide a solution in introducing needed reforms. Educational opportunity for all, as argued by Vandenbroucke (2015) has always been a defining progressive value and that living up to this ideal has taken on greater urgency. The growing consensus is that education is at the root of the country's broader economic challenges, and improvements to the education system offer the solution[8].

Luterbach and Brown (2011) noted that efforts to make education relevant to the 21st century learning may be enhanced if a group of educational stakeholders arrive at a consensus on issues concerning the 21st century skills, ICT skills, teacher training, and school reform. Salmi (2001) asserts that higher education is facing unprecedented challenges at the start of the 21st century, influenced by the impact of globalization, knowledge-based economic growth, as well as the information and communication revolution. Meyer and Norman (2020) advocate that the current system of educational designs must be able to prepare students for challenges that are becoming increasingly complex and impactful. Levin (2001, 2004) suggests that education reform cannot succeed and should not proceed without much more direct involvement of students in all aspects as education policy is always proposed on the basis of the outcomes it will produce. Professor Pascale Quester (2021) from Australia Higher Education System emphatically asserted:

> We need to really have the capacity to provide and scaffold the education around the individual, customize what it is people want and need at the time whether they are in their career or in their transition from one industry to another; so the flexibility, the agility and customer-centricity that comes from understanding that education does not have to be degree or nothing. I think this is where my university will certainly play a role in making sure that we have got a new cohort of people ready and prepared for have got a new cohort of people at whatever the future throws at them[9].

According to Clercq (1997), educational restructuring policy proposals are unlikely to become interventions that help bring about greater development, equity, participation and redress if they are flawed in their conceptualization of the problems and misjudge the educational context and dynamics on the ground. Bell and Stevenson (2006) assert that, "Leadership and learning are proving enduringly crucial concepts in contemporary debates on policy and practice regarding improving performance and achievement in education" (Series editors' foreword). One issue that is having substantial impact on the education sector necessitating leaders to respond rapidly, is the world-wide, the COVID-19 pandemic outbreak. This situation has necessitated a change in approach to education and the requirement tolead teams remotely (Wilson, 2021). A huge challenge to education systems world-wide has been created by this outbreak, and many governments have ordered institutions to cease face-to-face instruction for most of their students, requiring them to switch, almost overnight, to online teaching and virtual education (Daniel, 2920). The monumental

crisis provided the world an opportunity for change causing actions and reactions with dramatic consequences for social and economic life around the globe (Lawrenson, 2020). At the same time the 21st century approach to education is grappling with other goals that behaviour analysis can also address, especially in broadening its focus from knowledge acquisition to real-world application, communication, and problem solving so that it remains relevant and productive (John, 2015). Kidd and Murray (2020) stated:

> As established practices changed quickly educators began developing pedagogic agility and that despite the relocation to newly formed online spaces, many principles and 'intentionalities' of practice remained unchanged, as did the teacher educators' orientating values.

In an attempt to present the unique position of the Kingdom of Bhutan in transition from a medieval society to a modern nation-state, Lyonpo Powdyel (2006) highlights how the Bhutanese education system has transformed itself over the years to "blend the fruits of the best of the modern with the best of the traditional" (Abstract/Excerpt).

What matters most in Bhutan is happiness (Dixon, 2006). In their article, " *What explains Bhutan's Success Battling Covid-19?-The Diplomat*", Wangmo and Parikh(2020) stated, "...Despite relying heavil[10]y on foreign aid, Bhutan's provision of free universal health care — a key pillar of the country's Gross National Happiness (GNH) philosophy — proved to be its first line of defense for its Covid -19 "patient zero," alongside its commitment to regular testing for anyone who is symptomatic, or has come into contact with confirmed cases" (p.1). The country's subsequent rapid mobilization was strongly informed by science, with Prime Minister Lotay Tshering and Health Minister Dechen Wangmo both public health officials before entering politics... indicated that what Bhutan is quickly learning is that while globalization and science are to be embraced, it should also look to its heritage to survive in troubling times"[11]. UNDP (2020) in Bhutan in assessing socio-economic impacts of COVID-19 on Bhutan's tourism sector has stated, "that this pandemic is not just a health crisis but also a development emergency causing tremendous social and economic impacts and impacting the livelihood of many Bhutanese"[12]. Tshering Pelden (2020) writes, "Druk Gyalpo's Relief Kidu came to the rescue of those who lost their livelihoods and jobs"[13]. Richard Seifman (2020) attributes Bhutan's Covid-19 success story due to two-fold action of timely implementing MMR[14]strategy and in recognizing the interface between human-animal-environmental health[15].

Zakaria (CNN) examined how Bhutan was able to fight pandemic. To quote:

The tiny Kingdom of Bhutan settled in the Himalayan mountains between India and Tibet is known for its emphasis on gross national happiness over gross domestic product...it has been one of the most successful countries in combating Covid-19...Perhaps, it's time for us to learn from countries like Bhutan, to promote trust in government, to focus communication with the public to take care of our whole society by providing better social and economic support to work on preparedness and prevention in public health and to address this crisis as a unified nation[16].

According to Helliwell et al. (2020), COVID-19 has hit all the three main pillars of happier lives – physical and mental health, jobs and incomes, and a supportive social structure and that this has called the well-being focus. The global crisis of COVID -19 pandemic may promptfresh strategies. Undeniably, there is a global consensus that all sectors worldwide, including education, have been devastated by the impacts of COVID-19 pandemic and that as we approach the new normal in the post-COVID-19 era, there is a need to consider education anew in the light of emerging opportunities and challenges (Cahapay, 2020).

The former Bhutanese Education Minister, Powdyel in an interview (Path-breaking DEC Life Education Founders and my gracious hosts, Ms Natalia Tarchenko and Mr. Oleksandr Tarchenko, Kiev: Facebook February 9, 2021) assert, "education must be powerful, purposeful and deeply fulfilling and it must lead the society. Today's education is highly segmented, exclusionary, materialistic and does not lift the mind and expand the heart. Education ought to celebrate the sacredness of life, it must honour the integrity of the learners and prepare them for life and not just for careers"[17]. Schlechty (1990) purports that purpose shapes vision and vision in turn shapes purpose and that any reasonable effort to restructure schools must begin with a serious consideration of the purposes of education. In the words of John Dewey (1916) cited in Kinney, 1989, p.1), "Education is not preparation for life; education is life itself. The process of educational transformation, like any other reform must continue….It is not the strongest species that survive, nor the most intelligent, but the ones most responsive to change" (Darwin, 1987 cited in Salmi, 2001, p.105). Rotherham and Willingham (2009) assert that the 21st century skills movement will require keen attention to curriculum, teacher quality, and assessment in that, "…Educators and policy makers must ensure that content is not shortchanged for an ephemeral pursuit of skills. Skills and knowledge are intertwined" (p.18). The former Bhutanese Education Minister of the Peoples' Democratic Party (2013 -2018), Norbu Wangchuk stated, "our education system can be nurtured to be the finest in the world. We have the Royal Vision. We have committed teachers. We have a caring society"[18].

## I.  Conclusion

Bhutan's former Education Minister (2008 - 2013) Thakur S. Powdyel has highlighted the sacredness and significance of the Royal Kashos as:

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[17] *https://www.facebook.com/powdyelts/videos/  10220806738336762*

[18] *https://kuenselonline.com/the-power-of-the-royal-vision/*

The Royal Kashos are signed and sealed in calendar-time but they are meant for all time given their scope and significance. If we miss the light and squander the opportunity, our undoing will not have been for want of vision and direction from the sacred Serthi, but for our own denial of a role in this all-embracing national effort. May the golden words of the Royal Kashos be imprinted in our hearts and lead us to action dedicated to the building of Bhutan as envisioned by our beloved King[19].

Thus, the ROYAL VISION must be upheld and fulfilled. *Number one on His Majesty's priority list is education* (Ministry of Education, 2014). The 21st century education is about equipping students the skills they need to succeed and help them grow the confidence to practice those skills (Schleicher, 2012; Khrapov & Loginova, 2020). Teaching in this century is an altogether new phenomenon and that a teacher's role in the 21st century has significantly changed from that of being a pedagogue to that of being a facilitator (Kennedy, Latham & Jacinto, 2015; Campus, n.d). This century teachers need to be forward-thinking, and they must be learners as well - learning new ways of teaching and learning alongside their students and ensure that the curriculum is relevant to students and teachers, one that prepares our youth for their future careers and that any educational reform must ensure that the curriculum is relevant to students and teachers and prepare our youth for their future careers.

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# Highlighting the importance of STEM education in early childhood through play-based learning: A Literature Review

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## Abstract

*This paper aims to focus on the international studies regarding early integrated STEM education and its importance for developing 21st century skills in young children to prepare them for an ever-changing world. The paper reviews the importance of integrated STEM education in early childhood settings and how it supports the development of scientific concepts and 21st century skills such as critical thinking and problem solving through play-based learning based on the current literature. Adding to the importance of STEM education, the paper explores what STEM education means in early childhood and how different types of play-based learning can support early integrated STEM concepts and skills in young children with reference to the literature from different parts of the world. Furthermore, the literature presents the role of teachers in implementing STEM practices and the challenges encountered by teachers. The literature indicates low self-efficacy and confidence in teachers as the main factor affecting the delivery of STEM teaching and suggest ways to overcome this through STEM professional development to enhance the STEM practices in early childhood. The paper concludes with further recommendations and implications for stronger policies, and more research in this field to achieve high-quality integrated STEM education in early childhood.*

**Keywords:** STEM education, early childhood, play-based learning

## Introduction

STEM education in early childhood is the acronym for interconnected science, technology, engineering, and mathematics disciplines that has gained global attention (English, 2016) and a considerable body of evidence supports the importance of building the foundation of STEM learning from early years (Early Childhood STEM Working Group, 2017; Hu & Yelland, 2019; McClure et al., 2017; Park et al., 2017; Simoncini & Lasen, 2018; Sneideman, 2013). The push to start early STEM education correlates with its significant influence in preparing students for 21st century world and later STEM success (Dou et al., 2019; Madden et al., 2016). The analysis by Murphy et al. (2019, p.123) for various Australian STEM education strategies informs the importance of early engagement in STEM practices as it is found "to develop 21st century skills such as problem solving, critical thinking and creativity," which in turn will help prepare children for global health, environmental, and economic challenges. Likewise, DeJarnette (2012) also argues that STEM education should start early as it promotes problem solving, critical thinking and engages children in an open-ended inquiry through classroom STEM activities. The concept of STEM education has undergone various interpretations since its inception in the 1990s by the National Science Foundation (Vasquez, 2014). More recently, the term STEM is used to denote a more integrative

approach of combining the concepts and skills from the four disciplines to solve problems (English, 2016; Kelly & Knowles, 2016; Madden et al., 2016).

In early childhood education (ECE), STEM practices are observed through children's play as children question, explore and experiment in their world (Buchan & Cron, 2020). Although there are different types of play such as free or guided play the evidence supports that learning happens through both (Zosh et al., 2017). However, structured play with appropriate resources for children to explore objects and phenomena are found to result in more meaningful learning experiences (Johnston, 2015). For instance, a study conducted during a STEM summer camp for ten four-year-old participants with various activities such as block play, balloon races, mixing liquids, and use of engineering applications in the iPad contributed significantly to children's understanding of STEM skills in the post-test result (Torres-Crespo et al., 2014). In another research conducted for nine European Union countries, Stylianidou et al. (2018) also recommended a play-based approach in their educational policy as playful experimentation and exploration fostered inquiry learning in children. Providing playful and meaningful experiences entail in educators to be thoughtful and purposeful in supporting children's learning using intentional teaching to recognise the STEM concepts in regular activities such as making play dough or building blocks or any child-instigated explorations (Campbell & Chealuck, 2015). Therefore, the role of an educator is important in creating STEM educational practices and learning environments based on intentional actions to "build student STEM capabilities and nurture STEM dispositions" (Murphy et al., 2019, p.125). Furthermore, the qualitative data on the Little *Scientist* program that provides STEM professional development for early childhood educators across Australia reports that participants found learning through STEM inquiry and play-based explorations with adult support as the best strategy for teaching STEM (MacDonald, 2019). Given the role of educators in implementing STEM practices, many researchers propose and support STEM professional development programs for educators to deepen their content and pedagogical knowledge, to build their confidence and self-efficacy in teaching STEM lessons (Early Childhood STEM Working Group, 2017; DeJarnette, 2018; MacDonald et al., 2019; Murphy et al., 2019).

Section one will present literature review on STEM education and its importance in early childhood for developing 21st century skills in children. Section two will investigate different types of play-based learning approaches to support STEM learning and practices to emphasise learning through play. Section three will discuss the role of an early childhood teachers and challenges in implementing STEM education with ways to overcome these issues in early childhood setting based on the literature to inform future policy and research. Finally, a conclusion and recommendation to provide a summary of the literature review.

## Significance of this Literature Review

The main purpose of this review is to discuss the importance of STEM education in early childhood through play-based approaches to create further awareness in the early childhood community. Furthermore, the research around STEM in early childhood is at an early stage (Park et al., 2017) despite its importance and coming to home, Bhutan has no studies on the topic. His Majesty the King

of Bhutan had issued a Royal edict on education reform on 17th December 2020 stating that to achieve 21st century competencies in our children "STEM subjects should be part of their everyday language" (Kuenselonline, 2021, para. 6) and early STEM experiences means giving head start in their life to face the future world as first eight years is crucial in the life of a human being (Torres-Crespo et al., 2014). Therefore, this review will draw upon scholarly articles from international research and organisational reports to present the importance of STEM education through play-based learning to Bhutanese stakeholders to initiate our own policy and programs to strengthen STEM learning through early childhood to early years of primary education. Through this paper I also hope to create awareness of integrated STEM education to Bhutanese educators and early primary teachers (PP-III). Above all, understanding the importance of STEM education in early childhood is imperative for educators as it enables them to incorporate STEM concepts through play-based learning (Torres-Crespo et al., 2014).

## Section One: Importance of STEM education in early childhood

### *Awareness of early STEM education:*

It is essential to understand what STEM education means and why there is major focus on starting early in many global contexts. STEM education has gained extensive attention from governments across the world for over a decade to address a wide range of local, national, and global issues concerning health, well-being, environment, and the economy (Gough, 2015). Advancing STEM education in many countries was for economic and skilled workforce development (Marginson et al., 2013). This drive has pushed the focus on engaging young children in STEM education to promote their early STEM identity development through exploration and meaningful STEM-related experiences in early childhood classrooms (Hachey, 2020). Although a large body of evidence indicates that early STEM education is important for building 21st century workforce to face global challenges and later STEM study (Hu & Yelland, 2019; Madden et al., 2016; McClure et al., 2017; Park et al., 2017; Sneideman, 2013), a study of 117 early childhood professionals' survey findings before engagement in a STEM workshop show that early childhood professionals do not consider STEM as the most important learning area with little understanding of STEM as an integrated approach (Simoncini & Lasen, 2018). Another study of 830 early childhood teachers in rural areas of Western Kentucky revealed that a lack of awareness on the importance of STEM education posed zero readiness for teaching STEM lessons regardless of their teaching experience (Park et al., 2017).

Therefore, advocacy is required to raise the awareness and understanding of early childhood STEM education to key stakeholders like teachers, parents, administrators, curriculum developers and policy makers (Early Childhood STEM Working Group, 2017). Furthermore, teacher education courses are recommended for practice-based contexts for STEM learning (Hu & Yelland, 2019). The most integral part of effective STEM education is to support in-service early childhood teachers with integrative STEM-related professional development programs to implement high-quality STEM experiences in their classrooms (Early Childhood STEM Working Group, 2017).

*An integrative STEM approach:*

An integrative STEM approach is seen as a logical approach to teach STEM as it is grounded in constructivist and educational theory using inquiry and problem-solving approaches of learning for real-world applications (Blackley et al., 2015). Moore and Smith (2014, p.7) explain that integration of some or all of STEM disciplines "has the potential to help children learn more deeply, enjoy the STEM disciplines, and provide better access to future careers." Furthermore, Vasquez (2014) posits that the real power of integrated STEM education is that it can solve meaningful problems using the concepts and skills from different disciplines. It is further supported by DeJarnette (2018) stating that integrated STEM experiences improve children's interest in STEM learning and prepare them for the 21st century world. Therefore, integrated STEM education not only focuses on the content knowledge but involves problem-solving skills and inquiry-based learning (Wang et al., 2011). Moreover, integrated STEM education in absence of a specific science curriculum in early childhood can give children a better understanding of how concepts from different STEM areas are correlated or brought together to create meaningful STEM experiences (Madden et al., 2016).

On the other hand, researchers also acknowledge that teaching integrated STEM can be challenging and requiring a strategic approach with deliberate planning for effective implementation (Early Childhood STEM Working Group, 2017; Kelly & Knowles, 2016). For instance, in a case study of 120 Shanghai Chinese educators, Weng and Li (2020) reported uneven curriculum content in technology and engineering with fewer hands-on activities which required formulating explicit and integrated STEM curriculum. However, there are rich opportunities to integrate STEM disciplines and if implemented well in early years it is found to promote higher order thinking and inquiry learning in children assisting them to understand their world thereby developing 21st century skills (Madden et al., 2016). To achieve this, supporting preschool teachers in integrating STEM into their curricula is found to be a lever in creating accessible learning experiences for all the children in the classroom (Brenneman et al., 2019). Tao's (2019) study of 430 kindergarten teachers across China, though teachers lacked confidence in teaching STEM they displayed a positive attitude toward STEM education and were integrating STEM content areas making it a comprehensive curriculum for the holistic development of children.

*Developing 21st century skills through STEM education:*

Today's world is faced with many uncertain challenges and identifying new competencies for 21st century learners has become crucial (Luna Scott, 2015). The National Education Association (2012, p.3) that promotes 21st century education identifies "Four Cs: critical thinking and problem solving, communication, collaboration, and creativity" as the most important skills for preparing students for a global society. The Association emphasises that the four skills can be integrated into all grade levels and disciplines for classroom teaching and learning. A significant body of empirical research illustrates that integrated STEM projects and activities that are either digital or non-digital can enhance the four skills in children (English & King, 2015; Kazakoff et al., 2013; Lowrie & Larkin, 2020; Nguyen, 2020; Torres-Crespo et al., 2014; Zviel-Girshin et al., 2020). However, fewer STEM opportunities are available in the early years of education despite the positive result achieved

through early STEM exposure by engaging children in problem solving activities and building later success in STEM study (DeJarnette, 2012).

A case study undertaken by Zviel-Girshin et al. (2020) with Lego robotics construction in an Israeli early childhood setting children designed robots, explained problems and solutions, collaborated as teams, and discussed STEM concepts used in robots thereby opening door for the development of 21st century skills. In another small study of 10 four-year-old participants of STEM summer camp, Torres-Crespo et al. (2014) further validates children's engagement in STEM activities with support from educators to encourage problem solving, critical thinking, inquiry-based learning, and understanding of STEM concepts. Similarly, a mixed-methods case study by Isabelle et al. (2021) explored Engineering Design Process through inquiry and play-based learning using blocks scaffolding building skills, critical thinking, and problem solving in kindergarten children under the guidance of teachers.

In all the above studies it is evident that play-based learning is employed as the pedagogical approach to teach STEM concepts, but educators need support in incorporating STEM lessons through play-based experiences in their practice (DeJarnette, 2012). The research findings from a two-year independent evaluation of the *Little Scientist* program from Australia reports that a community of STEM inquiry learning through play-based explorations was fostered when educators were provided with STEM professional development (MacDonald et al., 2019). As a result, the Early Childhood STEM Habits of Mind Framework by Simoncini and Lasen (2018) was developed to raise awareness on importance of STEM in early years and as a guide to plan integrative STEM education in early childhood to promote 21st century skills and STEM thinking through play-based learning.

## Section Two: Play-based learning appropriate for STEM education in early childhood

### *What is play-based learning?*

According to Zosh et al. (2017, p.12), "Children are born to learn through play," play is an important tool for enhancing children's learning. In many countries, play-based learning (PBL) is developed as the key pedagogical approach of early childhood education (Pyle & Danniels, 2017). However, there is no definitional consensus on PBL which makes it debatable and controversial (Bubikova-Moan et al., 2019). According to a meta-synthesis of 62 studies from 24 countries from different corners of the world, views on PBL were influenced by different theories and terminologies however many early childhood teachers saw it as a learning through play (Bubikova-Moan et al., 2019). This view is further supported by Nolan (2015) by considering play as the most appropriate tool for young children's overall learning. Although there are varied definitions of play across different cultures (Rentzou et al., 2018) most literature draw on similar characteristics of learning through play as engaging, interactive, meaningful, iterative, joyful through both digital and non-digital play that can be either free or guided play (Gray & Thomsen, 2021; Zosh et al., 2017). A cross-cultural study by Rentzou et al. (2018, p.10) across eight countries in Europe and the USA showed that play supported "social/emotional development, learning, creativity, and as an opportunity to explore the world." Similarly, Taylor and Boyer (2019) also define PBL as child-centered that considers children's

interests and abilities through developmentally age-appropriate learning experiences to support their academic, social, and emotional development. On the other hand, the study also found a lack of a consistent definition of play and its implementation in their classroom with further recommendation for more empirical research to develop clear policies for educators to construct and translate play pedagogies into classroom practice (Rentzou et al., 2018).

Despite the ambiguity of play pedagogy in early childhood, a growing body of studies emphasise how early STEM practices are observed and developed through play-based learning (Buchan & Cron, 2020; Gray & Thomsen, 2021; Lowrie & Larkin, 2020; Torres-Crespo, 2014; Tunnicliffe & Gkouskou, 2020; Vogt et al., 2018). These phenomena of children learning through play is clearly illustrated by Tunnicliffe and Gkouskou (2020) who claim that children are natural scientists as they observe, ask questions, and solve problems while engaged in a free play to demonstrate STEM in action. It is observed and agreed by early childhood professionals that discovery and exploration through play are a cornerstone of STEM teaching (MacDonald et al., 2019; Simoncini & Lasen, 2018). A further contribution has been made in early STEM education with the use of digital technologies through intentional teaching and play-based learning to promote STEM practices (Lowrie & Larkin, 2020).

### *Types of play used as pedagogical approach in STEM teaching:*

The two most widely used play approaches in early childhood environments are free play and guided play in which free play is initiated by children and guided play is a mix of adult-scaffolded learning or intentional teaching but child-directed (Cohen & Emmons, 2017). To throw more light on the information, there are different terminologies used according to different researchers and are enacted as free or guided play. For instance, Johnston's (2015) play types underpins the principles of Rousseau, Piaget, and Vygotsky for effective science teaching and learning with young children into different play types such as dramatic and exploratory play. Johnston's (2015) comprehensive description of different types of play and its connection with the development of scientific understanding in young children provide guidelines for early childhood professionals to implement STEM practices. Out of different types of play, exploratory play is found often to be associated with scientific and cognitive development, as children explored the world around them with the support from educators (Johnston, 2015). For example, Johnston (2015) describes a case study of guided exploratory play where four-year-old children tested balloons by filling them with air, water, and ice to promote understanding the concept of forces.

Tunnicliffe and Gkouskou (2020) segregated play into two main categories as free play activities where children chose the activity and planned (guided) science activities by the educators. Some of the activities included water play, construction play, outdoor play, ball games, and slides with scientific concepts embedded in each play when children engaged in these experiences (Tunnicliffe & Gkouskou,2020). With the world going digital, early STEM education has employed digital technologies such as tablets to support STEM learning through exploratory and imaginative play using both on and offline applications (apps) which proved successful in engaging children in meaningful yet playful learning (Lowrie & Larkin, 2020). As a part of Australia's early STEM project, Lowrie and Larkin (2020) had developed a heuristic for digital engagement with a play-based STEM

learning apps that encouraged children to work collaboratively, think critically, and understand concepts such as sorting. This heuristic program through digital engagement had received positive feedback from educators regarding children's response to the apps (Lowrie & Larkin, 2020). In a study of STEM Summer Camp, assorted materials and activities promoted STEM skills and concepts in four- year-old children through block play, hardware kit, balloons, mixing liquids and colours, and making dough in a free and structured play setting that both proved to be engaging with educators' support (Torres-Crespo et al., 2014). Adding to the variety of play-based learning, the research project by Vogt et al. (2018) with 324 six-year-old kindergarten children indicates that the group having play-based intervention with card and board games in a guided play significantly had higher learning outcomes in mathematical competencies than the non-intervention group. Similarly, the study by Bose and Seetso (2016) for preschools in Botswana revealed that using local games and rhymes as a pedagogical approach by the teachers helped in teaching science and mathematics concepts to children. Drawing on the literature, play pedagogies support the development of STEM learning in young children with the support and guidance from adults.

### The role of the early childhood teachers:

The role of the educators and teachers in early childhood setting is critical for the development of STEM concepts in young children through planning, supporting, and guiding children in learning (Bose & Seetso, 2016; McClure et al., 2017). For this reason, Buchan and Cron (2020, p.31) call upon educators to be "STEM detectives" to observe children as incidental learning happens when they are playing. Similarly, significant studies (Isabelle et al., 2021; Khales & Meier, 2013) posit that teacher should support and scaffold children's developmental learning to meet the needs of each child through play-based learning by being a facilitator. Weng and Li (2020) pointed out that the full potential of children's learning cannot be realised without appropriate scaffolding as children need adults to answer their questions, assist in processing the world around them and to meet their different needs. Most importantly, teachers should motivate and inspire young STEM learners by engaging them in rich STEM experiences and interdisciplinary practices (Ciftci et al., 2020; Zaza et al., 2019). This belief is further consolidated and agreed by early childhood teachers of nine European countries emphasising the need to foster motivation, creativity, exploration, inquiry, and problem-based learning by providing a rich STEM environment (Stylianidou et al., 2018).

To prepare rich STEM lessons, collaboration amongst teachers is found to be a resourceful way to share STEM ideas (Lamberg & Trzynadlowski, 2015). This is illustrated in a data analysis of 91 pre-service early childhood teachers in Turkey where one group collaborated in developing a STEM integrated lesson plan utilizing the engineering design process and Bybee's 5E instructional model that showed successful achievement of STEM learning outcomes (Ciftci et al., 2020). The educators can also facilitate play-based learning by setting up the learning environment with different materials, props, and activities (Bubikova-Moan et al., 2019) for children to explore and develop STEM understanding from their experiences (Bulunuz, 2013). Another way to provide early exposure to STEM learning in early years is by finding ways to incorporate scientific inquiry and technological design lessons with hands-on activities (DeJarnette, 2012).

To expand on the role of early childhood teachers, Clements and Sarama (2016) argue that teachers who use research-based STEM approaches demonstrate higher levels of STEM thinking and learning in children. For instance, a qualitative observational study of preschool children to examine their early engineering behaviours while building with blocks using fundamental design process model in free play found that children exhibited goal-oriented design and problem-solving thinking (Bagiati & Evangelou, 2016). This kind of STEM approach can be used by teachers as a guideline to practice in the classroom. At the same time, teachers must keep children's curiosity and motivation sustained by frequently asking questions and encouraging them to talk about their ideas as "communication can lead to generalization and production of new ideas" (Early Childhood STEM Working Group, 2017, p.15). For effective implementation of STEM education, early childhood teachers need to understand STEM content and thinking that are age-appropriate for instruction to meet children's development and robust professional development training is recommended for teachers (McClure et al., 2017). Thus, engaging in lifelong learning and STEM professional development is critical for effective implementation of STEM education (Nadelson et al., 2013). Although literature reviewed so far presents early STEM exposure through play-based learning as helpful in developing 21st century skills and scientific concepts in young children, the learning trajectory of STEM education in early years faces significant challenges (Weng & Li, 2020).

## Section 3: Challenges in implementing STEM in ECE

### Lack of confidence and self-efficacy in teachers:

Although early childhood professionals perceived STEM education as an important tool for developing early STEM practices and for later success in STEM study through play-based approaches (Simoncini & Lasen, 2018), the desired outcome is not achieved despite various programs and funding invested in STEM education (Blackley & Howell, 2015). One of the factors impacting the effective implementation of STEM in early years is found to be associated with the lack of confidence and self-efficacy in teachers as discussed in significant body of literature (DeJarnette, 2012, 2018; Nadelson et al., 2013; Tao, 2019; Weng & Li, 2020). As a result, teachers are unable to engage in robust STEM activities for children (Margot & Kettler, 2019). When teachers have low self-efficacy, it means that they lack the ability to discern about their own abilities to teach STEM lessons which also leaves them with low confidence level (DeJarnette, 2018). McClure et al. (2017) also report that low self-confidence and anxiety in teachers could lead to transfer of similar effects in their students.

To discuss more on the teacher self-efficacy, the data analysis from 150 preservice preschool teachers in Taiwan through survey questionnaires also revealed that STEM self-efficacy correlated with their STEM pedagogical belief, therefore, found the need to engage teachers in STEM professional development (Chen et al., 2021). In another research analysis of various Australian STEM education strategies Murphy et al. (2019) identified the need to build confidence in early childhood educators to deliver STEM education programmes with sound STEM content knowledge and pedagogical approaches. For example, a case study of Shanghai early childhood educators reveal that educators were not confident enough to integrate technology into their STEM teaching without receiving relevant training (Weng & Li, 2020). Nadelson et al. (2013) in the US and Tao (2019) from

China were consistent about kindergarten teachers' confidence in teaching STEM education stating that teacher confidence had no correlation with their years of experience or levels of qualification but with insufficient professional development and other contextual factors such as lack of systematic STEM curriculum and big class sizes. Thus, the Early Childhood STEM Working Group (2017) argues that modest interventions in the form of support are required for promoting a positive mindset in early childhood teachers to mitigate teacher's STEM anxiety that could affect children's disposition to engage in STEM learning.

***Other contextual factors causing barriers in early STEM education:***

As mentioned above, the findings from Tao's (2019) interviews with the kindergarten teachers indicated other barriers such as a lack of systematic STEM curriculum, large class sizes, and insufficient time for STEM activities. Similar views were presented about lack of time dedicated toward STEM as an integrated subject in early childhood setting (Madden et al., 2016) and an absence of structured content curriculum or guidelines for early childhood STEM education (Blackley & Howell, 2015; Weng & Li, 2020). A systematic literature review on teachers' perception of STEM education based on empirical studies by Margot and Kettler (2019) analysed challenges perceived by teachers in terms of pedagogy, curriculum, structure, student abilities, assessment, time, and STEM knowledge as the barriers to STEM education. Weng and Li's (2020) Shanghai case study findings revealed a lack of comprehensive curriculum in technology stating teachers found integrating digital gadgets such as interactive whiteboards and tablet computers in teaching challenging as they were skeptical about the negative effects of the technology. Another multi-case study by Wang et al. (2011) also found technology as the hardest discipline to integrate in a STEM practice.

Another barrier discussed in a study conducted in Australia by Murphy et al. (2019) showed that there is a shortage of competent and confident early childhood educators engaging in STEM teaching. On the other hand, a qualitative study of 15 kindergarten classrooms shows that teachers found challenges in teaching curricular expectations through play-based learning (Pyle & Danniels, 2017) which means maintaining a balance between STEM teaching through play-based learning is hard to achieve. A qualitative study by Park et al. (2017) found that teachers' challenges in teaching STEM revealed several themes regarding lack of time, instructional resources, administrative support, parental participation, STEM knowledge, and teachers' collaboration. To support early STEM education, findings from nine European countries' *Creative Little Scientist* project study identified the need to ensure enough resources (school structure) and facilities to support practical STEM learning and to encourage involvement of parents and wider community to encourage dialogue and their role in strengthening early years STEM education (Stylianidou et al., 2018). Consolidating all the factors particularly the lack of self-efficacy in teachers highlights the need to have more attention in STEM-related training and professional development support for both pre-service and in-service early childhood teachers (Early Childhood STEM Working Group, 2017).

***STEM Professional Development for early childhood teachers:***

Providing quality professional development and training to both in-service and pre-service teachers in terms of STEM content and pedagogy will produce more awareness of the importance of early STEM education, increase teacher confidence in STEM teaching, and promote meaningful STEM experiences for children to engage in (Early Childhood STEM Working Group, 2017). Additionally, a study analysis of 150 early childhood preservice teachers from Taiwan revealed the need for PD to promote self-efficacy (Chen et al., 2021). Furthermore, learning STEM concepts and thinking such as scientific inquiry, design thinking through problem-based and technological activities are to be part of teacher education so that they are prepared to incorporate STEM initiatives in their curriculum (DeJarnette, 2012). Although the need for PD is emphasized for effective STEM implementation, it is found that early childhood teachers have inadequate PD programs and STEM is usually ignored (Clements & Sarama, 2016). In response to these challenges, studies on STEM frameworks and pedagogical practices through PD programs are conducted to inform early STEM education and to increase the self-efficacy of teachers (Brenneman et al., 2018; DeJarnette, 2018; Lowrie & Larkin, 2020; Simoncini & Lasen, 2018).

Brenneman et al. (2019) conducted a professional development (PD) model to early childhood teachers on integrating STEM into preschool classes of children from diverse background in a Northeast state of the United States and the result revealed more confident teachers with positive impact in their STEM beliefs and practice after the PD program. Similarly, after conducting workshops and modelling of STEAM (integrating Arts with STEM) activities, preschool teachers experienced increased self-efficacy with calls for more hands-on STEM training to be effective teachers (DeJarnette, 2018). A further contribution is made by the Early Learning STEM Australia (ELSA) project (2016-2019) by developing the Experience, Represent, Apply (ERA) heuristic pedagogical framework to integrate digital technologies into STEM activities through a play-based learning as it provided STEM concepts and strategies to translate into practice thereby increasing the confidence and self-efficacy of teachers (Lowrie & Larkin, 2020). Likewise, Australia's *Little Scientist* program, an initiative to improve STEM skills and knowledge in early childhood formed Professional Learning Networks to gain insights about the program and the findings revealed increased confidence in educators to teach STEM through play-based explorations (MacDonald et al., 2020). In summary, the literature points that teachers' self-efficacy and confidence play pivotal roles in STEM education that on-going professional development for teachers would facilitate successful implementation of early STEM education (Margot & Kettler, 2019). Thus, supporting STEM educators in STEM knowledge to engage in a quality teaching which is the gateway to achieving effective STEM education (Zaza et al., 2019).

**Conclusion and Recommendation**

This review discussed the importance of early STEM education in developing 21st century skills through play-based learning to create further awareness in the early childhood community. By raising awareness, the demand for high-quality early STEM education is created by parents, teachers, administrators, and policymakers (Early Childhood STEM Working Group, 2017). Despite the importance of STEM education for children, little attention has been paid to teaching STEM in

early childhood settings and this calls for more efforts from different stakeholders to put theoretical findings into action (Park et al., 2017). The review further elaborated on how play-based learning supports early STEM practices and concepts through different types of play approaches and experiences for educators to explore with STEM learning. The literature revealed that play in any form when guided by adults can support development of STEM concepts and skills in children (Johnston, 2015; Lowrie & Larkin, 2020). Conversely, the research also shows that teachers find it challenging to achieve curricular expectations through play-based learning (Pyle & Danniels, 2017). Additionally, the international literature also indicates that there is a gap in research on translating theory of teaching through play in a classroom practice (Bulunuz, 2013). Further empirical research is required to measure the effectiveness of early STEM education through play-based learning (Blackley & Howell, 2015; Weng & Li, 2020). The review also discussed the role of early childhood teachers in translating age-appropriate STEM learning into practice and the challenges faced in the implementation of early STEM education. The review reported low confidence and self-efficacy of teachers as the main challenge in implementing early STEM education. To overcome this barrier, the review analysed the impact of STEM professional development on teachers' self-efficacy and synthesised that STEM professional development is key to the success of integrated STEM education as it increased teachers' self-efficacy and confidence to teach STEM lessons in early childhood settings (Nadelson et al., 2013).

A large body of literature indicates that STEM education is important in early childhood to develop early STEM practices and to develop 21st century skills through play-based learning. To realise the benefits of early STEM education, a call for stronger action from policy makers and early childhood professionals are expected for the effective implementation of STEM learning in young children (Clements & Sarama, 2016). The Early Childhood STEM Working Group (2017) recommends that high-quality STEM education in early childhood can be achieved through awareness of the importance of STEM to all the stakeholders, and the need for investment in teacher preparation and STEM resources for practitioners.

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# Teacher's instructional strategies: Exploring the lived experiences of teachers under Thragom cluster schools, Trashi Yangtse

**Tashi Phuntsho[1] and Ugyen Palden[2]**

## Abstract

*This study adopted qualitative method to explore the instructional practices of teachers in three primary schools under Thragom cluster, Trashi Yangtse Dzongkhag. The study was aimed at gaining an understanding of teachers' beliefs and how their attitude shaped their teaching strategies that impacted students' learning outcomes. The samples for this study included twelve participants (six teachers and six students) from the three schools. Findings from the study indicated that teachers were well acquainted with the 21st century skills. However, there were disparities between teachers' pedagogical philosophy and actual pedagogical practices involved in teaching and learning processes. Teachers' teaching styles and behaviours were also found to have a significant impact on students' academic achievement. Students' preferences of learning through ICT-based lessons were found to be effective in improving their understanding.*

*Keywords* - Instructional practices, teaching strategies, 21st century skills, academic achievement, teachers' beliefs

## Introduction

Teachers should have the knowledge of how students learn, and they should find out the best possible ways to facilitate learning. The use of varied instructional practices ensures effective achievement of the desired objective. Instructional practices in teaching help the students to learn and understand the content. Teachers come across students with diverse range of learning styles as well as characteristic behaviour. As such, teachers must seek better instructional and classroom organisational tactics to deal with such learners (Tournaki & Cricitielo, 2003). Many teachers consider that poor academic performance is due to ineffective instructional strategies adopted by teachers to transfer knowledge to learners. Therefore, the effectiveness of various instructional practices on academic performances can happen only with the inner qualities of a teacher who strives for excellence, care for and has a deep commitment to providing the best possible opportunities for each pupil (Adunola, 2011).

Teaching at all level of education is aimed at transforming learners to become useful and productive citizens (Tebabal & Kahssay, 2011). For teaching to be successful, teachers must use different instructional practices that can best transfer the information to the learners. Teachers are responsible to be equipped with the latest instructional practices and strategies to transfer the knowledge on the various topics or concepts that they may teach.

During the 3rd Convocation of Teacher Graduates on 17thFebruary, 2009 at Paro, His Majesty Jigme Kheser Namgyel Wangchuck expressed the need to keep pace with educational changes and developments in order to meet the changing conditions in the modern world (Ariya 2009).In response to the King's concern, country wide 5-day training was provided. The theme of the training was based on the concepts revolving around transformative pedagogy, during which pedagogical knowledge and skills were imparted to teachers across the country (Wangdi, 2016). Therefore, it is

relatable to find out the effectiveness of transformative pedagogy in student's academic achievement so that the results from the study could inform the pedagogical status.

According to the result analysis report of three years, 2016, 2017 and 2018, overall pass percentage of Class VII and VIII have been found considerably decreasing (Thragom Lower Secondary School [TGLSS], 2018). TGLSS being the receiver of students from two feeder schools - Dukti PS and Melongkhar PS, also contribute to the over percentage of the TGLSS. Despite the consistent efforts from teachers, not much improvement was seen in pass percentage. It was a great concern for management of the school. Therefore, this study was designed to examine instructional strategies that the teachers of Thragom cluster schools practiced. The entire study was guided by the following research question:

What teaching strategies do teachers habitually practice in order to improve academic excellence in students? The question was further divided into four sub-questions:

1)   What are the general approaches that teachers adopt for effective teaching in the classroom?
2)   What teaching strategies contribute to an effective instructional learning environment in schools?
3)   What kind of instructional approaches do learners desire?
4)   What resources aid in making teaching and learning more effective?

**Literature Review**

The past studies showed developmental process and learning as two different concepts. The progress in research revealed that children's developmental process and learning abilities are interrelated (Vygotsky, 1978). Erickson (1902-1994) developed one of the most popular and influential theories of development, i.e. the eight stages of psychological development in humans, each with different developmental needs. The kind of environment in which the child is raised affects their psychological development and also learning abilities. Furthermore, OECD (2015) asserts that early childhood development thrives through experiences and interactions with responsive adults and friends. In this regard, both parental practices as well as the educators (teachers) play a vital role in enriching the learning abilities and psychological development of a child.

The Early Childhood Care and Development (ECCD) programme is the first learning programme a child may be exposed to prior to his/her schooling life. This programme facilitates the development in the learning abilities of a child. ECCD plays a vital role in preparation of children for the school and ensures that the window of opportunity is not lost (National Education Framework, 2009; Special Committee for Education, 2016).

Piaget (1896-1980 as cited in Hammond et.al. 2003, p.14) states that "learning is a developmental cognitive process and students create knowledge rather than receive knowledge." "Developmentally Appropriate Practices" (DAP) advocated by the National Association for the Education of Young Children (NAEYC) which is a large nonprofit association in the United States supports child-initiated and hands on activities, with teacher- guided instruction mainly arising in response to individual child's needs; be it in short interactions between teachers and children or short interactive whole group activities (Buchanan et.al.1998). Copple and Bredekamp (as cited in

Brown & Lan, 2013, p. 5) state that DAP deploys developmental theory to "promote instructional practices that focus on the growth and development of individual children across all of their developmental domains." They further stress that educators use knowledge about "child development and learning," about the particular learning need of children, and "the social and cultural contexts" in which learners reside to make decisions on instruction and curriculum. Implementing developmentally appropriate practices assists in cognitive development and learning abilities of a child. These practices include encouraging the contributions of students in the class, encouraging students' persistence and effort and raising questions that encourage students to quench their thirst in learning by exploring and being an independent learner.

As asserted by Dorji (2009), teachers play a pivotal role in enabling societies to realise their educational aspirations. OECD (2015) stresses that the "quality of education cannot be better or worse than the quality of a teacher." Powdyel (2008) also stressed that quality is the function of personal integrity. On this note, one can safely say that the students' performances lie in the efforts of a teacher, although other factors that influence students' academic performance are equally important.

In order to improve students' learning and keep them motivated, Klieme et al. (2009, p.141) assert "...supportive teacher-student relationships, positive and constructive teacher feedback, a positive approach to student errors and misconceptions, individual learner support and caring teacher behavior" are important for the students. Positive attitude is an important professional characteristic of an 'effective' teacher (Walker, 2008). Walker (2008) also listed twelve professional characteristics of an effective teacher, i.e., being prepared, has positive attitude, holds high expectations, is creative, is fair, displays a personal touch, cultivates a sense of belonging, is compassionate, has a sense of humor, respects students, forgives, and admits mistakes.

Among all the factors that contribute to the quality of teaching and learning, according to Powdyel (2008), it is the teacher who is the most important school factor affecting student outcomes. Rivkin et al., 2005(as cited in Le Donne et al., 2016) explained that students who are exposed to a 'good teacher' tend to perform significantly higher than students exposed to an 'average teacher'. Teacher's behaviour is highly pivotal in bringing a positive change in students. Researchers claim that a major role in the learning of students is played by teachers. For instance, Nakpodia (2001) and Akomolafe (2004) (cited in Olaleye, 2011, p. 510) found that teachers' positive behaviour affects students' academic performance. The possible connection between teachers' negative behaviour and students' behaviour is quite strong. Teacher's behaviour, whether unconscious or conscious, can affect the student's behaviour. Vijayan et.al., (2016, p.208) found that when teachers do not want to learn, it is certain that the students are not going to learn either. Bashir et.al., (2014) found that students viewed negative behaviour of teachers as being ineffective in the learning domain.

Adding to this notion, Sherab and Dorji (2013) assert that quality of education largely depends on the type of pedagogical knowledge teachers have as well as the pedagogy they use. A review report on quality of education prepared by Special Committee for Education for submission to the 18th Session of the National Council of Bhutan (2016) mentions that teachers play an important role in the education system and the quality of education greatly depends on teacher's performance in the classroom and beyond. Gupta (2017) points out that although other variables

impact the success of student achievement, the most important variable is the teaching method. Gupta (2017) identifies three teaching methods: teacher-centered, student-centered and teacher-student interactive method. Le Donné et.al. (2016) found that teachers have either used one strategy exclusively or the combination of three underlying teaching strategies referred to as active learning strategy, cognitive activation and teacher-centered instruction with different frequencies.

In the Bhutanese context, Gyamtso and Maxwell (2012) point out two kinds of teaching methods: teacher-centeredness and learner-centeredness which are frequently used in the classroom. Teacher-centered strategies emphasise the inclusion of knowledge and skills through lectures, practice and repetition (Echazarra et.al. 2016). Similarly, the teacher-centered instruction is associated with inculcation of knowledge and resolving routine problems (Bientenbeck, 2014). In a teacher-centered approach, teachers act as the center of knowledge selection and presentation, exercising the power to decide and control the students' learning and usually treating everyone alike.

Throughout the literature one strategy that helps children learn is cooperative learning. According to Slavin (2011, p.344). It is cooperative learning is defined as "instructional methods in which teachers organize students into small groups, which then work together to help one another learn academic content". According to the literature "cooperative learning" has been known as an effective learning approach in aiding children obtains the acquisition of practical skills, practical competencies for effective communication (Slavin, 2019). It is also believed that cooperative learning methods enhance students' better engagement in the classroom with the recognition of more productive problem-solving with contribution of the whole group (Chen, 2018). Furthermore, it is claimed to promote more positive attitudes in students toward their own learning, enhance more collaborative relationships between students, develop self-esteem, cohesiveness, and improve learning skills (Johnson, 2009; Tran & Lewis, 2012a, 2012b). For effective interaction, groups should be small so that students can learn from each other to develop learning skills (Slavin, 2011). Likewise, interpersonal and social skills could be enhanced in small groups when group members tend to communicate more frequently with each other. Frequent communication allows more information utilized in making a decision (Johnson & Johnson, 2009). Teachers in Bhutanese classrooms can facilitate an opportunity to gain such skills by children as numbers of children in the classroom is manageable.

An additional factor that can impact on student learning is the use of humour. Literature defines humour as life affirming; a powerful coping mechanism employed to reduce fear, anxiety and psychological stress (Kruse & Prazak, 2006). Humorous content was found to have better results than non humorous content in a learning paradigm (Sambrani, et al, 2014). Humour increases interest, attention, and motivation to the class, and increases student success (Unsal et.al. 2018). Similarly, humour is found to be cognitively and pedagogically crucial. A study revealed that, instructional humor has been adopted as an excellent way for students to learn vocabulary, accelerate critical thinking, practice semantics, and remember more information (Hackthorn, et al. 2011). Humour can help increase motivation, self-confidence and bridge gap between teachers and students. Through humour, the students can maximize lessons by easy understanding and long term retention (Al-Duleimi & Aziz, 2016). Therefore, humour can have additional beneficial effects on learning, such as creation of a favourable atmosphere in the classroom which is related to better

retention of content, more pleasant social climate and increased interest in subject matter for the students.

The audio-visual method is one method that can be used in the classroom to teach pupils of nursery and elementary school. It is opined as one of the best avenues through which knowledge and information can be transferred. According to Terrebonne Parish Library System (2010), audio-visual materials convey information mainly via sound and image instead of by text (cited in Bawa & Fakomogbon, n.d). As students become more accustomed to technology, audio-visual materials play an even more important role in classrooms. Students learn in a variety of different ways, which is why the use of audio-visual components helps to enhance the learning environment. Utilization of audio-visual media such as television, video, movie, projector, computer in the classroom helps in enriching pupils' understanding and stimulates their interest and build a creative environment (Bawa & Fakomogbon, n.d). Sinchuri, (2013) also asserts that teaching and learning materials play a critical role in making the lesson interesting and successful. He further believed that knowledge transfer and conceptualization become more easier and faster with the aid of visual aids. The literature on the effectiveness of visual material in learning, estimated that about 40% of what is learned are through visual experience, 25% through auditory, 17% through tactile, 15% on miscellaneous organization, and 3% upon taste smell (Mercedes and Amelia, 2017). Therefore, need to use audio-visual materials are important in the teaching and learning processes.

Thus, considering the importance of above mentioned factors in teaching and learning process, this study proposed to study the effectiveness of teaching pedagogy deployed by teachers of Thragom Cluster schools under Trashi Yangtse.

**Methodology**

For this study, a phenomenological approach was adopted. A phenomenological study employs the lived-experiences of people (Creswell, 2007) and involves obtaining data through the interaction with people and incorporates their views on specific issues of interest to researchers. Besides, this approach is aptly aligned with the research topic as it intended to explore the lived-experiences of teachers' instructional approaches within the Thragom cluster school area. Data were collected through semi-structured interviews and classroom teaching observations.

**Participants**

For this study, a total of 12 participants took part; four teachers from primary schools and two teachers from lower secondary schools were selected. Two students from classes VI to VIII were selected for semi-structured interviews. All teacher participants were trained teachers holding Post Graduate Diploma in Education and Bachelors of Education. All teachers had teaching experience of more than 5 years.

**Data analysis**

The participants' face-to-face interview responses were analysed using two different analytical strategies. The first strategy used was the 'Word cloud". According to McNaught and Lam (2010), a word cloud is a special visualisation of text in which the more frequently used words are effectively highlighted by occupying more prominence in the representation. Word clouds can be a useful tool

for preliminary analysis and for validation of previous findings. Figure 1 shows the Word Cloud themes generated from the analysis of the data.



Figure 1: Word cloud generated by Jason Davies online word clouds generator.

The second strategy employed was colour coding. The highlighted texts were scrutinized for similar and repeated ideas. Concepts and keywords were identified by using the same colour, with different ideas, concepts and keywords using different colours. Coding methods employ processes that generate themes embedded in the data, in turn suggesting thematic directionality toward categorizing data through which meaning can be negotiated, codified, and presented (Mosar, 2019). Accordingly, major recurring themes and sub-themes were derived as specified in the following section(s). To maintain confidentiality, the participants are provided pseudonyms in the report (For instance, Teacher A, B, C… and Student I, II, III…).

**Findings**

Findings from this study are divided into two themes. The first theme presents teacher's positive attitudes, prevalent teaching strategies commonly practiced, and inadequacy of teaching-learning resources in schools. The second theme highlights the learners' preferences of teaching pedagogies.

**Teachers' positive attitude**

The interview data revealed that the teachers in Thragom cluster schools, hold varying positive attitudes on their teaching principles or approaches. Many participants in the study shared their principles fundamentally based to creating a child-friendly learning environment in order to achieve optimum learning outcomes and providing platform to explore and learn on their own (Teacher A & F). Furthermore, both these teachers believed that giving hands on experience helps to retain what was learnt. Teacher B expressed this opinion bit differently:

Learning meaningfully by children involves employing ranges of teaching strategies keeping in mind the individual differences and needs. Children learn in different ways. Teacher should be a genuine facilitator in students' learning. Student learn faster when they do themselves particularly through group discussion and role plays (Interview, 14/8/2018).

Positive attitude on self or towards own profession is also one factor that stimulates effective teaching and learning. Teacher F conveyed that, "I treat or consider myself as a nation builder...consider myself as an agent of change in the life of students...as one person who can be trusted, reliable and trustworthy. This belief on one-self makes me think twice in the class..." (Interview, 15/8/2018). Other Teachers D and E said that all children in the school are treated as their own children and being open at all times. Thus, above findings persuaded the researcher to conclude that teachers vehemently believed in student-centered teaching and learning.

## Prevalent teaching strategies

Regarding the prevalent teaching strategies in schools, half of the teachers interviewed said they use 'cooperative learning' and 'inquiry-based learning' in an attempt to improve the learning process and achieve a better academic outcome of the students. For instance, Teacher E conveyed that while teaching in the classroom, the teaching strategies frequently used well-planned student-centered lessons.

One common teaching strategy that all teachers used included an ICT-based teaching methodology. The teacher participants observed that ICT incorporated-lessons, such as power-point presentations, videos, and animations, increased students' interest level and participation rate compared to other methods. This implication is evident from the following interview excerpt:

> ...regarding video lesson, I think children learn better because, children are more interested to watch videos, so when I teach them through videos, children get excited to watch and learn better. (Teacher A)
>
> Especially for the young children, storytelling and the role-play play an important role in learning interest and ICT stands the next...help a lot in activating attention in students. (Teacher B)
>
> When children are exposed to ICT the level of interest is seen more and there is active participation from the students... (Teacher C)

Analysis of the data indicated that rather than just using textbooks as the sole teaching-learning resource, teachers tried implementing a range of teaching strategies and exploring new options for students to learn subject contents in the curriculum. On the contrary, classroom teaching observations and field notes reveal that most teaching learning processes in the classroom were found to be dominated by teacher-centered instructions.

## Inadequate Teaching-learning resources

Research claims that one of the main causes of degenerating quality of education in the Middle East and North Africa is the inadequate supply of teaching-learning resources (Heyneman, 1997 as cited in Sherab & Dorji, 2013). The interview data revealed one major challenge that teachers face is accessing audio-visual materials such as LED TV and projectors. For instance, Teacher B expressed the concern of inadequate ICT facilities and less frequent use of ICT in the classroom lessons although its perceived effectiveness is high. She also added that students should be made more

aware of digital tools and their uses in learning (Interview 14/8/2018). Teacher F said, "Our school [has] only one projector and LED TV supplied by education office. Most of the time I don't get opportunity to use it as they are booked most of the times" (Interview, 16/8/2019).

Teaching is also interrupted by a non-availability of right learning materials especially in far flung areas. Some teachers during the interview expressed their concern on the consequences of lack of proper teaching learning materials during the lesson delivery. One Science teacher remarked that "sometimes with the lack of some science lab equipment and chemicals for experiment, lesson is affected. I used different equipment, and it confuse students" (Teacher A, 14/8/2018, therefore, making ineffective delivery of lesson. Same Teacher revealed that, "some schools have science lab equipment not required for their level and possess more than they require. It is remained in the store unused for many years".

**Learner preferences:**

The teaching strategies that students indicated they liked, that engaged them as learners, and which helped them the most to learn more easily, are reveled in the following two sub-themes:

a. **Teaching Approaches**

Analysis of students' interview data revealed that majority of the students preferred teachers who used humour in their teaching along with approachable and frank personal traits. Reasoning that such an approach to teaching tends to result in less boredom and helps them to concentrate more (Student II).

These students showed a dislike and disapproval of serious teachers and physical punishments. The following extracts provide examples:

> Through physical punishment, I cannot understand. When teachers scold us and teach very fast, I do not understand too. I also feel unhappy. (Student I)
> ...when they beat us, when they scold us, [it does not help us in learning lessons]. (Student II)
> It does not help us when teachers teach in angry and serious mood. Sometimes, they also walk out of the class when they are angry. (Student IV)
> When teachers are strict and when they do not explain while teaching, it does not help us in learning lessons. (Student V)
> When teachers show anger and seriously beat us, it does not help us, we do not understand, we are afraid, we do not understand the lessons. (Student VI)
> Student VI said, "When teacher uses jokes, I feel bit happy and then I can remember the lessons. When teacher uses severe physical punishment, I cannot understand what is taught."
> The prevalence of aggressive behaviour by teachers is also agreed by teacher themselves. For example, Teacher E stated, "with regard to this, the gap between the teacher and the students is still existing, say about, 50% of the teachers in the field are still authoritarian and strict disciplinarian which gets in the way of student's learning".

On the contrary, few of the students preferred teachers who were strict and conducted tests now and then. For instance, Student III states, "teachers should give us questions and do quiz competition, then give us a class test."

b. **Teaching strategies**

When it comes to teaching strategies, strategies like ICT-based presentations, explanation and cooperative learning (i.e., group-based activities) topped the list (as expressed by Student II, III, IV, and V). The responses from both students and teachers indicated that the interest of the learner is boosted and makes learning easier when the teacher deploys a range of teaching methods. One such common response given by both the teacher and student participants, as previously mentioned, was the use of ICT in the classroom. This is evident when Student III said, "when teacher [makes] us to do presentation using projector [I learn easily]." Furthermore, according to Teacher A, "students tend to get excited about learning when they are taken out of the classroom, especially with science subjects. Students get excited when they are taken on a field trip. It was also suggested that "audio visual programmes be encouraged too." Teacher C suggested another strategy, i.e. learning through role plays for English and history subjects. He reasoned out that "role play and demonstration help in learning the topic because…role play requires students to practice the dialogue time and again thereby helping them to retain it for a longer period in their minds." Thus, students' responses also synchronize well with what teachers declared on teaching strategies, i.e., teaching strategies as an effective method in enhancing students' academic achievement.

c. **Use of audio-visual aids**

The teachers' interview data revealed that more learning in students occur when the lesson is taught through using audio-visual materials particularly projectors and LED TVs. According to Teacher D, students show more interest in learning when taught through projector (Interview, 14/8/2018). The same teacher asserted that, "Students are happy when they see teacher coming to the class with laptop and projector" (Interview, 14/8/2018). Similarly, Teacher E pointed out that students prefer more activities that require presentation by students using projector (Interview, 15/8/2018). Findings from the students' interview also indicated that retention of what they have learnt through audio-visual aids is high than learning through traditional approach. Student VI claimed that, "I like doing presentation and when I present I learn fast. I can remember better (Interview, 15/8/2018). Classroom observation of Teacher C showed that students were eager to present their works to the class, and also seen active participations from children when teacher delivered lesson using LED TV.

**Findings and Discussions**

First, findings from this study reveal that there is strong evidence to show that all teachers possess positive attitude towards their students and their profession in order to have effective teaching in the classroom. Teacher's beliefs in providing a platform to learn through hands-on experience are a great idea. Sinchuri (2013) asserts that learning occurs when the learners observes, think, feels, and interact with others especially through hands-on experiences. The study also showed that some teachers treat children as their own children and care them. Tshewang and Lhamo (2020, p.24) claim that, "teaching is a very humanistic profession that requires genuine values like compassion and care" which is a one of the core values of Gross National Happiness (GNH). Moreover, meaningful learning is ensured if teachers possess these qualities (Sherab & Dorji, 2013). However, teachers' belief in creating child-friendly atmosphere often contradicted with their actual practice in the classroom.   Students' interview data revealed that teachers sometimes exhibited aggressive actions such as scolding, use of physical punishment, serious mood, anger and shouting at them. The study also found that teachers not only showed aggressive behaviours but also used passive actions

such as walking out of the class in the middle of teaching. Teachers' negative behaviours were confirmed in classroom observations. It was revealed that teachers lacked control over their temper and used authoritative language. To this, students viewed it as an obstructer that impeded their learning process. This study is tandem with the findings of Sandholtz (2011) who claimed that lack of positive attitude towards students affected students' motivation and engagement in learning. This has been further reinforced by Walker (2008); Sherab and Dorji (2013) that positive attitude is an important professional characteristic of an 'effective' teacher.

Second, the issue of teachers being 'authoritarian' still prevails in the school system. Findings from the study and anecdotal record in the school indicate the existence of punishments. Punishments include scolding and beating. However, this consistent pattern was perceived to be a negative behaviour by teachers that hampered in creating emotionally safe learning classroom for learners. Findings also suggest that application of punishments has actually impeded students from learning, leading to poor performance in their examinations. This result is consistent with the findings of Owuor (2012) who asserted that strict punishment in school leads to beating and prevents children from effective learning, and argues that punishment also exposes children to physical and psychological dangers. However, implementation of the zero-tolerance policy in schools is expected to imbibe a safe and secure learning environment in school where parents are on same page as proactive partners in educating children (MoE, 2012). The erstwhile Education Secretary Sangay Zam, also stressed that the policy of zero-tolerance is embedded to nurture and help children realize their full potential rather than punishing children (BBS, 2012. The existing school level discipline policy which is inclusive, positive and proactive behaviuor management approach in nature is vehemently in place (Thragom Lower Secondary School [TLSS], 2020). Only thing is to seriously implement it by all stakeholders.

Third, the students' preferences over certain types of teaching styles have a significant impact on students' learning. The findings from this study indicate that majority of learners prefer their teacher to be humorous along with approachable and frank personal traits as those traits help learners to become more active and enhance concentration level. This is consistent with the findings of Unsal, et.al., (2018) who stated that humour increases interest, attention, and motivation, and increases student success. This finding is also in agreement with the findings of Sherab and Dorji (2013) where they claimed that traits such as approachability and frankness is one of the important characteristics of good teaching, and argue that it is crucial for all teacher to possess such qualities to ensure meaningful learning.

Fourth, lack of sufficient teaching/learning materials were reported by science teachers as contributing to ineffective delivery of science lessons. Materials include science lab equipment and chemicals. Research by Special Committee for Education (2016) also found that schools face significant challenges in the implementation of school curricula and achieving desired outcomes of children's learning. Moreover, overwhelmingly all teachers reported that lack of ICT facilities such as overhead projector, portable speakers, and LED TV were significant factors leading to ineffective teaching and learning. This leads to teacher behaviours, such as lecturing, use of chalk and talk, chalk board, and textbooks. These results correspond with the findings of Unal and Ozturk (2012) who argue that inadequate resources is a constraining barrier to any integration effort and will be very difficult to achieve a meaningful integration. Findings from this study also indicate that inadequate

resources have adversely affected student enthusiasm for learning as they believe their learning happened fast and easier through these medium. This is consistent with the findings of Ratminingsih et.al. (n.d.) who found that use of ICT in teaching and learning process not only made the lesson more effective and efficient, it also made it more interesting, challenging, and stimulating for students' creativity (p.191). Hence, the meaningful integration of ICT will only happen if teachers have access to sufficient equipment, time, training, and support.

**Recommendations**

Based on the findings of this study, several recommendations are made that might be of use for other schools and stakeholders.

First, findings from this study revealed that all teachers have positive attitude towards their profession as of important profession as a nation builder, high perceptions on the importance of providing hands-on experience in order to make meaningful learning experience to children, caring as parents and safe learning atmosphere to every individual child. Such perceptions and characters shown by teachers clearly indicate that the Ministry of Education's aim of realising the mission of infusing Gross National Happiness (GNH) values and principles in education system through creating GNH-minded teachers and a GNH-infused learning environment has taken strong root in schools (Lhendup, et al. (2018). Genuine compassion, according to Tshewang and Lhamo, (2020, p.24) allows teacher to "nurture authentic connection with students that positively impacts student's learning". Such values are worthy to be emulated by other teachers in schools considering the profound impact on learning of students.

Second, ICT facilities such as projector and LED TV seemed to have potential to raise the interest of students' learning. It was noticed that meaningful learning occurred in students when audio visual aids was employed in the process of teaching and learning. It is recommended that teachers to focus more on using audio-visual aids while delivering lesson.

Third, in schools, particularly the management needs to play proactive role in addressing the issue of inadequate teaching-learning resources. This has negative impact in teaching. A good support system such as "Resource sharing culture" within schools need to be instituted upon consulting Chief Dzongkhag Education Officer to pump in the required resources left idle in other schools. Furthermore, schools could organise different programmes such as variety show, school fete day, open Khuru tournament so forth. Schools could also seek external support from Kholongchu Hydropower Energy Limited (KHEL) Trashi Yangtse, Non Government Organisations (NGOs) and business-firms rather than waiting for government's fund.

Fourth, we are living in a 21st century, driven by a rapid technological revolution and modernization. Therefore, it is critical that teachers must understand that 21st century children must be dealt with 21st century skills. Teaching through corporal punishment, use of abusive language such as scolding and shouting so loudly and walk out of the classroom angrily in the middle of class are obsolete strategies, and it is typically a traditional approach. Such practice is not expected in GNH infused schools.

## Conclusion

The focus of this study was to explore the lived experiences of teachers' teaching pedagogy under schools of Thragom cluster. In general, it has been found out that teachers in three schools have positive out looks towards their profession especially in terms of nurturing children with child-friendly environment. Such environment contributes to favourable learning atmosphere to children resulting in effectiveness in learning.

Pedagogically, the study suggests the prevalence of application disparity between the philosophy they possess as a teacher and what they actually practice in the classroom. Such mismatch in the pedagogical aspects can withstand as a stumbling block in teaching learning process. For instance, frequent usage of teacher-centered pedagogy coupled by aggressive behaviours exhibit teachers hinder in the process of learning which students viewed as an opportunity to be more student-centered.

The study has also found there are learning barriers posed by inadequate teaching learning resources in schools including science lab equipment, projector, LED screen and lack of humours from teachers that are perceived to be impeding effectiveness of teaching and learning in schools. Students perceived that through these medium, they tend to learn effortlessly, help to boost their learning and retain longer period of time in their mind.

It is vital to consider students' preferences particularly the use of humour as a motivating tool during the transfer of learning; however, teacher should evaluate the context of using and gauge the effectiveness on learning. For example, it would not be appropriate and advisable to use humours at all times. While students' preferences be idealized as they facilitate learning but using too often make a teacher looks like a clown in the class (Ali et al, n.d). Thus, it is important for teachers to know appropriate situations and times while considering the need of humour.

However, as this study explored lived experiences of teaching pedagogy and students' preferences over teaching pedagogy and not the impact of teaching pedagogy, we must accept that teaching is a complex profession. Myriads of variables such as nature of the topic, availability of learning aids and capacity of students should be considered for any teaching pedagogy to be effective. Besides, other factors such as cultural context, learner's need, gender differences and learner's interest should also be taken into consideration (Bhutan Professional Support Division, 2020).

The findings of this study cannot be speculated to the highest level owing to the limited sample. The number of participants were from only three schools. Hence, further research with more samples size can surge in generating accurate findings.

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