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Factors Influencing Bhutanese Teachers' Multigrade Knowledge and Teaching Practices

PAWAN KUCITA, AHMED BAWA KUYINI, TOM MAXWELL AND CHARLES KIVUNJA

Abstract

Multigrade teaching in rural and remote areas is a key strategy for Bhutan to achieve Education For All. This study investigated the factors influencing Bhutanese teachers' understanding of multigrade schooling as well as their reported multigrade practices in their classrooms. The sample of 201 teachers from a total of 253 in 20 regions responded to survey questionnaires about multigrade concept and practice. The results from descriptive statistics, t-tests and ANOVA highlight the link between individual realities and local contextual variables on understanding and employing multigrade practices. This study found a discrepancy between multigrade teachers' conception and practice of multigrade teaching. There also appears to be a mismatch between teacher education and the real demands on teachers in multigrade situations. However, it is clear that training bears some relation with understanding multigrade and employing multigrade practices, and that effective multigrade practices also hinge on other factors, such as the relation between teacher education and the real demands on teachers in multigrade situations, to which attention need to be given by authorities.

Introduction

Bhutan is a small land-locked country in the Eastern Himalayas sandwiched between Southern India and Northern China where western educational development has been late in comparison to its neighbours. Having become a signatory to the Education for All (EFA) initiative, the Government of Bhutan took practical steps to increase educational access for all children (Maxwell, 2011). These practical steps included the opening of community primary schools and executing policy directives aimed at achieving universal primary education through increased school enrolments across the country (Kucita, 2010). The endorsement of the principles underpinning the EFA implied a philosophical commitment to achieving the goals enshrined in the EFA agreement. The Government recognised that multigrade education was a means to (1) achieve both the EFA goals and at the same time (2) ensure that remote community schools were able to deliver appropriate curriculum to achieve educational outcomes in the rural and remote regions in mountainous Bhutan (Pridmore 2004: 6).

Multigrade as an approach to education

The Institute of Education at the University of London which has conducted a lot of research on multigrade contexts defines multigrade as 'any class in which students of different grade levels are placed together for administrative reasons' (IOE, 2010). Thus the term 'multigrade teaching' (MGT) is used to refer to a wide range of graded classroom organisation in which one teacher is responsible for children in two or more curriculum grade levels at the same time, usually in one classroom (Little, 2007, p.3). For example, in Zambia it is quite common, especially in the rural and remote areas, to find schools in which two or more primary school children of different curriculum grades are taught in one classroom usually by one teacher within a timetabled period. For example, one class may have students belonging to grades 1 and 2 or grades 3, 4 and 5. The children are usually of different ages and competence levels but they

learn and work in one class and classroom simultaneously. This is the multigrade teaching structure.

Multigrade teaching seeks to ensure that all students are given an opportunity to learn. This requires that teachers possess skills to teach in a way that allows them to adapt the curriculum to different levels of needs in the one classroom. The collective of the skills required for teaching students of different abilities or grade levels in one classroom, imposes on teacher trainers and institutions the responsibility for training teachers who will be engaged in multigrade classrooms. It is the pursuit of the goal of developing teacher skills to serve diverse learners in the one classroom that underpins the multigrade concept and policy.

The need to develop multigrade schools in the case of Bhutan, was precipitated the fact that the geography of the country and the unique historical development of education with current human resource constraints dictated that it is not feasible to equip all classrooms in all schools in many remote localities with teachers to teach each class. These developments reflected the statement of the Ministry of Education documents illustrated by the comment:

> The essence of education is to give our Bhutanese people a better life, contribute in the nation-building process, and help their families and friends. It is very important that our students not only receive the best possible education and training but also learn to understand and appreciate the values of our Bhutanese system (RGoB: 1999: 1).

The Ministry's statement a decade ago conveyed the clear message that the government remained committed to providing all Bhutanese children with an education and including those in rural and remote areas. The strategy to achieve this would be to introduce multigrade schooling. In fact, from the 1960s figure of only 11 primary schools – that served fewer than 500 children – the number rose to 476 schools and education institutions in 2005 (RGoB 2005).

Multigrade teaching/learning in Bhutan

Multigrade teaching was introduced in Bhutan in 1991 to expand access to primary education to remote and scattered communities (Strawbridge 1994; Maxwell 2011). In-service was needed and a program of national, district and cluster based in-service training was established (Laird, Maxwell, Tenzin & Jamtsho 1999) with support from the government and external agencies. This included multigrade in-service with support from such agencies as UNICEF, the Canadian International Development Agency (CIDA) and the Swiss Co-operation Agency (Ninnes, Maxwell, Rabten & Karchung 2007). Multigrade teaching was integrated into the Bachelor of Education (BEd) qualification from 2005 (Ministry of Education 2005) and included the BEd distance education qualification a little later.

From zero multigrade schools in 1990 to 2004, it was estimated that out of 292 primary and community schools in the kingdom, 98, or 33%, were multigrade schools catering then for approximately 37,800 students (RGOB 2006). This figure increased with a planned further 137 new multigrade schools in the ninth education plan. In 2009, 33 Extended Classrooms (ECRs)[1] were also established to further increase access to primary education for more than 1000 children in very remote areas (Pridmore 2004: 6).

In order to implement the multigrade approach, relevant education policies, teacher education and curriculum materials were developed by the Bhutan Ministry of Education using financial and technical support from international partners. For example, some 120 Bhutanese educators, most of whom were multigrade teachers and principals, had participated in attachment programs with Australian schools and in Canada by 2005 (Ninnes et al 2007: 128). Additional resources were also developed including a

multigrade manual (Strawbridge 1994). The first multi-grade Handbook for teachers in Bhutan - *Multi-grade Organization and Teaching in Primary School: a Handbook for Teachers in Bhutan* (Strawbridge 1994) - was developed by David Strawbridge, a technical consultant on multi-grade teaching, sponsored by UNICEF attached to the Teachers' Training College at Paro. The Handbook was developed in full consultation with teachers and lecturers teaching in the teacher training college, the education division, and the Ministry of Health and Education.

The value of Strawbridge's work was acknowledged by the director of the then Paro Teacher Training College thus: "The Handbook is a timely contribution to the scant literature on emerging contextual methods of teaching in general and in multi-grade teaching skills which are relevant to Bhutan in particular" (Strawbridge 1994: 1). The director also stated that the Handbook was not only a useful guide for teachers in far-flung community schools but would also be a helpful resource for teachers in urban single-grade teaching situations.

Written for use in both pre- and in-service teacher training, it became one of the key training resources the Ministry of Education and has been used to guide the implementation of multi-grade teaching in Bhutan. The nine chapters of the Handbook outline the broad concept of multi-grade, its organization, planning, teaching aids and assessment and evaluation. It also covered topics such grouping children, establishing routines, sharing responsibilities, and planning methods which were in line with NAPE philosophy introduced in the same year.

Chapter One outlines the concept of multi-grade organization and teaching in the classroom. According to Strawbridge, Bhutanese teachers understand multi-grade organization and teaching in one of three ways:

1) Two grades housed in one classroom and taught by one teacher with the children in different grades kept apart. Each grade is taught separately and covers only its own syllabus. There is no academic interaction between students of the two grades.

He comments that:

> This is not multi-grade teaching. This method of teaching involves a lot of work and does not readily benefit the children. In fact the children often get insufficient time from their teacher to help them with their lessons (Strawbridge 1994: 2).

2) Two grades are taught by one teacher in a single classroom with both grades generally kept apart, taught separately, and each covering its own syllabus. However, the two grades are combined for some activities such as singing, arts and crafts, games, storytelling and reading (quasi-mono grade).

Again Strawbridge evaluates this by saying:

> This is still basically single-grade teaching with children being combined only for the more informal aspects of their education. It is not multi-grade teaching (Strawbridge 1994: 2).

3) Two grades are combined in one classroom and taught by a teacher. However, both groups are treated as a whole class, with activities done at individual ability levels or in small groups, depending on the subject area being taught. The teacher covers similar topics and objectives with the whole class and children are able to do activities from both class syllabi.

This Conceptualisation of Strawbridge has been used by The Ministry of Education and introduced into the teacher education system through both in-service and pre-service training.

As Strawbridge's book has been used extensively throughout Bhutan for more than a decade, this research study used these three constructs as a guide to assessing the way teachers understood multi-grade and also included actual classroom observation. Since 1994, many primary teachers have been trained to use this Handbook in both pre-service and in-service training. As well as this multi-grade Handbook, there were other multi-grade teaching and learning materials developed by EMSSD and CAPSD, Ministry of Education: work cards, worksheets, ideas folders and more. These materials have been produced and used in multi-grade classes across the country.

The problem

Despite these substantial efforts to develop quality multigrade teaching and learning, a small study of multigrade teaching in 2002 conducted by a team of Bhutanese Education Monitoring and Support Services Division (EMSSD) officials found a discrepancy between what multigrade teachers do in practice and what they say about multigrade teaching (EMSSD 2002: 15). VanBalkom and Sherman (2010) also found a general disconnect between the theory and practice because of "the lack of time to do justice to a substantial body of knowledge and to practise teaching skills" (p.47) in some teacher training programs, which impact upon teaching in schools. It seems that most teachers were trying to replicate the mono-grade organization in their multigrade classrooms by teaching each grade separately but in the same classroom. Using this monograde strategy also meant that there were fewer opportunities for students to gain the benefits that come from social interaction across age and gender boundaries, collaborative group work and learning with peers, to mention a few (see Cornish 2006). Against this general background of a discrepancy between the teachers' knowledge of the concept of multigrade and their multigrade practice, exploring what Bhutanese teachers know about multigrade and what they do in their classrooms would contribute immensely to the Bhutanese Ministry of Education's efforts of ensuring that students benefit from the use of the multigrade approach in the rural and remote parts of Bhutan.

Aims of study

The aim of the study from which this paper is drawn was to assess the factors that impact upon Bhutanese teachers' knowledge and use of multigrade teaching practices. As such the following research questions were raised:

1. What is the level of understanding of multigrade concept among teachers?
2. What is the level of use of multigrade teaching practices among teachers?
3. Are there any significant differences in participant scores on multigrade concept (CON) and practice (PRAC) as a function of background variables such as multigrade combination, subject combination, types of school, age, gender academic qualification, professional qualification, training and districts?

Method

Participants

A total of 201 teachers who were teaching in multigrade community and primary schools in the 20 regions of Bhutan participated in the study. The teachers completed consent forms and a three-part questionnaire on multigrade concepts and practices. Of the total 253 questionnaires sent to teachers, 201 were

returned representing a response rate of 79% or 47% of the total of 425 multigrade teachers in Bhutan (MoE 2005). This sample was considered sufficient to be representative of all multigrade teachers.

The respondents consisted of 173 (86%) males and only 28 (13.9%) females but this proportion reflected the population in multigrade schools.

The biggest proportion of respondents (49.3%) was in the age group 26-30. The respondents in the 31-35 age group represented 21.4%. Only 4.5% of the respondents were in the age group 40+ and none of them were female.

Up to 70% of participants had training in multigrade against 30% with no such training. Nearly 46% of the teacher participants had been in the field for between 1 and 5 years.

Those with 6-10 years teaching experience constituted 63 (31%) and those with 11-15 years were 27 (13.4%). The rest (9.5%) had more than 16 years teaching experience In terms of Academic qualifications, the bulk of the teacher participants (58%) had only attained grade 10-12 in education. This is particularly important because it means that the bulk of teachers were not well educated. Another 11% obtained Bhutan Education certificate and up to 22% had a Bachelors' Degree.

With respect to Professional qualifications, 38% held an undergraduate or postgraduate degree in education. The rest (62%) had Teachers' Training College qualifications. Overall this means that the teachers were relatively poorly educated with minimal professional qualifications to teach in what is probably the most difficult scenario in primary schools: multigrade. (See Table 1 Below).

Table 1. Background information of respondents

Variable	Grouping: Number (Percentage)	Total
Gender	Male: n=173(86%) Female: n=28 (13.9%)	N=201 (100%
Age	21-25 years: n=23 (11.4%) 26-30 years: n=99 (49.3%) 31-35 years: n=43 (21.4%) 36-40 years: n=27 (13.4%) 40+ years: n=9 (4.5%)	N=201 (100%
Training in multigrade:	Yes N=141 (70%) No: n=60 (30%)	N=201 (100%
Type of training	NBIP: n=24 (11.9%) DBIP: n=33 (16.4%) CBIP: n=21 (10.4%) SBIP: n=24 (8.5%)	N=201 (100%
Years of Teaching Experience	1-2 years: n=54 (26.9%) 3-5 years: n=38 (18.9%) 6-10 years: n=63 (31.3%) 11-15 years: n=27 (13.4%) 16-20 years: n=10 (5%) 21+years: n=9 (4.5%)	N=201 (100%
Academic Qualification	Below grade 10: n=15 (7.5%) Grade 10-12: n=118 (58.7%) Bhutan Certificate: n=24 (11.9%) Bachelors' Degree: n=44 (21.9%)	N=201 (100%
Professional Qualification	TTC: n= 28(13.9%) PTTC: n=94 (46.8%) TTT: n=3 (1.5%) BED (Primary: n=67 (33.3%) BED (Secondary) n= 6 (3%) PGCE: n=3 (1.5%)	N=201 (100%

Instruments

The study employed a Three-part questionnaire consisting of Parts A, B, and C. Part A focused on the biographical data of teachers such as age gender, mutltigrade training and teaching experience. Part B was focused on Teachers' understanding of the concept of multigrade teaching (Labelled CON) and had 13 items. Part C related to Teachers' use of multigrade teaching practices (Labelled PRAC) in their multigrade classrooms and consisted of 36 items.

The questionnaire items for Parts B and C were based on two sources. The first was Strawbridge's (1994) classification of the concept and practice of multigrade. The second source was a literature review on multigrade and the analysis of the key documents related to multigrade teaching in Bhutan. The Strawbridge conceptualization was formally introduced into the Bhutanese education system in 1994 and was used in both in-service and pre-service teacher training.

While responses to the items in Part A of the questionnaire was based on question type, the responses to items in Parts B and C of the questionnaire were based on a six-point Likert-type classification from Strongly Agree (rated as 6), Agree (5), Agree to some extent (4), Disagree to some extent (3), Disagree (2), Strongly disagree (1). High total scores on both scales indicated that the respondent understood the concept of Multigrade and reported using many different multigrade practices respectively.

An example of the CON scale items is:

1. The first concept of Multigrade Teaching refers to a classroom that houses two grades (or more), they are taught by one teacher, children of both grades are kept apart, each grade is taught separately and covers its own syllabus, and there is no academic interaction between students of the two grades. (Strongly Disagree to Strongly Agree).

An example of the PRAC scale items is:

1. In ability groups, for example in reading usually I have set up three groups or more to cover the range of abilities in the class e.g., poor readers, intermediate and good reader. (Strongly Disagree to Strongly Agree).

Data Collection

The questionnaire was pilot-tested with 23 teachers in ten community primary schools located in three districts. Following the pilot testing, and a review by three experts in multigrade teaching (two from the Ministry of Education in Bhutan and one from the University of New England, Australia), some items were added and others eliminated. The Final Questionnaire therefore had 13 items for PART B (multigrade concept) and 36 items for Part C (multigrade teaching). Part B and C were labelled CON (Concept of multigrade) and PRAC (Practice of multigrade) respectively.

Data Analysis

The data were analysed using the SPSS program. Reliability and factor analyses were undertaken for CON and PRAC scores. The confirmatory factor analysis and a series of statistical procedures were then undertaken to answer the key research questions of the study. In order to answer the key research questions, descriptive statistics, t-tests and ANOVA were employed.

Results

Reliability and Factor Analysis for CON and PRAC Scales

The reliability analysis of the CON data showed a Cronbach's Alpha of 0.569. Fraenkel and Wallen (2000) recommend that an alpha coefficient of .70 is adequate for research. Given the rather low alpha for CON measure, the researchers subjected the scale to confirmatory factor analysis based on the three Strawbridge multigrade concepts. The aim was to see whether or not the items were related and showed any similarity to the Strawbridge conceptualization. The analysis yielded three factors. The three factors were named as: (1) disadvantages of multigrade (factor 1), (2) advantages of multigrade (factor 2), and (3) *correct* definition of multigrade (factor 3). Factor names were strongly guided by the nature of the items that loaded more strongly (highest values) on that particular factor (Maxwell 1992).

Although there were three factors, the item loadings were not the same as the Strawbridge conceptualization. For example, item 9, which represented Strawbridge's first concept of multigrade (a classroom that houses two grades or more and is taught by one teacher, each grade taught separately and with no interaction between the students) falls in to factor three (concept three) rather than factor one (concept 1). Moreover, item 1 which represented the first concept of multigrade also loaded on factor two rather than factor one. What does this mean? Unlike Strawbridge, teachers were not able to distinguish between concept two (item 10) from concept one (item 9). Neither do they distinguish item 9 from factor three. This means that item 9 is more related to items 11, 12, and 13.

In summary, the analysis revealed that teachers were not conceptually distinguishing the various forms of multigrade as defined by Strawbridge. Even when using Quartimax rotation, the items loaded the same way on the factors. The loading was stable. These three factors were used in further analysis after conducting reliability analyses for each factor. Reliabilities were run for each of the factors using the items that loaded on the factors. The Cronbach Alpha of Factor 1 was 0.727, Factor 2 was 0.595 and factor 3 was 0.611. Each of these is higher than the original Cronbach Alpha of .569 even though there were fewer items in each. Although the Strawbridge conceptualisation of multigrade was not confirmed the analysis revealed that the Bhutanese do indeed think of multigrade in terms of the three factors identified above (See Table 2 Below).

Table 2. Rotated component matrix (a) of multi-grade concept

Rotated Component Matrix[a]

Multi-grade Concept	Component		
	1	2	3
Con8: No consideration to pay attention to individual student's ability	.741		
Con5: Difficult to fulfill the syllabus of each grade	.736		
Con7: No time to give individual attention	.711		
Con6: Need more teaching aids and more to be duplicated	.604		
Con4: Disadvantage is large class size and difficult to control and less effective	.427		
Con3: Another advantage is to help problem of teacher shortage		.731	
Con1: The first concept of MG, children are kept apart, taught separately with their own syllabus, no academic interaction		.715	
Con2: Advantage of first concept of MG is to help classroom shortage		.673	

Con10: Second concept is similar to the first concept. However, the two grades are combined activities such as singing , games, reading	.504	
Con13: The third concept is how MG teaching should be conducted. It is a MG teaching.		.725
Con11: second concept is mono-grade teaching, it is not MG teaching		.687
Con9: The first concept is not MG teaching		.677
Con12: The third concept, two grades are combined, treated as a whole class, activity done at individual ability or small groups		.607

Extraction method: principal component analysis. Rotation method: Varimax with Kaiser normalization.

The reliability analysis for 36 items of the PRAC data (one item which appeared unrelated to the rest was dropped) showed a Cronbach Alpha of .889, indicating that it was a reliable scale and was therefore used in further analysis. The Factor Analysis yielded ten factors. Factor 1 was composed of eight items and was called "assignment of responsibility", Factor 2 had six items called "multigrade teaching methods". Factor 3 (five items) called "teacher competence". Factor 4 (four items) called "using teaching and learning materials", Factor 5 three items called "multigrade planning", Factor 6 (four items) called "ability group learning", Factor 7 (two items) called "assessment of learning and its usage", Factor 8 had only one item (item 16) loading on it and was called "grouped children within grade"' Factor 9 was composed of two items and was called "learning activities" and Factor 10 was composed of two items called "split timetable".

These were the factors that were used to explore the relationships amongst the teacher variables and multigrade teachers' concepts and practices.

Table 3. Rotated Component Matrix (a) of practice in multi-grade teaching
Rotated Component Matrix (a)

PRAC in MG	Component									
	1	2	3	4	5	6	7	8	9	10
P30 Taught students the skills needed to mark work	.770									
P29 Established areas where students can mark their work	.757									
P28 Shared some responsibilities with my children	.730									
P22 Taught children about record keeping	.554									
P31 Used peer tutoring	.520									
P37 Used parents & community to help teaching	.473									
P15 Used a mixed ability group	.429									
P17 Grouped children across-grade	.409									
P13 Give more exercises to those who can do		.675								
P2 Routines, fewer instructions		.622								
P5 Some time whole class-teaching		.602								
P36 Used continuous assessment to assess learning		.549								
P21 Established routine classroom management		.465								
P18 Established routine procedures		.465								
P26 I make a signal to attract attention			.763							
P27 Asked leading questions			.625							

P14 Continue to work with those who cannot do			.608							
P11 Introduced concept and then follow with example			.532							
P25 I speak slowly and use simple language			.501							
P33 Used materials available in community for teaching aid				.774						
P34 Taught students how to use teaching aid				.723						
P32 Prepared my weekly timetable				.578						
P24 If instructions are not clear, less effective				.508						
P4 Common timetable					.800					
P9 Ask children and allow children to ask					.749					
P20 Established a set of marking time						.650				
P7 Pre-test before grouping						.645				
P19 Give individual attention by giving extra assignment						.581				
P10 Ability grouping						.538				
P35 Used end-of-year exam to assess learning							.704			
P12 After marked class exercise and then dividing group							.544			
P16 Grouped children within grade								.815		
P23 Taught in presenting their work, display in class									.717	
P8 Children read without understanding									.355	
P3 Split timetable										.778
P6 Grouping by activities										.418
Total Items = 36	8	6	5	4	2	4	2	1	2	2

Extraction Method: Principal Component Analysis.   Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 20 iterations.

Results of Key Research Questions

Multgrade Concept
The key research question in relation to multigrade concept was "What is the level of understanding of multigrade concept among teachers?" The descriptive statistics to answer this question showed that the mean score of the 201 participants on the multigrade scale was 38.2 out of a possible maximum total score of 78 This is indicated that the respondents rated themselves low in terms of knowledge or understanding of multigrade concept.

Multigrade Practice
The main research question in relation to multigade practice was "What is the level of use of multigrade teaching practices among teachers?" The descriptive statistics to answer the question showed that the mean score of the 201 participants on the multigrade practice scale was 174 out a possible maximum total score of 216. This is indicated that the respondents rated themselves above average in terms of their use of multigrade practice.

Relationship between background variables and Multgrade Concept and Practice

The final question was: "Are there any significant differences in participant scores on multigrade concept (CON) and practice (PRAC) as a function of background variables such as multigrade combination, subject combination, type of school, age, gender, academic qualification, professional qualification, training and districts?" This was answered by use of ANOVA and t-tests. First t-tests were conducted for the variables of gender and training in multigrade with the CON and PRAC scale mean scores.

When the mean scores for the CON total scale measure and the three CON Factors for female teachers were compared to those of male teachers, the result showed no significant difference in the mean scores of the two groups. There was also no significant finding for those with training and those without training in multigrade on the CON total measure. However, when the mean scores of the three CON Factors for teachers with training in multigrade were compared to those with no such training (see Table 4 below), the result showed a significant difference in the mean scores (p=.027) of the two groups on Factor 3 ("correct definition of multigrade").

Table 4. t-Test of (CON) Factor 3 and training in Multigrade

Training	Mean	SD	"t"	(p)
No	16.5	17.9	2.23	.027*
Yes	4.0	3.5		

This showed that some aspect of training influenced teachers understanding of multigrade. Those with training had better scores on multigrade concept scales.

Whether or not there were significant differences between CON Factors and the other respondent background variables was determined by Analyses of Variance (ANOVA). Specifically, a series of one-way between-groups ANOVA with post-hoc tests were conducted to explore the effect of each of the background variables on each of the CON Factors.

For CON Factor 1 ("disadvantages of multigrade"), the ANOVA showed significant findings in relation to the academic qualification variable only. The analysis revealed that academic qualification, divided into below grade 10 (Group 1), grade 10 - 12 (group 2), certificate (Group 3) and Bachelor's Degree (group 4) showed statistical significant difference at p<.05 level on CON factor 1 scores among the 4 groups [F (3, 190) = 2.879, p= .037] as indicated in Table 5 below.

Table 5. ANOVA: Academic qualifications variable and teachers understanding of multigrade CON Factor 1 ("disadvantages of multigrade")

Academic qualification	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	150.594	3	50.198	2.879	.037
Within Groups	3313.324	190	17.439		
Total	3463.918	193			

The effect size was .043, which according to Cohen (1988) is a small effect. Further, the post hoc test (Tukey HSD) showed no significant difference among the groups even though there was a large mean difference (M1 = 8.7143 and M 2= 11.6348) between groups 1(below grade 10) and 2 (grade 10 - 12). It was observed that the disproportionate sample size differences between group 1 (n=14) and group 2 (n=115) may have confounded the power of the test. A Dunnett's C post hoc analysis, which assumes no equality of variances, was therefore conducted. The result showed that group 1 (below grade 10) was significantly different from group 2 (grade 10 - 12), but did not significantly differ from group 3 and 4.

Only Academic qualification influenced teachers understanding of CON Factor 2 ("advantages of multigrade"). All of the other background variables showed no statistical significance. The One-way between groups ANOVA with the CON Factor 2 revealed that academic qualification, divided into < grade 10 (Group 1), grade 10 - 12 (group 2), certificate in Bhutan (Group 3) and Bachelor's Degree (group 4) showed a statistical significant difference at p<.05 level on CON factor 2 scores among the 4 groups [F (3, 182) = 3.550, p= .016 as indicated in Table 6.

Table 6. ANOVA: Academic qualifications variable and teachers understanding of multigrade Con Factor 2 ("advantages of multigrade").

Academic Qualification	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	134.221	3	44.740	3.550	.016
Within Groups	2293.564	182	12.602		
Total	2427.785	185			

The effect size was .06, which according to Cohen, (1988) is medium effect size. The post hoc test (Tukey HSD) showed no significant difference among the groups even though there was a large mean difference (M1 = 8.2143 and M2= 10.5273) between groups 1 and group 2. It was observed that the small and disproportionate sample size differences between group 1 (n=14) and group 2 (n=110) may have confounded the power of the test. A Dunnett's C post hoc analysis, which assumes no equality of variances, was therefore conducted. The result showed that group 1 (below grade 10) was significantly different from group 2 (grade 10 - 12), but did not significantly differ from group 3 and 4.

Only the type of school variable influenced teachers understanding of CON Factor 3 ("correct definition of multigrade") using a One-way between groups ANOVA. The other   background variables showed no statistical significance. The analysis for the school variable divided into community school (Group 1), primary school (group 2), and primary community school (Group 3) showed statistical significant difference at p<.05 level on CON factor 3 scores among the three groups [F (2, 173) = 5.643, p= .004] as indicated in Table 7.

Table 7. ANOVA: Type of school variable and teachers understanding of multigrade CON Factor 3 ("correct definition of multigrade")

Type of school	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	148.159	2	74.079	5.643	.004
Within Groups	2271.273	173	13.129		
Total	2419.432	175			

Both the Dunnetts C and Tukey HSD post hoc tests showed significant difference (M1 = 18.7234 and M 3= 16.9672) between groups 1 and 3 and between group 2 and group 3 (M2= 20.0000 and M3=16.9672. The effect size was .06.

The analyses in relation to whether or not there were significant differences between teachers' multigrade PRAC scores and respondent background variables was also determined by a series of one-way between-groups Analyses of Variance (ANOVA) with post-hoc tests.

The analysis revealed only one significant finding. Results of analysis for the teaching experience variable revealed that teaching experience (divided into 1-2 years (Group 1), 3-5 years (group 2), 6-10 years (Group 3), 11-15 years (group 4), 16-20 years (group 5) and 21 years and above (group 6)) showed statistically significant difference at p<.05 level on PRAC scores among the 6 groups [F(5, 108) = 2.426, p= .04] as indicated in the Table 8.

Table 8. ANOVA: teaching experience variable and multigrade practice of teachers (all PRAC items)

Teaching experience	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3206.723	5	641.345	2.426	0.040
Within Groups	28545.742	108	264.312		
Total	31752.465	113			

The post hoc test (Tukey HSD) showed significant differences among groups 1 and 3 at p <.05. The analysis showed group 1 was significantly different from group 3 (P<.05), but did not significantly differ from other groups. An examination of the effect-size showed an eta squared value of .06.

The analysis revealed that the differences in the way teachers practice multigrade were due to teaching experience which showed significant difference at the 0.5 level. It is possible that a greater number of years of teaching experience helps teachers better understand multigrade teaching.

Discussion

The results of this study showed that the Bhutanese teachers who participated in the survey reported low knowledge or understanding of the multigrade concept but a high use of a range of multigrade practices. This does not mean the teachers were necessarily doing them according to how Strawbridge and others might want them to do within their classrooms, but they were doing the job in their way. This "way" was largely variations of the monograde strategy of handling classes as though they were separate classes in the one classroom.

The analysis revealed that the differences among teachers' understanding of multigrade concept and practice were associated with academic qualification, type of school, training multigrade and teaching experience. All other variables such as multigrade combination, subject combination, gender and age showed no significant effects.

Although the mean score for those with training in multigrade was higher than those without training, only aspects of teachers' understanding of the multigrade concept appeared to be influenced by their training in multigrade. More highly qualified academic teachers and type of school made some difference in teachers' understanding of the concept of multigrade.

In terms of practice, teachers who were teaching in multigrade classes were in fact mostly using mono-grade teaching methods (Kucita et al. 2012) despite more than 70 per cent of them having undergone training in multigrade teaching via in-service training programs inside and outside the country. In other words, training does have an effect upon the conceptualization of multigrade but no clear effect on practice in multigrade teaching. Broadly, many teachers know what multigrade is but many do not put it to use in multigrade classes.

Such an observation can be explained by the fact that teacher practice is influenced by other variables such as resources, class-sizes and support (Westwood & Graham, 2003). Indeed in the course of the research it was discovered that multigrade classrooms were not adequately equipped including a lack of appropriate curriculum documentation, lack of teaching resources and many schools had large class-sizes (Kucita et al, 2012). Multigrade teaching in many developed countries borders on individualisation, which Kuyini & Desai (2008) say, evokes the question: how achievable is individualization individualization, *n* the process of tailoring remedies or treatments to cure a set of symptoms in an indiv-idual instead of basing treatment on the common features of the disease. ..... Click the link for more information., in a system characterised by large class-sizes, limited teacher knowledge, among other limiting factors? Additionally, Bhutanese teaching processes are historically

based in teacher-centred practices (Maxwell 2007). Moreover, VanBalkom and Sherman (2010) concluded that student-teachers on practicum were unable to optimally develop their professional skills because of the general shortage of competent teacher associates in the system to support them during practicum placement. These issues have impact upon teaching in schools. For these reasons teachers were not able to apply what they had learned from training adequately. This outcome concurs with the conclusion of Kuyini & Desai (2008) on teachers' use of adaptive (monograde) instruction in inclusive classrooms in Ghana. These researchers concluded that the limited use of adaptive instruction was the result of other contextual variables and not just the level of teacher training and this has implications for multigrade pre-service and in-service training in Bhutan.

Interestingly enough, the analysis also revealed that the differences in the way teachers practice multigrade were associated with years of teaching experience in multigrade education and type of school. This means that greater length of teaching experience in multigrade classrooms helped teachers' multigrade practice. This finding confirmed that of Thomas & Shaw (1992: 14) who found that "multigrade teaching forces teachers to vary their delivery methods and the need to vary delivery techniques forces teachers away from an over reliance on rote methods". Some teachers who were assigned to teaching in multigrade schools learned and practised multigrade teaching from their peers. Perhaps it is not surprising that the longer the stay in multigrade schools they will learn more and this helps them to employ a variety of multigrade teaching practice. However, to do this they required adequate materials and monitoring and supervision, support networks among teachers (Kucita, et al, 2012).

These findings draw attention to the need for a more careful look at the training and supervision of teachers as well as the support given to these multigrade teachers. This is because the quality of teaching and learning depends on the quality of teachers and the quality of teachers depends, in part at least, on the training and support that the teacher has received. To improve multigrade teaching, more teachers need to be trained and supported in teaching multigrade in ways that overcome historical practices. Teachers should also have the opportunity to continue learning through both pre-service teacher training at the NIEs and the in-service teacher training program. Apart from training programs, cluster and school based-in-service teacher training level, academic meetings and monthly meetings of teachers could be strengthened towards this objective in areas where a multigrade situation is common. The meetings would aim to promote changing the behaviour of teachers. Teacher relationships and leadership at school level are the most powerful factors in promoting change by learning from each others.

Furthermore, the provision of teaching and learning materials is necessary because effective multigrade teaching and learning require many kinds of teaching aids so that learners can perform self learning at their own developmental levels and group learning to achieve outcomes. To support the trained multigrade teacher to implement multigrade teaching effectively, one of the important things that the government and donor agencies could do would be to provide these teaching and learning materials. The majority of the teachers requested that the Ministry of Education provide ready-made teaching and learning materials to support multigrade schools so that teachers do not have to make their own. Currently there are few teaching and learning materials provided by the Ministry (Kucita, et al. 2012). The key to effective teaching-learning practice in such schools is multi-level teaching using group and self-learning materials. Therefore, the development of flexible *interactive self-learning materials* for multigrade students that are relevant to the curriculum is recommended. Finally the efficient use of monitoring and supervision is essential. It is recommended that supervision be used both as a quality control measure and a means to professional learning and support for teachers' practice.

Conclusions

This study identified the factors influencing teachers' understanding of multigrade schooling in Bhutan as well as the teachers' reported practice of multigrade in their classrooms. The results highlight the link between individual realities and local contextual variables on understanding and employing multigrade practices. It is clear that training bears some relation with understanding multigrade and employing multigrade practices, and although this does not come out strongly here, the result provides the Government of Bhutan with a picture that suggests that effective multigrade practice also hinges on other factors to which attention needs to be given.

This study reflected a discrepancy between multigrade teachers' conception and practice or what they do. There appears also to be a mismatch between teacher education and the real demands on teachers in multigrade situations. The on-going introduction of multigrade teaching into the pre-service teacher training curriculum is a key and sustainable strategic action that will improve multigrade teaching. In addition, teaching and learning resources need to be provided by the Ministry and/or donor agencies. Importantly, an aligned curriculum should be provided and regularly revised for multigrade teachers (Kucita et al 2012).

Notes

1. ECRs are schools with one teacher and two or three grades, which were established at the start of 2009 in order to increase access to education in very remote areas.

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Odonata of Samdrup Choling Dungkhag in Samdrup Jongkhar, Bhutan

AMIT MITRA, KEZANG CHODEN, YESHI DORJI, TSHERING PENJOR, RINCHEN DORJI, KALPANA SUBEDI AND PHURPA DORJI

Abstract

Several field visits were undertaken between February and June, 2012, at different odonata habitats in and around Samdrup Choling Dungkhag under Samdrup Jongkhar Dzongkhag, mainly at Pemathang, Phuntshothang, Martshala and Dewathang. A total of 83 specimens of odonata were collected comprising of 40 species and subspecies including 19 new records for Bhutan, thereby extending the list of odonata known from Bhutan to 75. One of the Coeliccia species seemed to be new to science and will be confirmed after further study. The present study recorded four species namely, *Coeliccia svihleri, Protosticta himalaica, Rhinocypha cuneata* and *Chlorogomphus mortoni*, which were designated as 'Data Deficient' during the recent most red list assessment in eastern Himalaya carried out by IUCN. However, the study on the seasonal diversity of odonata in Samdrup Choling Dungkhag remained incomplete being limited to only five months. 56 of the 75 species and subspecies of odonata known from Bhutan are recorded only from Eastern and South-eastern parts. A major portion of Bhutan remains odonatologically unexplored.

Introduction

Dragonflies along with Mayflies represent the most ancient flying insects. Their appearance dates back to the Carboniferous period, 350-280 million years ago, and forms similar to modern genera can be found in deposits of the subsequent Permian period (Campbell & O'Toole, 1987). These brilliantly coloured amphibious insects, being bio-indicators of freshwater pollution, have well been documented worldwide. They also act as the efficient bio-control agents for mosquitoes and other obnoxious insects like agricultural pests.

Globally, 5876 species and subspecies of these elegant insects, spreading to 500 genera under 33 families and three suborders, have so far been described (Schorr & Paulson, 2012). As far as Bhutan is concerned, Fraser (1936a) has published four species after going through a collection that has been sent to him by C. M. Inglis from Paro, Western Bhutan. These are *Ceylonolestes cyanea, Allogaster latifrons, Orthetrum sabina* and *Sympetrum hypomelas.* Lieftinck (1977) has reported only six species of dragonflies from Bhutan that has been collected by the members of the Zoologische Expedition des Naturhistorischen Museums Basel in das Konigreich Bhutan" in 1972, of which *Lestes cyaneus* has already been reported (Fraser, 1936a). Thus Lieftinck (1977) has added five species to Fraser's (1936a) list viz., *Caliphaea confusa, Megalestes major, Calicnemia mortoni, Davidius baronii* and *Cephalaeschna triadica.* Tsuda (1991) in his distributional list of World Odonata has enlisted nine species from Bhutan that has increased the list of Bhutan Odonata to 12 by adding three new records namely *Lestes concinnus, Aeshna p. petalura* and *Anax nigrofasciatus nigrolineatus.*

A decade ago, a detailed study on the dragonflies of Trashigang district in Eastern Bhutan has revealed 23 species and sub-species with 18 new records from Bhutan (Mitra, 2002) that has increased the list to 30. The 18 new records include *Ceriagrion fallax cerinomelas, Ischnura a. aurora, I. forcipata, Calicnemia eximia, Anisopleura comes, Onychogomphus biforceps, Macromia moorei, Orthetrum t. triangulare, O. taeniolatum, O. pruinosum neglectum, O. luzonicum, Crocothemis s. servilia, Diplacodes trivialis, Sympetrum commixtum, Trithemis aurora, T. festiva, Palpopleura s. sexmaculata* and *Pantala*

flavescens. Mitra (2006) has added another three species to the list of Bhutan Dragonflies viz., *Acisoma p. panorpoides, Brachythemis contaminata* and *Neurothemis fulvia,* thus extending the list to 33. Mitra and Thinley (2006) have recorded 29 species and subspecies of dragonflies from the Bumdeling Wildlife Sanctuary, Eastern Bhutan with eight new records from Bhutan namely, *Aciagrion olympicum bumdelingensis, Rhinocypha cuneata, R. unimaculata, Anisopleura bella* sp. nov.*, Bayadera indica, Anotogaster nipalensis, Orthetrum glaucum* and *O. japonicum internum.* The number of dragonflies known from Bhutan has thus been extended to 41. Mitra (2008) has recorded 30 species and subspecies of dragonflies from different parts of Eastern and Southern Bhutan with 10 new records and thus extending the list of dragonflies known from Bhutan to 51. These 10 species are *Pseudagrion rubriceps*, *Drepanosticta carmichaeli*, *Lestes dorothea, Neurobasis chinensis, Scalmogomphus bistrigatus, Diplacodes nebulosa, D. lefebvrei, Trithemis pallidinervis, Tramea virginia* and *Urothemis signata signata.* Mitra (2008) has also predicted the presence of one of the three (Li *et al.*, 2012) existing Anisozygoptera, the *Epiophlebia laidlawi* in Bhutan. Larvae of this Himalayan relict have recently been reported from Paro, Western Bhutan by Brockhaus and Hartmann (2009) increasing the list of odonata for Bhutan to 52. Recently Mitra (2012) has added another four new records to the list of Bhutan odonata from different places in eastern and central Bhutan viz., *Pyrrhosoma tinctipenne, Periaeschna magdalena*, *Polycanthagyna erythomelas* and *Anisogomphus bivittatus*. Thus 56 species and subspecies of odonata have been recorded from Bhutan prior to this study.

Allen, Molur, and Daniel (2010) have reported 37% of 'Data Deficient' odonata species from Eastern Himalaya while carrying on an assessment on the status and distribution of freshwater biodiversity in the region under the aegis of IUCN. The report also emphasizes the need of an immediate extensive expert survey in most part of Bhutan (Mitra, Dow, Subramanian, & Sharma, 2010). Odonata composition of eastern Bhutan has already been documented well except from Samdrup Jongkhar dzongkhag. Hence the present study had been undertaken in Samdrup Choling Dungkhag in East Bhutan, which revealed 40 species and subspecies of dragonflies comprising of 22 Zygoptera and 18 Anisoptera. Interestingly 19 species and subspecies of them are new records for Bhutan. A check-list of all the 75 species and subspecies of dragonflies known to occur in Bhutan is also provided.

Study Area

The present study area encompasses four Gewogs namely; Phuntshothang, Pemathang, Martshala and Dewathang in and around Samdrup Choling (Bangtar) Dungkhag under Samdrup Jongkhar Dzongkhag, covering an area of 130.2, 76.5, 296.4 and 174.8 square kilometer respectively (http://www.samdrupjongkhar.gov.bt/). All the above Gewogs lie in the Southeast foothills of Bhutan Himalaya and experience a subtropical climate. The average annual rainfall is recorded as 1900mm (http://www.samdrupjongkhar.gov.bt/).

Material and Methods

Several field visits were undertaken in and around the above Gewogs from February to June, 2012. The collection localities were selected randomly i.e., the odonata species composition in those localities was unknown. Altitudinal range of collection sites was between 207mASL (meter Above Sea Level) and 886mASL. Collections were made from all different habitats like agricultural fields, weedy ponds, fast flowing streams, slow running marshy streams, riverbanks etc. All the specimens were collected using

insect nets. Geographical position and altitude of the surveyed localities (Table I) were recorded with a Garmin Vista GPS. Only a limited sample of each species was collected. All dragonflies were photographed using a digital camera. Collected specimens were preserved in 70% alcohol and deposited in the museum maintained by School of Life Sciences, Sherubtse College.

Specimens were identified with the help of identification keys of Fraser (1933, 1934, 1936b) and the descriptions of different *Coeliccia* species given by Asahina (1970, 1984, 1985) and Lahiri (1985, 1987).

Place	Locality	GPS Reading	Altitude
Dewathang	On the way to Samdrup Jonkhar (**Loc. 5**)	N 26°49.485'; E 91°28.847'	255m
	On the way to Samdrup Jonkhar (**Loc. 6**)	N 26° 49.485'; E 91°28.847'	247m
	Junction of S/J-Trashigang and S/J-Samdrup Choling road (**Loc. 7**)	N 26°52.137'; E 91°28.981'	803m
On the way to Phuntshothang from Dewathang	3 km away from junction (**Loc. 8**)	N 26°52.182'; E 91°36.163'	886m
	1 km from Rikhey towards Phuntshothang (**Loc. 9**)	N 26°52.002'; E 91°31.262'	840m
	1st bridge towards Phuntshothang (**Loc. 10**)	N 26°51.926'; E 91°32.214'	832m
	2nd bridge (**Loc. 11**)	N 26°52.264'; E 91°33.969'	536m
	3rd bridge (**Loc. 12**)	N 26°51.759'; E 91°35.008'	535m
	1 km away from 3rd bridge (**Loc. 12a**)	N 26°51.450'; E 91°36.162'	560m
Phuntshothang	Marshy field below Phuntshothang M. S. School (**Loc. 1**)	N 26°53.019'; E 91°41.959'	253m
	Same place, near fishery pond (**Loc. 1a**)	N 26°53.019'; E 91°41.959'	255 m
	Below Phuntshothang M. S. School (**Loc. 1b**)	N 26°53.032'; E 91°41.977'	280m
	Paddy field near fishery pond (**Loc. 1c**)	N 26°53.019'; E 91°41.959'	255 m
	Way to Martshala. (**Loc. 2**)	N 26°53.597'; E 91°41.740'	296m
	Way to Pemathang (**Loc. 3**)	N 26°53.465'; E 91°43.244'	352m
	Raitar (**Loc. 4**)	N 26°53.401'; E 91°42.688'	360m
Old Bangtar	Khameythang stream (**Loc. 22**)	N 26°52.091'; E 91°41.638'	207m
	Suspension Bridge (**Loc. 23**)	N 26°49.588'; E 91°42.226'	172m
Martshala	11 km before Martshala. (**Loc. 13**)	N 26°54.425'; E 91°41.103'	325m
	10 km before Martshala(fish pond) (**Loc. 13a**)	N/A	N/A
	9 km before Martshala (**Loc. 13b**)	N 26°55.295'; E 91°40.901'	333m
	Martshala M. S. School (**Loc. 14**)	N 26°56.417'; E 91°40.310'	870m
	Martshala Primary School (**Loc. 14a**)	N 26°56.477'; E 91°40.958'	843m
	While returning from Martshala (4 km away) (**Loc.15**)	N 26°56.345'; E 91°40.862'	750m
	6 km away from Martshala (**Loc. 16**)	N 26°56.395'; E 91°40.571'	710m
	Midway between Martshala and Phuntshothang (**Loc. 17**)	N 26°55.787'; E 91°40.467'	385m
	2 km away from the bridge, along the stream (**Loc. 18**)	N 26°55.127'; E 91°40.844'	325m
	End of the stream (**Loc. 19**)	N 26°54.492'; E 91°40.871'	307m
Pemathang	Kharbandi 1st village (**Loc. 20**)	N 26°53.257'; E 91°43.505'	440m
	Stream passing through the village (**Loc. 21**)	N 26°53.505'; E 91°43.892'	439m

Annotated list of odonata for Samdrup Choling Dungkhag

Among 83 specimens comprising of 40 species and subspecies, the measurements, collection localities and annotations are given for the 19 species that are recorded for the first time from Bhutan, whereas only the collection details are given for the rest. Unless otherwise mentioned, the present specimens agree fairly well with their previous descriptions (Asahina, 1970, 1984, 1985; Fraser, 1933, 1934, 1936b; Mitra, 2002, 2006, 2008; Mitra & Thinley, 2006). All the common and scientific names of the different taxa are as per Fraser (1933, 1934, 1936b), Prasad and Varshney (1995), Silsby (2001) and Schorr and Paulson (2012).

1. Ceriagrion coromandelianum **(Fabricius, 1798)**: New record from Bhutan
Material: Loc. 4, 1♀, 8.IV.2012; Loc. 1, 2♂, 1.V.2012.
Male: Abdomen with anal appendages: 30mm; Hind wing: 20mm.
Post-nodal nervures: Forewing: 12; Hind wing: 10.
Female: Abdomen with anal appendages: 31mm; Hind wing: 21mm.

2. Ceriagrion rubiae **Laidlaw**, **1916**: New record from Bhutan
Material: Loc. 1, 2♂, 1.V.2012.
Male: Abdomen with anal appendages: 31.5mm; Hind wing: 19.5mm.
Post-nodal nervures: Forewing: 10-11; Hind wing: 9-11.
The abdomen and hind wing is little longer than Fraser's (1933) description (26-29mm and 17-18mm respectively).

3. Pseudagrion r. rubriceps **Selys**, **1876**
Material: Loc. 4, 2♂, 8.IV.2012.

4. Enallagma parvum **Selys**, **1876**: New record from Bhutan
Material: Loc. 1, 1♂, 1.V.2012.
Male: Abdomen with anal appendages: 17mm; Hind wing: 11mm.
Post-nodal nervures: Forewing: 7; Hind wing: 5-6.

5. Ischnura a. aurora **(Brauer, 1865)**
Material: Loc. 1a, 1♂, 7.IV.2012.

6. *Agriocnemis femina* **(Brauer, 1868):** New record from Bhutan
Material: Loc. 1, 3♂, 1♀, 7.IV.2012; Loc. 3, 1♂, Loc. 4, 2♂, 2♀, 8.IV.2012.
Male: Abdomen with anal appendages: 16mm; Hind wing: 10mm.
Post-nodal nervures: Forewing: 6-7; Hind wing: 5.
Prothorax is black save for the bluish green on lower part of sides, on the anterior lobe and border of the posterior lobe. Two greenish tear drop shaped spots medially placed one on each side of the posterior lobe.
Note: Small sized damselflies and having greenish ground colour with brick red terminal segments (8 to 10). It is quite difficult to distinguish it from *Agriocnemis pygmaea* in the field. However, unlike *A. pygmaea*, the superior anal appendages are shorter than the inferiors in this species.

7. *Argiocnemis rubescens rubeola* **Selys, 1877**: New record from Bhutan

Material: Loc. 19, 1♂, 30.IV.2012; Loc. 1, 1♀, 2.V.2012.

Male (Fig. Ii): Abdomen with anal appendages: 30mm; Hind wing: 20mm.

Post-nodal nervures: Forewing: 12; Hind wing: 10.

8. *Calicnemia eximia* **(Selys, 1863)**

Material: Loc. 3, 1♀, Loc. 4, 2♂, 8.IV.2012; Loc. 6, 3♂, 9.IV.2012; Loc. 12a, 1♀, 29.IV.2012.

9. *Calicnemia miniata* **(Selys, 1886)**: New record from Bhutan

Material: Loc. 16, 1♂, 30.IV.2012; Loc, 10, 1♂, 29.IV.2012.

Male: Abdomen with anal appendages: 32mm; Hind wing: 24mm.

Post-nodal nervures: Forewing: 17-18; Hind wing: 16.

The length of hind wing is 24mm which is little lower than Fraser's (1933) range of 25mm to 26mm. The pterostigma covers 1-2 cells. 3 cells are present between the discoidal cell and nervure descending from sub node in all wings.

Note: The species occupy the same habitat as *C. eximia*. However they can be readily differentiated by their black abdominal tip (caudal half of segment 7 and whole of segment 8 to 10) and red antehumeral stripes (Fig. Ib).

10. *Coeliccia svihleri* **Asahina, 1970**: New record from Bhutan

Material: Loc. 6, 1♂, 9.IV.2012.

Male (Fig. Ic): Abdomen with anal appendages: 37.5mm; Hind wing: 22mm.

Post-nodal nervures: Forewing: 17-18; Hind wing: 18.

Pterostigma covers 1¼ to 2 cells. Labrum is shining black on upper three-fourth. Lower one-fourth of labrum, anteclypeus, base of mandible, genae and the anterior margin of antefrons are pale bluish. One pale rectangular spot is present between base of antenna and posterior ocelli of each side. Bluish-green eyes are capped with dark blackish-brown; a black pupil like reflection is visible in the live specimens. Postocular colour spots are also present. Other characters, including the shape of anal appendages, are mostly matching with the description given by Asahina (1970) save for the colour of mesepimeral spots (1st lateral spot on pterothorax) which are greenish-yellow instead of blue. However, the metepimeral spots (2nd lateral spots on pterothorax) in present male are blue as described by Asahina (1970).

11. *Coeliccia* sp.: New record from Bhutan and most probably a new species

Material: Loc. 15, 2♂, 1♀, 30.IV.2012.

Male: Abdomen with anal appendages: 37mm; Hind wing: 25mm.

Male: Labium is yellow with blackish-brown spines. Labrum is jet black on upper three fourth, turning to greenish blue for the rest. Bases of mandibles, genae, and anteclypeus are pale azure blue. Vertex and occiput are velvety black. Two triangular yellow stripes, originating from each lateral ocelli, are almost reaching the compound eyes of its side. These yellow stripes are confluent with the yellow spots between the median and lateral ocelli of each side.

Prothorax is black on dorsum and yellowish laterally. Velvety black dorsum of pterothorax is marked with two pairs of yellow stripes. A pair of broad elongate antehumeral stripes originating from little below the antealar sinus and extends little more than half the length of dorsum. These spots are

lining the humeral sutures internally. A pair of broader oval or pyriform antehumeral spots originates from the mesothoracic collar and extends nearly halfway up the dorsum. Upper surface of these spots are flat with few upward projections. Sides of thorax are bright yellow with postero-lateral sutures finely mapped out in black, beneath yellow and unmarked (Fig. Ig).

Wings are hyaline. Pterostigma is blackish-brown, framed in pale brown and braced with thick black nervures, covering 2 cells. There are 18-19 post-nodals in forewings and 17-18 in the hind. *Riv+v* arising a short distance proximal to the subnode, *IRiii* a similar distance distal to that structure; *ab*, in the fore wings, arising a short distance distal to the level of *ac*. Legs are yellow, femora with a black stripe running the whole length of flexor, and extensor surfaces, more extensive on the latter. Tibiae are black on flexor surface.

Abdomen is black on dorsum and sides, pale yellow beneath. Sides of segment 1 are broadly yellow, the lower part of sides of segment 2 narrowly so, a linear mid dorsal streak of yellow is present on 2nd segment almost covering the whole distance. Segments 3 to 6 are with small paired yellow baso-dorsal spots; segments 7 and 8 are entirely black on dorsum and this black extends to basal half of segment 9, beneath yellowish. The apical half of segment 9 and the whole of segment 10 is yellow in colour and abruptly swollen or broadened thus appears squarish. Superior anal appendages are about one third the length of segment 10, as seen in profile. Inferiors about double of superiors, hammer shaped and with inwardly curved apices as seen in profile (Fig. Ih). The shape of terminal abdominal segments and the anal appendages are unique within the genus.

Female: Abdomen with anal appendages: 39mm; Hind wing: 30mm.

Labium is yellowish-white; labrum, anteclypeus, genae are bluish-green; frons and occiput are blackish-brown; one bluish-green thin stripe is passing from eye to eye through the ocelli; parts of second antennal segment is of same colour. Prominent post ocular coloured spots are present.

Anterior lobe of prothorax is blackish-brown on dorsum, middle lobe broadly yellow at the sides, posterior lobe is yellow with some blackish-brown markings. Pterothorax is blackish-brown on dorsum, yellowish on sides; postero-lateral sutures are finely framed with blackish-brown. Two broad antehumeral stripes are running from mesothoracic collar almost to the antealar sinus, but not touching it. Abdomen is blackish-brown on dorsum save for the segment 1 and half of segment 9 and whole of segment 10. Superior anal appendages are short, conical and approximately half of segment 10.

12. *Copera vittata assamensis* Laidlaw, 1914: New record from Bhutan

Material: Loc. 1a, 2♂, 2♀, 7.IV.2012; Loc. 15, 1♂, 30.IV.2012.
Male: Abdomen with anal appendages: 34mm; Hind wing: 18mm.
Post-nodal nervures: Forewing: 13; Hind wing: 10.
Female: Abdomen with anal appendages: 34mm; Hind wing: 20mm.

13. *Protosticta himalaica* Laidlaw, 1917: New record from Bhutan

Material: Loc. 1a, 1♀, 7.IV.2012; Loc. 1b, 2♀, 7. IV.2012; Loc. 12a, 1♂, 29.IV.2012.
Male: Abdomen with anal appendages: 33mm; Hind wing: 26mm.
Post-nodal nervures: Forewing: 15; Hind wing: 14.
The present specimens, being teneral, do not exactly match with the colour pattern as has been mentioned in Fraser's (1934).
Note: It was difficult to get a good outdoor photograph due to their pale colour combination.

14. Lestes thoracicus **Laidlaw, 1920**: New record from Bhutan

Material: Loc. 1, 1♂, 2.V.2012.

Male: Abdomen with anal appendages: 22mm; Hind wing: 32mm.

Post-nodal nervures: Forewing: 10; Hind wing: 9-10.

Pterostigma is dark brown covering 2½ cells.

15. Neurobasis chinensis **(Linnaeus, 1758)**

Material: Loc. 13, 1♂, Loc. 19, 1♀, 30.IV.2012; Loc. 22 & 23, several (seen), 2.V.2012.

16. Vestalis g. gracilis **(Rambur, 1842)**: New record from Bhutan

Material: Loc. 4, 1♂, 1♀, 8.IV.2012.

Male: Abdomen with anal appendages: 51mm; Hind wing: 39mm.

Anti-nodal nervures: Forewing: 28-31; Hind wing: 25-26.

Post-nodal nervures: Forewing: 65-66; Hind wing: 56-57.

Discoidal cell is traversed 5 times in forewings and 4 times in the hind.

Female: Abdomen with anal appendages: 51.5mm; Hind wing: 40mm.

17. Rhinocypha cuneata **Selys, 1853**

Material: Loc. 5, 1♂, 9.IV.2012.

18. Rhinocypha quadrimaculata **Selys, 1853**: New record from Bhutan

Material: Loc. 3, 1♂, 8.IV.2012; Loc. 5. 1♂, 9.IV.2012; Loc. 1, 1♂, 1.V.2012; Loc. 18, 1♂, 30.IV.2012.

Male: Abdomen with anal appendages: 20mm; Hind wing: 21mm.

Anti-nodal nervures: Forewing: 15-17; Hind wing: 14-16.

Post-nodal nervures: Forewing: 24-27; Hind wing: 21-27.

The abdomen is little longer than as it has been reflected (19mm) in Fraser (1934). The range of anti-nodals in the present specimens (14-17) is lower than Fraser's (1934) description (16-18). Discoidal cell is traversed 3-5 times (Fig. Ik).

19. Anisopeura comes **Hagen, 1880**

Material: Loc. 8, 2♂, 29.IV.2012.

20. Bayadera indica **(Selys, 1853)**

Material: Loc. 18, 1♂, 30.IV.2012.

21. Dysphaea gloriosa **Fraser, 1938**: New record from Bhutan

Material: Loc. 12, 1♀, 29.IV.2012.

Female: Abdomen with anal appendages: 23mm; Hind wing: 28mm.

Anti-nodal nervures: Forewing: 25; Hind wing: 20-21.

Post-nodal nervures: Forewing: 30-31; Hind wing: 27.

This specimen is immature and without proper colour development. Discoidal cells in forewing are traversed one time while in hind wing twice. Four cubital nervures are present in all wings. Pterostigma covers almost 8 cells in all the wings. Anal field entire and the maximum of the cells are four sided. Anal appendages are longer than segment 10.

Remarks: Though the male was not available for confirmation, most of the female characters match quite well with the description given by Fraser (1934).

22. *Euphaea ochracea brunnea* **Selys, 1879**: New record from Bhutan

Material: Loc. 4, 1♂, 1♀, 1.IV.2012; 2♂, 8.VI.2012.

Male (Fig. Ie): Abdomen with anal appendages: 33mm; Hind wing: 27mm.

Anti-nodal nervures: Forewing: 23-28; Hind wing: 22.

Post-nodal nervures: Forewing: 34; Hind wing: 31-32.

The pterostigma is covering 8 cells in forewings while 7 in hind. Discoidal cell is traversed twice both in forewings and in hind wings. Cubital space is traversed by 3-4 nervures.

23. *Paragomphus lineatus* **(Selys, 1850)**: New record from Bhutan

Material: Loc. 4, 1♂, 8.VI.2012.

Male: Abdomen with anal appendages: 21mm; Hind wing: 22mm.

Anti-nodal nervures: Forewing: 13-14; Hind wing: 10-11.

Post-nodal nervures: Forewing: 8; Hind wing: 8-9.

Pterostigma covers 3½ cells in forewings while 4½ cells in the hind. 2-3 nervures are present between sectors of *arc* in forewings while only 1 in the hind. The anal triangle is 4 celled. Anal loop is 3 celled and it's not very markedly distinguishable.

The foliage of lateral processes and the sides of segment 8 and 9 are orange yellow and edged with black (Fig. Ia).

24. *Anaciaeschna jaspidea* **(Burmeister, 1839)**: New record from Bhutan

Material: Loc. 2, 1♂, 7.IV.2012.

Male (Fig. Id): Abdomen with anal appendages: 43mm; Hind wing: 43mm.

Anti-nodal nervures: Forewing: 12-18; Hind wing: 11-12.

Post-nodal nervures: Forewing: 8-10; Hind wing: 10-11.

Pterostigma covers 2 to 4 cells. Discoidal cell, being 6 celled, is deviating well from Fraser's (1934) description (4 to 5 celled). The anal loop, unlike Fraser's (1934) description (11 celled), is 8 celled in the present specimen. There are 5-6 cubital nervures in forewing. Inner margin of superior anal appendages and outer margin of inferiors are having long coarse hairs.

25. *Chlorogomphus mortoni* **Fraser, 1936:** New record from Bhutan

Material: Loc. 12, 1♀, 29.IV.2012.

Female (Fig. If): Abdomen with anal appendages: 47mm; Hind wing: 47mm.

Anti-nodal nervures: Forewing: 28; Hind wing: 20.

Post-nodal nervures: Forewing: 14-16; Hind wing: 17-18.

Hind wing in the present female is longer and the nodal index is quite higher than Fraser's (1936b) description. Discoidal cell in hind wing is traversed by 2 nervures. Pterostigma covers 2½ to 3 cells. There are 3 median nervures in forewings and 2 in the hind.

Between a broad mid lateral stripe and the humeral stripe, there are vestiges of a third stripe represented by a small upper spot and a very narrow line limited to mid region neither reaching below nor reaching the upper spot. Being 23 to 25 celled, the anal loop is much larger than Fraser's (1936b) description (13 to 17 celled). Abdominal markings and other characters are strikingly similar with Fraser's (1936b) description.

26. Orthetrum glaucum **(Brauer, 1865)**
Material: Loc. 11, 2♂, 29.IV.2012.

27. Orthetrum japonicum internum **MacLachlan, 1894**
Material: Loc. 6, 1♂, 9.IV.2012.

28. Orthetrum t. triangulare **(Selys, 1878)**
Material: Loc. 14, 1♂, 30.IV.2012.

29. Orthetrum s. sabina **(Drury, 1770)**
Material: Loc. 1, 1♂, 7.IV.2012.

30. Orthetrum pruinosum neglectum **(Rambur, 1842)**
Material: Loc. 11, 2♂, 29.IV.2012.

31. Orthetrum luzonicum **(Brauer, 1868)**
Material: Loc.18, 1♂, 30.IV.2012.

32. Brachythemis contaminata **(Fabricius, 1793)**
Material: Loc. 1a, 1♂, 1.V.2012.

33. Crocothemis s. servilia **(Drury, 1770)**
Material: Loc. 6, 1♂, 9.IV.2012.

34. Cratilla lineata **(Brauer, 1878)**: New record from Bhutan
Material: Loc. 10, 1♂, 29.IV.2012.
Male: Abdomen with anal appendages: 32mm; Hind wing: 37mm.
Anti-nodal nervures: Forewing: 17; Hind wing: 12-14.
Post-nodal nervures: Forewing: 10; Hind wing: 11-12.
The body markings (Fig. Ij) exactly match with Fraser's (1936b) description.

35. Diplacodes trivialis **(Rambur, 1842)**
Material: Loc. 1, 1♂, 1♀, 7.IV.2012.

36. Neurothemis fulvia **(Drury, 1773)**
Material: Loc. 1, 1♀, 2.V.2012.

37. Trithemis aurora **(Burmeister, 1839)**
Material: Loc. 4, 1♀, 1.V.2012.

38. Trithemis festiva **(Rambur, 1842)**
Material: Loc. 6, 1♂, 9.IV.2012.
39. Palpopleura s. sexmaculata (Fabricius, 1787)
Material: Loc. 1a, 1♂, 2♀, 7.IV.2012.

40. *Pantala flavescens* (Fabricius, 1798)

Material: Loc. 1a, 1♂, 1.V.2012.

Systematic list of Bhutan odonata

The up-to-date checklist for odonata of Bhutan has been prepared after compiling the lists of Fraser (1936a), Lieftinck (1977), Tsuda (1991), Mitra (2002, 2006, 2008, 2012) and the present study. All the common and scientific names of the different taxa are as per Fraser (1933, 1934, 1936b), Prasad and Varshney (1995), Silsby (2001) and Schorr and Paulson (2012).

Order – Odonata

Suborder – Zygoptera

Superfamily – Coenagrionoidea (Closed wings)

Family – Coenagrionidae (Pond damselflies)

Genus – CERIAGRION Selys, 1876

    1.   *Ceriagrion fallax cerinomelas* Lieftinck, 1927

    2.   *C. coromandelianum* (Fabricius, 1798)

    3.   *C. rubiae* Laidlaw, 1916

Genus – PSEUDAGRION Selys, 1876

    4.   *Pseudagrion r. rubriceps* Selys, 1876

Genus – PYRRHOSOMA Charpentier, 1840

    5.   *Pyrrhosoma tinctipenne* (McLachlan, 1894)

Genus – ENALLAGMA Charpentier, 1840

    6.   *Enallagma parvum* Selys, 1876

Genus – ACIAGRION Selys, 1891

    7.   *Aciagrion olympicum* Laidlaw, 1919

Genus – ISCHNURA Charpentier, 1840

    8.   *Ischnura forcipata Morton, 1907*

    9.   *I. a. aurora (Brauer, 1865)*

Genus – AGRIOCNEMIS Selys, 1877

    10. *Agriocnemis femina* (Brauer, 1868)

Genus – ARGIOCNEMIS Selys, 1877

    11. *Argiocnemis rubescens rubeola* Selys, 1877

Family – Platycnemididae (Brook damselflies)

Genus – CALICNEMIA Strand, 1926

    12. *Calicnemia eximia* (Selys, 1863)

    13. *C. mortoni* (Laidlaw, 1917)

    14. *C. miniata* (Selys, 1886)

Genus – COELICCIA Kirby, 1890

    15. *Coeliccia svihleri* Asahina, 1970

    16. *Coeliccia* sp.

Genus – COPERA Kirby, 1890

    17. *Copera vittata assamensis* Laidlaw, 1914

Family – Platystictidae

Genus – DREPANOSTICTA Laidlaw, 1917

      18. *Drepanosticta carmichaeli* (Laidlaw, 1915)

Genus – PROTOSTICTA Selys, 1885

      19. *Protosticta himalaica* Laidlaw, 1917

Superfamily – Lestoidea (Open wings)

Family – Lestidae (Reedlings)

Genus – INDOLESTES Fraser, 1922

      20. *Indolestes cyaneus* (Selys, 1862)

Genus – LESTES Leach, 1815

      21. *Lestes concinnus* Hagen in Selys, 1862

      22. *Lestes dorothea* Fraser, 1924

      23. *Lestes thoracicus* Laidlaw, 1920

Family – Synlestidae (Sylphs)

Genus – MEGALESTES Selys, 1862

      24. *Megalestes major* Selys, 1862

Superfamily – Calopterygoidea (Broad wings)

Family – Calopterygidae (Demoiselles)

Genus – CALIPHAEA Selys, 1859

      25. *Caliphaea confusa* Hagen in Selys, 1859

Genus – NEUROBASIS Selys, 1859

      26. *Neurobasis chinensis* (Linnaeus, 1758)

Genus – VESTALIS Selys, 1853

      27. *Vestalis g. gracilis* (Rambur, 1842)

Family – Chlorocyphidae (Jewels)

Genus – RHINOCYPHA Rambur, 1842

Subgenus – Aristocypha Laidlaw, 1950

      28. *Rhinocypha (Aristocypha) cuneata* Selys, 1853

      29. *R. (A.) quadrimaculata* Selys, 1853

Subgenus – Paracypha Fraser, 1949

      30. *R. (Paracypha) unimaculata* Selys, 1853

Family – Euphaeidae (Gossamer wings)

Genus – ANISOPLEURA Selys, 1853

      31. *Anisopleura bella* Mitra & Thinley, 2006

      32. *A. comes* Hagen, 1880

Genus – BAYADERA Selys, 1853

      33. *Bayadera indica* (Selys, 1853)

Genus – DYSPHAEA Selys, 1853

      34. *Dysphaea gloriosa* Fraser, 1938

Genus – EUPHAEA Selys, 1840

      35. *Euphaea ochracea brunnea* Selys, 1879

Suborder – Anisozygoptera

Family – EPIOPHLEBIA Calvert, 1903

      36. *Epiophlebia laidlawi* Tillyard, 1921

Suborder – Anisoptera
Superfamily – Aeshnoidea (Angle wings)
Family – Gomphidae (Clubtails)
Genus – ANISOGOMPHUS Selys, 1858
      37. *Anisogomphus bivittatus* Selys, 1854
Genus – LAMELLIGOMPHUS Fraser, 1922
      38. *Lamelligomphus biforceps* (Selys, 1878)
Genus – SCALMOGOMPHUS Chao, 1990
      39. *Scalmogomphus bistrigatus* (Hagen, 1854)
Genus – PARAGOMPHUS Cowley, 1934
      40. *Paragomphus lineatus* (Selys, 1850)
Genus – DAVIDIUS Selys, 1878
      41. *Davidius baronii* Lieftinck, 1977
Family – Aeshnidae (Hawkers)
Genus – ANAX Leach, 1815
      42. *Anax nigrofasciatus nigrolineatus* Fraser, 1935
Genus – AESHNA Fabricius, 1775
      43. *Aeshna p. petalura* Martin, 1906
Genus – ANACIAESCHNA Selys, 1878
      44. *Anaciaeschna jaspidea* (Burmeister, 1839)
Genus – CEPHALAESCHNA Selys, 1883
      45. *Cephalaeschna triadica* Lieftinck, 1977
Genus – PERIAESCHNA Martin, 1908
      46. *Periaeschna magdalena* Martin, 1909
Genus – POLYCANTHAGYNA Fraser, 1933
      47. *Polycanthagyna erythromelas* (McLachlan, 1896)
Superfamily – Cordulegastroidea (Golden Rings)
Family – Cordulegastridae
Genus – CHLOROGOMPHUS
      48. *Chlorogomphus mortoni* Fraser, 1936
Genus – ANOTOGASTER Selys, 1854
      49. *Anotogaster nipalensis* (Selys, 1854)
Genus – NEALLOGASTER Cowley, 1934
      50. *Neallogaster latifrons* (Selys, 1878)
Superfamily – Libelluloidea (Dippers)
Family – Corduliidae (Emeralds)
Genus – MACROMIA Rambur, 1842
      51. *Macromia moorei* Selys, 1874
Family – Libellulidae (Perchers)
Genus – ORTHETRUM Newman, 1833
      52. *Orthetrum glaucum* (Brauer, 1865)
      53. *O. japonicum internum* MacLachlan, 1894
      54. *O. t. triangulare* (Selys, 1878)
      55. *O. s. sabina* (Drury, 1770)

56. *O. taeniolatum* (Schneider, 1845)

57. *O. pruinosum neglectum* (Rambur, 1842)

58. *O. luzonicum* (Brauer, 1868)

Genus – ACISOMA Rambur, 1842

59. *Acisoma p. panorpoides* Rambur, 1842

Genus – BRACHYTHEMIS Brauer, 1868

60. *Brachythemis contaminata* (Fabricius, 1793)

Genus – CROCOTHEMIS Brauer, 1868

61. *Crocothemis s. servilia* (Drury, 1770)

Genus – CRATILLA

62. *Cratilla lineata* (Brauer, 1878)

Genus – DIPLACODES Kirby, 1889

63. *Diplacodes trivialis* (Rambur, 1842)

64. *D. nebulosa* (Fabricius, 1793)

65. *D. lefebvrei* (Rambur, 1842)

Genus – NEUROTHEMIS Brauer, 1867

66. *Neurothemis fulvia* (Drury, 1773)

Genus – SYMPETRUM Newman, 1833

67. *Sympetrum hypomelas* (Selys, 1884)

68. *S. commixtum* (Selys, 1884)

Genus – TRITHEMIS Brauer, 1868

69. *Trithemis aurora* (Burmeister, 1839)

70. *T. festiva* (Rambur, 1842)

71. *T. pallidinervis* (Kirby, 1889)

Genus – PALPOPLEURA Rambur, 1842

72. *Palpopleura s. sexmaculata* (Fabricius, 1787)

Genus – PANTALA Hagen, 1861

73. *Pantala flavescens* (Fabricius, 1798)

Genus – TRAMEA Hagen, 1861

74. *T. virginia* (Rambur, 1842)

Genus – UROTHEMIS Brauer, 1868

75. *U. signata signata* (Rambur, 1842)

Figure1: **a**. Male *Paragomphus lineatus*, **b**. Male *Calicnemia*, **c**. Male *Coeliccia svihleri*, **d**. Male *Anaciaeshna jaspidea*, **e**. Male *Euphaea ochracea*, **f.** Male *Cholorogomphus mortoni*, g. Male *Coeliccia sp.*, **h**. Terminal abdominal segments and anal appendages of the same, **i**. Male *Argiocnemis rubescens rubeola*, **j**. Male *Cratila lineate*, **k**. Wings of *Rhinocypha quadrimaculata*.

Conclusion

Fifteen zygopterans and four anisopterans are recorded for the first time from Bhutan. One of the *Coeliccia* species is mostly a new species with its unique broadening of terminal abdominal segments (9th and 10th) and will be confirmed after further study. Interestingly, four other species, namely *Coeliccia svihleri, Protosticta himalaica, Rhinocypha cuneata* and *Chlorogomphus mortoni*, which are designated as 'Data Deficient' by IUCN in their recent-most red list assessment in Eastern Himalaya (Dow, 2010; Subramanian, 2010a, 2010b; Wilson, 2009), have also been recorded during the present study. This reflects that their habitats are still conserved at different parts of Samdrup Choling Dungkhag under Samdrup Jongkhar Dzongkhag.

 Calicnemia eximia, Protosticta himalaica, Coeliccia svihleri, Coeliccia sp., *Copera vittata assamensis* and *C. miniata* have specific habitat preference for slow running marshy streams and slow waterfalls. *Neurobasis chinensis, Vestalis g. gracilis, Rhinocypha cuneata, R. quadrimaculata, Anisopleura comes, Bayadera indica, Dysphaea gloriosa, Euphaea ochracea brunnea, Paragomphus lineatus* and *Chlorogomphus mortoni* have an inclination towards the fast flowing hill streams. They also breed in moderately running marshy streams. Others like *Pseudagrion r. rubriceps, Argiocnemis rubescens rubeola, Lestes thoracicus, Orthetrum glaucum, O. japonicum internum, O. t. triangulare, O. pruinosum neglectum, Crocothemis s. servilia, Trithemis aurora, T. festiva* and *Pantala flavescens* seem to enjoy both the streams as well as ponds and agricultural fields as their breeding ground. However, the remaining species breed only in stagnant water of ponds and agricultural fields.

 The present study being conducted between February to June (only five months of a year) does not encompass the entire odonata diversity for Samdrup Choling Dungkhag.

 The 75 species and subspecies of odonata known from Bhutan after the present study are mostly reported from Eastern and South-eastern regions and thus this 'land of thunder dragon', situated within 'Eastern Himalaya Biodiversity Hotspot', has remained underexplored in terms of dragonfly composition.

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About the authors

AMIT MITRA, a Ph.D. in Zoology from H.N.B. Garhwal University, India, is currently working as an Associate Professor at School of Life Sciences, Sherubtse College, Kanglung, Bhutan. Dr. Mitra was selected as a United Nations University Fellow to undertake an advanced training and research in the field of Biological Diversity at University of Ghent Belgium during September, 2001 – February, 2002. In 17 years of teaching and research tenure, he has undertaken several projects under the aegis of BTF, UNFPA, WWF, RUB etc., and has authored one book and thirty research papers and popular articles. He has assessed red-list status for 52 odonata species of Eastern Himalayas under IUCN, U.K. Dr. Mitra is a member of South Asian Council of Odonatology.

KEZANG CHODEN, YESHI DORJI, TSHERING PENJOR, RINCHEN DORJI and KALPANA SUBEDI are pursuing their Bachelors Degree in School of Life Sciences at Sherubtse College, Royal University of Bhutan.

PHURPA DORJI, a postgraduate in biotechnology from Brindavan College in Bangalore, is currently engaged in the capacity of a Lecturer at School of Life Sciences, Sherubtse College, Royal University of Bhutan.

How we teach versus what we teach:
Why a contemplative critical pedagogy is central to Bhutan's success as a GNH democracy

DEBORAH YOUNG

Abstract

A contemplative critical pedagogy assumes a self-reflective process about how we come to think what we think and act the way we act, i.e. culture. This type of pedagogy recognizes that political frameworks influence the foundation by which cultural and educational imperatives are formed. Bhutan has developed a Gross National Happiness democratizing political framework. To uphold this framework, which gives emphasis to an ethical and moral foundation of harmony and balance, requires pedagogy such as contemplative critical pedagogy. What role can RUB take in sculpting how Bhutan educates a new generation to ensure the process of democratization and a peaceful life, when much of the world's cultural politics have educated public intellectuals in order for them to gain control of various segments of a cultural industry? Education is not neutral. Education is for the liberation of thought; therefore liberation of thought shares the center of curriculum content.

How we teach versus what we teach: Why a contemplative critical pedagogy is central to Bhutan's success as a GNH democracy

Across the world higher education plays a defining role in the development of societies. Using the United Nations Development Programme's (UNDP) Human Development Index (HDI) as an indicator of development, countries with high rates of participation in tertiary education are also those with high HDIs (United Nations Human Development Report, 2004). Education is about creating an environment in which students can develop their full potential and lead productive lives in accord with their needs and interests. The young people are the wealth and future of any nation. Accordingly, higher education is about equipping students with the knowledge, attitudes and skills that help to formulate and preserve society's fundamental values. Higher education is where students learn how to expand their choices so they can create lives they value. Furthermore, higher education is a strong method to spur the growth of human capital and can be a major provider to social and economic development.

Fundamental to enlarging the choices of students is to build their human capabilities; the range of things that they can do or be in life. The most basic capabilities of human development are to lead a long and healthy life, to become knowledgeable, to have access to the resources needed for a decent standard of living, and to be able to participate in the life of the community. Without these, many choices are simply not available, and many opportunities in life remain inaccessible (United Nations Human Development Report, 2004).

Currently at the Royal University of Bhutan (RUB) the teaching/learning conditions that exist are situated in the notion of authoritarianism rather than having education through a path of genuine compassion and insight. According to the data taken during the baseline round of the participatory action research (PAR) study on Gross National Happiness (GNH) pedagogy and classroom practice, the dominant teaching method throughout RUB colleges is still lecturing and the ratio of lectures to all other teaching methods seems to be much higher than 3:1 andat times, no teaching method other than lecturing

is used during an individual class(Young & RUB research Team, 2012).Is this reliance on lecturing an effective way for RUB to achieve the GNH educational objectives they set for themselves? Does it give students a rich and rewarding educational experience so they become positive contributors for a just and compassionate society? The evidence from the baseline study is quite overwhelming that the answer to these questions is no, and yet lecturing is still strongly defended by many.

A nudge in attitude within lecturers is required before shifts in classroom pedagogy and class-room practices can be spread widely throughout RUB. Attitudes towards instructional practices such as collaborative learning, inquiry-based learning, portfolios, research based learning, and the lecture method need to be examined in depth; especially with regard to the influence of the college environment, the enabling characteristics of students, and the time requirements for using each of the methods. A framework for teaching based on contemplative critical pedagogy can offer faculty, students, and administration a reflective and reflexive opportunity to develop their capacity to recognize forces of culture and socialization thereby choosing their place in their community. With the present dominant teaching method of lecture and a dominant pedagogy of authoritarianism a low level of reflexivity results in which faculty and students are largely shaped by their environment.

Given the changing social and informational conditions of Bhutan, the borders now open to the global world, media-saturating the time of the youth, Western culture penetrating the culture, and a move towards modernization and democracy; teachers have a need for new ways of researching and analyzing the construction of identity or selfhood. Without a reflective and reflexive pedagogy in higher education there is a greater danger in the individual being shaped by outside influences rather than upholding the internal Buddhist and holistic principles RUB is striving for. Lyonchhen Jigmi Y. Thinley(2011) states:

> So, here in Bhutan, the reason why we are worried is because, if we don't do something now, we may have too many so-called educated people who would lead, govern, and form the main part of the Bhutanese community and economy, but be guided by a materialistic way of life. If the current education system and curriculum are allowed to continue, then the kind of students that would come out of the schools would be people with values that are indeed quite antithetical to Gross National Happiness principles.

What is contemplative critical pedagogy?

Contemplative

The word pedagogy comes from Greek *paidagōgeō* meaning to lead the child. In a contemplative framework the teacher leads the student to develop a deeper level of personal understanding and meaning in life whereby the student eventually finds their own path and view to follow. To support student development to a deeper level of understanding, faculty and students must learn how to "bring back a wandering attention, over and over again, [This] is the very root of judgment, character and will…An education which should improve this faculty would be *the* education *par excellence"* (James, 1890). Contemplative pedagogy involve an inward focus resulting in greater self-awareness, increase capacity to expand attention, ability to hold paradox, creativity and compassionate civic engagement.

Contemplative pedagogy support skill development of open mindedness and suspended judg-ment, active and compassionate listening, and a sense of wonder. Contemplative pedagogy employs teaching methods within classrooms, throughout college daily routines, and as a way to form intentional habitual patterns of behavior at the college, which will spread to society, i.e. culture. Examples of con-templative pedagogy include contemplative reading (Abram, 1996; Sakyong Mipham Rinpoche, 2003); suspending one's assumptions and careful listening (Bohm, 2000; Palmer, 2004); and open awareness (Chögyal Namkhai Norbu, 1996; Lama Surya Das, 2005).

Critical

Origins of criticality go back to Siddhartha Gautama, Lao Tzu, Aristotle, and Plato to name a few. The groundwork for critical pedagogy is concerned with the relationships of human beings, regulation of the social and natural order, and the awakening of the human mind. This is what Freire (1970) refers to as *conscientização*or the awakening and development of ones conscience. The advancement of criticality in the tertiary educational setting isthe development of critical consciousness, is grounded on the concern of human suffering, and focuses on achieving an in-depth understanding of the world to open up one's perception and exposure of life's contradictions or paradoxes. For RUBto move lecturers' pedagogy toward a GNH holistic pedagogy and classroom practice "it is essential that its tertiary education system be transformed to embody and reflect GNH values and principles. These values and principles must be rooted in the consciousness of today's youth" (Tertiary Education Policy of the Kingdom of Bhutan, 2010p. 2).

Criticality in higher education is seen through the interaction of teacher and student in a classroom focused on expanding and constructing self-awareness, developing critical consciousness, and engaging in effective modes of social and pedagogical inquiry and action. The students and faculty, together encounter bodies of knowledge; not just for the purpose of committing them to memory but to engage, analyze, deconstruct, and interpret them in light of numerous data points. At the same time students are tackling the new knowledge they are researching and they apply by interacting within their own contexts. Lecturers and students are focused on a rigorous scholarly process of making meaning of the knowledge, co-creating knowledge, and acting on that meaning in ethical and practical just ways.

> When we live our lives with the authenticity demanded by the practice of teaching that is also learning and learning that is also teaching, we are participating in a total experience that is simultaneously directive, political, ideological, gnostic, pedagogical, aesthetic, and ethical. In this experience the beautiful, the decent, and the serious form a circle with hands joined (Freire, 2000. pp. 31-32).

Pedagogy

Social theory asserts that the development of the self-conscious and action is shaped by pedagogy. In the past children and youth participated daily in the adult world gaining knowledge of vocational and life skills as a part of their relationship to adults and their community. Pedagogy is how we teach, the art of teaching, the holistic science of teaching.

Contemplative critical pedagogy is a way to develop consciousness; it takes exception to the reductionistic view of youth and its expression of a universal, uniform idea of what a normal youth is. Traditionally in higher education, youth are seen as receivers of teacher input. Contemplative critical pedagogy views the youth as an active agent capable of contributing to the construction of his or her own subjectivity developing a more compelling picture of the complexity of the culture, politics, and psychology of being. "The teacher is no longer merely the-one-who-teaches, but one who is him/herself taught in dialogue with the students, who in turn while being taught also teach. They become jointly responsible for a process in which all grow" (Freire, 1970, pp. 67).

Pedagogy and culture influence social subjects. Youth need to be provided with opportunities to discover truths for themselves, struggle over complex problems and expand their capacities as critical intellectuals and socially active citizens. Pedagogies that focus on the natural development of the student devalue firm classroom authority and value shared power relationships; they expand rather than pigeonhole intellectual and spiritual capacities. Observation suggests that students may be endowed with

special psychic powers, and points to the necessity of new ways of drawing them out, literally "educating by cooperating with nature." So here begins a new path, wherein it will not be the professor who teaches the student but the student who teaches and guides the professor   (Montessori, 1912).

Pedagogy informs cultural practice, legitimates central motivating questions, and secures particular modes of authority. Cultural formation has become one of the chief means through which individuals engage and shape lives. This paper advocates for a pedagogy that inculcates an education embedded in cultural inquiry and expanded inquiry through research and self-reflection.

For this to happen faculty and administrators must raise questions about pedagogy. The job of faculty in higher education is to integrate a critical examination in every day life, to the culture of each student, and to the community in which they live. Critical pedagogy becomes a way of life, a way to perceive the worldallowing education to come alive with the possibility of learning something from someone else every day inside and outside the classroom.

Contemplative critical pedagogy

Contemplative critical pedagogy is a vibrant and creative force that makes a powerful difference in education, in the classroom and the world in general. It is an attempt to take education and social change seriously. A contemplative critical pedagogy allows a language in the classroom to help students and faculty explain a sense of why they are dong what they do.

Colleges can provide places where students gain the knowledge, skills and practice they need to be active, just citizens. The pedagogy that teachers choose will influence the ability of the student to become completely and selflessly absorbed and engaged in the moment or not. This state of unconflicted behavior is nature's baseline optimum learning, learning without fear. The actual *state* of the relationship is the primary *content* of the student's experience, which is learned and remembered, often lifelong, regardless of adult intentions (Liedloff, 1986; Montessori, 1967). "The relationship itself becomes a transformative practice every bit as demanding and powerful as found in any monastery, martial art or athletic training camp" (Mendizza & Pearce, 2004, p. ix).

Contemplative critical pedagogy does not separate poetry and joy from pedagogy, rather the level of intellectual exertion required for the deep understanding of theory and reflection of how to build from theory in today's society is fundamental within every content area. This form of pedagogy requires the faculty to embody a powerful presence of the faculty's belief system. The faculty become a resource when presented with humility and commitment offer students a resourcefulness and intelligence that supports their unfolding of who they are and who they want to be in the world.A GNH education is about waking up the teacher andstudent, stated by Thoreau (1854, p. 58):

> Little is to be expected of that day, if it can be called a day, to which we are not awakened by our Genius, but by the mechanical nudgings of some servitor, are not awakened by our own newly acquired force and aspirations from within, accompanied by the undulations of celestial music, instead of factory bells … The millions are awake enough for physical labor; but only one in a million is awake enough for effective intellectual exertion, only one in a hundred millions to a poetic or divine life. To be awake is to be alive.

In a GNH educational setting, colleges are not seen as test centers, rather learning and assessment of that learning is linked in critical civic engagement and critical self-reflection. It offers a model of education that links the personal and the cultural meaning together through cycles of reflection, action, and the discovery of knowledge. Cultural is not extracted from the everyday modern classroom where culture seems to be manifested by the reading of books and essays.

A teacher steeped in contemplative critical pedagogy understands the interconnectedness and relevance of theory and what they, teacher and students, do. They are aware of how theory has informed their teaching, their belief system, and their relationships they create in the classroom. Engaging in a teaching practice that is reflective, understanding the connection between life and theory, and how they shape each other is on-going. This teaching practice goes far beyond just being aware of theory. Theory is seen as resource, but does not provide a prescription for the choices we make by passing the need to understand oneself in the context we find ourselves.

> Tertiary educational institutions will be characterized by the constant interaction of theory andpractice with the objective of creating the most fruitful environment forchange. The point of departure in education, training and research willalways be the practice necessary to achieve the goals of the society. (Tertiary Education Policy of the Kingdom of Bhutan, 2010, p. 14).

Using a contemplative critical pedagogy higher education can introduce students to the inextricable links between education, culture, and civic engagement. Drawing from the resource a practice in contemplative critical pedagogy offers questions about the relationship between knowledge and culture, why we choose this over that are raised. Teachers, together with students, are curious and explore how they learn and tap into the cultural capital that students bring into the classroom. Student cultural capital becomes a learning resource for both teacher and students.

For a contemplative critical pedagogy to be employed in the higher education system, time mist be given for teachers to reflect on the role they play as both teachers and intellectuals. Contemplative critical pedagogy recognizes the necessity to think critically about what teachers do at the college or university level as well as what their role in society is. Teachers are in the trenches of learning, however this counts in the construction of an educational paradigm only if teachers reflect about the practices they engage in. Teachers, even when doing the right thing, must be able to explain and perhaps theorize the experiences that are being produced, they must be able to articulate so that it can be useful for others.

Culture

Culture is integral to Bhutan's political framework, being one of the four pillars of GNH. Culture is part of Bhutan's new political configuration transitioning and infusing historical conditions with the movement into globalization. Relationships exist among culture, pedagogy, and power and these relationships provide an important theoretical resource for addressing and informing the challenges that higher education and an institutionalized education system currently face. The role of culture is a force for social and economic reproduction, and therefore higher education must give reflective and reflexive thought and action as to what students learn and reproduce in society.

Questions of culture are central to understanding how politics and power organize civic practices as well as knowledge production and dissemination; and have a profound impact on social and economic forces regulating everyday life. The following elements inform each other and at the same time uphold each other: (a) power — the distribution of resources; (b) pedagogy — how one leads people; and (c) culture — the daily patterns of behavior of people. Without the attention and intention of the GNH framework given to each of the three elements, the way in which our children and youth are educated, the way decisions are made and resources allocated, and the way in which the process of culture is shaped, will be subsumed by the dominant global priority and pressure of the market economy will prevail. Margaret Thatcher once put it that "we have no choice but to adapt both our hopes and our abilities to the new global market" (Aronowitz, 1998, p. 7). Do the leaders and people of Bhutan believe they have

a choice of what they want to adapt to and how they want to shape their future?

Culture shapes the everyday lives of people; education received in college shapes the everyday lives of students, teachers and administrators. The culture of the education system informs how meaning, identity, social practices arise. For example, if the teacher gives homework expecting the student to complete the reading and answer the questions at the end of the chapter, and punishment is given to the student for not complying, the culture of fear leads the learning. If a teacher cultivates curiosity and a love for the world students live in, relates homework to their daily life, and invites the students to work with others from their class or home to discover deeper meaning about their world, the understanding of the relationship between homework and the student's life leads the learning. The *how* we lead the students in homework is much more profound than having homework to support learning, i.e., pedagogy is central in forming culture and power relationships. The profound impact of pedagogy is as the "Educational force of our whole social and cultural experience that actively and profoundly teaches" (Williams, 1967, p. 15).

When the fourth King of Bhutan reorganized the political structure of the country, value was added to the defining of culture in that the GNH framework required a balance between humanistic growth and development and economic prosperity, as well as the liberation of the mind from ignorance and fear and the cultivation of compassion. Tertiary education must then becomea practice of liberation, liberation of the mind, as opposed to education as a practice of domination of the "outside influence, about the conventional role and structure of education, both in terms of curriculum and administration, that prepare students for the world of consumerism" (Lyonchhen Jigmi Y. Thinley, 2011).

Royal University of Bhutan Leads Change

The role of education in the transformation of society: A participatory action research study (PAR)

Education plays a significant role in the larger political discourse and social relations promoting ideological and structural change. RUB has shown its understanding of the role of education in the struggle and challenges for Bhutan by expanding and developing the relationship between learning and GNH and the move towards democratic social change. RUB has undertaken a three-year participatory action research (PAR) study to investigate the existing gaps between current pedagogy and pedagogy supporting a GNH democratizing culture. The researchers are lecturers from the ten colleges of RUB plus one foreign primary investigator (PI). Based upon the analysis of the data from the PAR GNH study, the research teams are developing a GNH pedagogy for classroom practice heavily infused with contemplative critical pedagogy.

The study seeks to identify the most deeply rooted values among the lecturers at RUB and the disparity between these values and current educational practices. The GNH PAR study aims to identify foundational elements of a holistic education system dedicated to GNH, the gaps in current classroom practice of RUB, as well as develop ways to bridge the identified gaps and thereby create a holistic GNH educational classroom practice and pedagogy. The results of the investigation will inform and guide the transformation of the RUB's lecturers and administrators on (a) how to develop GNH classroom practices and pedagogies; (b) to provide recommendations for the development of an action plan to transform current teaching practices to holistic educational practices more aligned with the GNH framework; and (c) to develop a MA and PhD degree program for those interested in pursuing graduate degrees in education.

PAR is a systematic cyclical method of planning and design, observation and data collection, actions/interventions, monitoring and evaluation, and critical reflection and analysis (individual, among

research team members, as well as through plenary sessions) prior to the design and implementation of the next cycle. It is a collaborative method of testing new ideas, implementing action for change, and learning from the consequences of change. PAR parallels contemplative critical pedagogy within the research framework.

At the onset of the study, the two-week Jumpstart workshop began with the examination of the foundations of critical pedagogy, contemplative education, and the planning and design of the PAR study. The participants engaged in experiential activities designed to strengthen their development of the participatory tools and skills necessary for the implementation of the PAR study and the integration of critical pedagogy and contemplative education in the classroom. After the Jumpstart workshop had concluded, the 62 lecturers who formed the research teams returned to their respective college.

This PAR study is a lecturer-led process throughout, fully utilizing the local knowledge and skills of the key stake-holders at RUB (lecturers, students, administrators, and staff) and thereby encouraging and cultivating local initiative and self-reliance. Participation by the RUB stake-holders in every part of the study ensures the inclusion of diverse and heterogeneous local knowledge, skills and resources in the investigation and development and of RUB's classroom practices and pedagogy. The nature of the PAR processes includes interventions with the change that takes place with the researchers and participating lecturers' classroom practice. The lecturers, teachers and staff involved in the research as respondents, also develop and organize a GNH educational culture within the PAR process. The study focuses on populations of lecturers and staff at RUB and pre-service teachers (those students attending college to become a teacher).

The sampling used in most of the colleges was a mix of random sampling incorporating probability and stratified random sampling, purposive, and convenience sampling. Attention was paid to gender, year or level of study for students, years of teaching for lecturers, age, and the location of students from Bhutan. In this study, 630 adults, 17 years and older, were sampled, which represents 9.3% of the entire RUB population, including students, lecturers, and administrators. The total sample included:

- 366 students, or 6.1% of the entire student population,
- 203 lecturers, including the research team members, or 42% of the entire lecturer population,
- 28 administrators, which represents 10.44% of the administration population;
- 33 respondents who were involved and/or who participated in the writing of field notes, meeting notes, and research team diaries.

The initial phase of the GNH PAR study began in February 2012 with the objective of identifying gaps between current classroom practices and pedagogies and those that would foster holistic GNH education.

Assumptions derived from the collected data: Baseline round

Education can reflect the values and beliefs of society and individuals if done with attention, intention and the right attitude. These three ingredients are critical and need to be at the forefront of any attempt to bring about educational change. A GNH education offers opportunity for everyone to achieve their full potential and develop moral, well-rounded individuals. Although school attendance contributes to an individual education, the whole educational journey of an individual happens collectively in school and at home and throughout society.

The lecturers are invariably at the forefront of any plans to implement educational change. The baseline data analysis of current classroom practice and pedagogy suggests that lecturers deliver infor-

mation and content by depositing a body of knowledge and skills to their students. In contrast, lecturers in a holistic GNH classroom will develop and use a wider set of professional qualities that recognize the social and cultural lives of their students. Students bring with them important ideas, experiences, interests and concerns that should provide the raw material for learning. The holistic classroom works with the notion of student-centeredness. The baseline data suggests that currently in RUB classrooms we find students sitting uneasily with the dominant notion that lecturers are there to guide students through a series of tasks and assessments. Although GNH knowledge, skills and qualities are harder to test and measure, they should not be overlooked.

Education should be much more than preparation for national tests or a passing grade. Holistic education develops (a) a range of collaborative skills such as teamwork and communication skills; (b) qualities found in GNH values and principles such as resilience, self-discipline, and empathy; (c) knowledge in literacy and numeracy; (d) the conscious of the learner and teacher; and (e) abilities that young people will need for the future. College classrooms should be arranged to make learning more relevant and engaging for young people, with students at the center of their own learning, providing a mix of experiential, service, and theoretical learning. Therefore learning must take place beyond the classroom setting engaging the student and lecturer in the wider community.

GNH holistic education highlights the importance of empowering young people to do good within their communities and to learn how they can change society for the better. If RUB's education system can prepare young people in this way, the benefits to society, civic health, sustainable living, and the psychological and over all well-being of the individual and their communities will be considerable. By enhancing young people's sense of agency and teaching them self-awareness and compassion, the lecturers at RUB can help them to understand and tackle the problems they face in today's world. Young people today face many challenges: increasingly segmented communities, disintegration of the extended family, a capitalistic world economy, and global climate change. By teaching young people the value of compassion, collaboration, and informed action moving toward social justice, the lecturers at RUB can encourage them to look both inward and outward to develop relationships with people in the local, national and global community. An RUB education can support the growth and development of a strong productive workforce steeped in dignity and integrity, a generation that understands the importance of community life, and an education system based on GNH values and principles that develop well-rounded, capable individuals cultivating the harmonious and happy Bhutan one can envision.

Gap Recommendations

1. Identified Gap: There is no consistent definition of what a holistic GNH classroom practice and pedagogy is among lecturers, administrators, and students within and between RUB colleges.

Recommendation: To develop a working definition of holistic GNH education, classroom practices, and pedagogies for administrators, lecturers, and students to use as a guide developing a GNH classroom. This will culminate in a GNH definition for RUB to use for years to come. A working definition was developed during the Cycle I intervention. (See Appendix D for Cycle I interventions report). The working definition states:

> A GNH classroom embodies an intentional culture promoting holistic development and righteous attitude. The co-creation of knowledge, a love of learning and curiosity through the democratization of the student-teacher relationship is at the foundation of our classrooms. Lecturers and students use a contemplative critical pedagogy upholding collective responsibility and mindful action for learning, and for the protection of nature and culture.

2. Identified Gap: Current classroom practices align more with the traditional Euro-Indian methods of education which are teacher narrated, lecture based, and teacher directed. This is in contrast to a holistic education classroom based upon participatory teaching strategies, which are learner directed and include mindfulness practices and critical pedagogy.

Recommendation:To develop teaching strategies and pedagogies that align more with a holistic GNH education system. This includes teaching strategies and pedagogies that are based upon participatory teaching strategies, learner directed classrooms, mindfulness practice in the classrooms, and the foundations of critical pedagogy infused in lecturer teaching. A teaching strategy handbook with 52 participatory teaching strategies, workshops on participatory teaching strategies for lecturers, and professional development learning communities called coaching groups are three of key interventions to address this gap.

3. Identified Gap: There is little consistency of what constitutes mindfulness practice for the classroom and how mindfulness practice inculcates holistic educational paradigms. The research team holds the assumption that mindfulness development is part of a GNH holistic education.

Recommendation: To develop a mindfulness manual that will support the lecturer to make use of mindfulness practices in the classroom. To bring training to lecturers into each of the colleges that supports the inculcation of mindfulness into the pedagogy of the classroom.

4. Identified Gap: The current assessment practices are primarily based upon competitive forms of exams and quizzes rather than authentic assessment models which align more with a GNH holistic education model.

Recommendation: To develop a variety of authentic assessment tools based upon the coaching group's, i.e., the professional development learning community's data during the fall 2012 semester at PCE. These coaching groups are focused on identifying and developing authentic tools to observe and assess how students learn. Over the next three years RUB should shift the assessment of students from a weight of 60% to 100% of the total student evaluation based upon exams and quizzes to a weight of no more than 10% of the student total evaluation based upon exams and quizzes. It is recommended that the winter session 2012 is dedicated to increase the knowledge and skills of authentic assessment to the research team members at PCE and SCE as well as any other research team member interested from the other eight RUB colleges. During the workshop an action plan for shifting assessment tools will be developed and during the spring 2013 semester a shift in assessment should start at PCE and SCE.

5. Identified Gap: Lecturers within and among colleges teach in isolation rather than as a community of learners. The civic vitality and holistic foundation of RUB is dependent upon the development of an intentional and collaborative community of lecturers at the college level.

Recommendation: Lecturers within and among colleges set up a disciplined systematic collaboration among lecturers by developing a lecturer community of learners as role models for their students. This initiative is being addressed through college specific professional development initiatives (a) coaching group(s); (b) lecturer retreats for the cultivation of a mindful learning institution; (c) and an annual summit for lecturers to participate in Bhutan's cultural uniqueness and general professional development workshops. It is recommended that coaching groups for professional development are started at PCE during the Fall 2012 semester and continue throughout the research. Additional colleges are training by PCE lecturers on coaching groups during future intervention cycles. (See Appendix E for the first draft of a coaching manual for lecturers).

6. Identified Gap: There is a balance missing between lecturers' concerns for their own semester plans and that of the entire student journey. GNH education requires attention to the whole and the development of the students' human potential rather than merely training students to become qualified for a specific job.

Recommendation: The development of an overall structure and plan for each student entering a RUB college, articulating how the student journey will support the growth and development of (a) the skills and knowledge needed to be a person who studies, a serious and mindful student; (b) a strong productive contributor to Bhutan steeped in dignity and integrity; (c) one who understands the importance of community life; and (d) an educational journey based upon GNH values and principles that will support the development of a well-rounded, capable individual cultivating the harmonious and happiness of Bhutan. To do this it is recommended that a module or part of a first year module includes skills such as goal setting, identifying learning styles, personal strength identification, and other skills necessary for developing good student patterns of behavior. In addition, upon entering a RUB college each student should develops a plan for the student journey that outlines (a) student learning objectives and outcomes that align with RUB overall mission goals, degree sought, and GNH values and principles; and (b) the assessment plan to measure how the student met RUB overall mission goals, degree sought, and GNH values and principles. Individual semester plans should include participatory teaching strategies, strategic questions, and assessment tolls that are associated with each daily class that informs the student journey.

In addition, the research team recommends and has developed a four year tiered plan to emphasize the four pillars of GNH. For the first year all students in groups of 10-12 students in their second semester will take a one-week cultural experiential journey and engage in a cultural historical experience in Bhutan. For instance a group of student may live with a nomadic or semi-nomadic family helping and serving the family in their daily lives and work. This supports the pillar of preservation and promotion of cultural and spiritual heritage providing students an authentic learning experience about the value of nature-based communities and their contributions to the overall society. In the second year second semester, a groups of students will go to the back-country or wilderness areas of Bhutan learning the flora and fauna, how to leave no trace behind, and falling in love with nature. This second year supports the conservation of the environment. The third year is a one-week mindfulness retreat for students and lecturers in a local monastery nurturing the development of GNH principles and values in support of a sustainable society. The final year students engage in local leadership projects practicing good governance in real world projects applying their new knowledge and skills with lecturers and community partnerships as their mentors and teachers.

7. Identified Gap: The modules and semester plans are merely content based rather than including and integrating content, GNH principles and values, and mindfulness or the development of awakening/awareness infused together and taught holistically.

Recommendation: Module development and semester plans will need to clearly address student learning outcomes and assessments that align with GNH values and principles and content subject outcomes so that both lecturers and students are aware of the expectations and work needed to successfully complete the degree program. The research team recommends the knowledge and skills of lecturer's in the areas of critical pedagogy and contemplative education should be further developed through hands on workshops and semester plan development.

8. Identified Gap: Cultural preservation is typically limited to national language, dress, song, and dance. A GNH holistic educational paradigm would infuse the values of the Bhutanese culture within the content areas and individual module semester plans.

Recommendation:The cultural aspects of Bhutan needed to be embedded into curriculum rather than be outside of the subject content held in co-curricular activities. Teams at each college should be developed to help infuse cultural history into the subject content. In addition, the recommendation for the first year students to visit and live with a nomadic or semi-nomadic family can be part of this development. The students will learn the life style of the nature-based populations of Bhutan. Currently the nomadic and semi-nomadic populations are decreasing as young people go away from the family to attend school. Through the baseline data collection process the research team members heard lecturers and students talk about the nomadic and semi-nomadic populations as a "lesser-than" population; a population not knowing as much as those who are more integrated in the modern and becoming dominate culture. Having students become aware of an ancient Bhutanese cultural way of life through genuine first hand experiences can positively affect attitudes about the subject matter that is being taught. Learning by experience is intrinsically motivating, is better remembered, and the skills learned are retained longer than in a classroom setting.

9. Identified Gap: Environmental awareness and conservation efforts are based primarily upon a one-time activity rather than as a paradigm for students and lecturers and infused within the content areas, individual module semester plans, and the whole student journey.

Recommendation: To bring environmental practices as a daily practice to college campuses and classroom practices RUB will need to include environmental awareness and practices into module development, student learning outcomes, and assessments. Environmental practices such as recycling, reducing, and reusing; leaving no trace behind; school campus gardens, regulations such as no plastic bottled water on campus, the reduction of processed packaged food, reuse of text books and classroom readings, environmental groups participating in current environmental issues of Bhutan as part of the learning center expanding homework and curriculum collaboration, the expansion of experiential learning in the outdoors, and alternative power sources for the college to function on are recommended. Training to infuse environmental knowledge and awareness into module development for lecturers is necessary as well as the increase of lecturer environmental knowledge and awareness. International working groups such as National Outdoor Leadership School can help facilitate the training for lectures and train RUB personal to guide students and lecturers in the wilderness of Bhutan as part of the overall RUB journey.

10. Identified Gap: Self-initiated motivation of the lecturers to develop change and move towards a GNH classroom practice and pedagogy is low.

Recommendation:The recognition of lecturer contribution to the college, student learning, and Bhutan needs to be heightened and systematically developed. This involves website exposure of lecturers, publishing and research opportunities, financial incentives, and weekly announcements on individual college campuses –visual and auditory.

RUB's initiative through the PAR study is to become a launching pad of opportunity to re-shape Bhutan's historical Anglo-Indian colonialist method of education.

Bhutan's higher education system is relatively new, which creates a challenge as well as an opportunity for transformation. A challenge in that the lecturers and administrators are new to the profession; many are quite young, bringing their own schooling experiences of traditional forms of education as a foundation for their teaching, and have not stimulated their own intellectual development by

innovating new paradigms of teaching and learning. The opportunity is that being such a young formal institution, the roots of conventional education may not be so difficult to transform as long as courage and momentum continue to lead the way.

Aligning with GNH: A few examples of implementation

The reformation of an institutionalized education system aligning to GNH requires a critical perspective in praxis, the process of naming, reflection and action. Consideration of the process of educational reform incorporates the nature of how common sense and consent will be constructed within the new political framework of GNH and democratization. Choices in the balance of politics for social investment or politics of social containment will be presented to the leaders in the development process. Schools in general, including the university, typically embody the contradictions that exist within society. They can provide a crucial place where knowledge and skills necessary for critical citizenship and possibilities of democratic public life are discerned, deconstructed and reconstructed with the collective as well as the individual well-being central to the search for outcomes. Students gain knowledge and skills in classrooms and start to incorporate their theoretical knowledge into their paradigm of how they see the world. The skills are used in everyday personal and professional life. If the teacher can cultivate a GNH holistic environment, bringing Buddhist founded humanistic principles, environmentally conscious knowledge and skills, the student and teacher contributions to society will reflect those attitudes in their social political actions as well as add to the cultural processes of Bhutan.

For example, students who learn to critically self-reflect are more aware of the short-term and long-term consequences that their actions will have on themselves, their environment, and future. While students are entering the modern world, bottled water has become common. Bottled water represents the immediate and individualistic consumption of water. Bringing the socio-political-economic-cultural and spiritual perspectives to the class around the consumption of bottled water influences student choice between consuming the bottled water or working to ensure all Bhutanese citizens have access to potable water. Their individual choice has an impact on their own health and ethical life as well as the collective life of Bhutan's society.

An example of contemplative critical pedagogy was done in a class at Paro Teachers College in April 2011, where I had the students reflect on the reasons and assumptions of wearing a Kira and Gho, Bhutan's local dress, to college. After a self-reflection period the class engaged in table talks bringing different perspectives forward in a dialectical dialogue. After 30 minutes or so a large group discussion was held examining the historical, political, and cultural impacts of wearing Kira and Gho or western clothing to college. At the onset of the class less than 20% of the students stated they would want to or would voluntarily wear Kira and Gho to college. By the end of the class 95% of the students stated they would wear Kira and Gho to college voluntarily and had a depth of understanding they had not entertained prior to the class.

Structure

Forming a GNH political framework at the college level requires thoughtful restructuring of the fragment structure of the Anglo-Indian education system. For example, the structure for when the college's modules are offered andthe timetable for classroom schedules should be developed with an intentionality cultivating the foundations of GNH principles and values. The structure of the college's modules may be better offered one module at a time for three and half weeks with a four day break between modules

rather than students attending four to five modules at the same time. Offering one module at a time may reduce the impacts of fragmentation in learning and offer a depth over a breadth of content study. In this model lecturers would be able to give full attention to one module at a time rather than divide their time between three or four modules. The relationship building between lecturer and student may deepen due to the consistency of class time. Lastly, when one module at a time is taught over a three and half week period, the lecturer can arrange off campus activities as conflicts with other modules are reduced or possibly eliminated. The timetable structure for modules and lecturers, should each module be delivered for 50 minutes four or five times week, or would a structure with longer class times and fewer meeting times allow for more in depth investigation and discovery reducing transition time.

Where to go from here

Will formalized schooling be reduced to functions such as external discipline, control and surveillance, or will colleges be producing knowledge and developing skills that support democratization alongside a GNH holistic-based education system? Schooling can be both a danger and a hope for social, political, economic and environmental forces that shape society.

Will colleges encompass a position of choice and possibility in which civic responsibility goes far beyond the pattern of consuming to serve the public good? How will decision makers refashion the higher education systems, in market terms, to serve the interests of individual consumers and support national economic policies while providing the criticality necessary for Bhutan to move forward in fulfillment of the political framework of GNH? RUB is an autonomous agency in Bhutan — how will the market inform and influence the policy of RUB? How will GNH policy and commitment align with holistic education to inform and influence the policy of RUB? Will RUB be able to balance sustainable economic imperatives and holistic educational approaches?

> In this materialistic world, this consumerist society, we are bombarded by messages that seek to increase greed within us, making us want more and more and more. In the modern classroom, nothing much is taught about happiness, generosity, goodness, and humility. And then, when they go home, most of our children, especially in the urban areas, sit in front of the television. And what they see is more of that: the advertisements, the temptations. Parents in the modern world, in modern Bhutan, have less and less time to foster Gross National Happiness values. Now, what we are talking about is at least balancing this trend with good education, with reminders of the more important things that will, in fact, bring happiness. (Lyonchhen Jigmi Y. Thinley, 2011).

I believe that the leaders of education development must rewrite current pedagogy in contrast to the current authoritarian teaching approaches endorsed by drill and memorization, which descended from an Anglo-Indian colonial model of education. Current practices of education are based upon old ideas, which emerged as part of the industrial revolution. Students are managed as fragments, individuals, who must be controlled (Jones, 2008). Many classrooms are not aesthetically, intellectually or visually conducive to learning. Typically, teaching is done in institutional settings with bare rooms and hallways, bells, and rigid time schedules. The idea of managing a classroom draws upon values that are antithetical to participatory holistic learning.

The foundation of learning should start with the building of relationships between teacher and student based upon shared power and the co-creation of knowledge that will guide their life and world towards justice and harmony. "The classroom is made up of a group of students who desire and deserve high quality personal relationships with adults and peers. It is the quality of these relationships that drives their behavior and learning" (Jones, 2008, p. 9). In this model the punishment/reward system

no longer exists, learning is collaborative and participatory, and assessment and outcomes are based upon the contributions to real life current issues that students and teachers face each day. Current GNH pedagogy *can* become a potential path for expanding the public good and the alignment of the mission of higher education within the ideology of GNH.

Using a contemplative critical pedagogy, higher education can be seen as a repository of critical thinking and action; writing, teaching and learning; fashioned to meet GNH cultural and political interests rather than the interests of the dominant education paradigms that exist throughout most of the world.That is, RUB can develop a higher education system designed to inculcate GNH principles and values rather than meet the interests of commerce and regulation aligning with the political and economic missions of GDP.

Fear to examine and discuss critically many of the cultural values or mandated regulations can lead to unwarranted resistance. During meetings lecturers from RUB have noted that they fear contemplative critical pedagogy could be volatile and revolutionary, stirring up students. If fear of examining current concepts and contexts is the reason for the continued authoritarian style of teaching, then my belief says that Bhutan will go the way of many other impoverished nations when they entered the world of globalization, that of control by the dominant powers.

The pedagogy and curriculum of higher education are crucial in the political culture of the country, for democracy, for GNH. The importance of pedagogical choice of being hegemonic or liberating is at stake. The purpose of schooling must be addressed as a part of a broader comprehensive plan for social change moving towards awakeness and the development of the consciousness. "All we need to do for the teachers is bring those values at the subconscious level to the conscious level" (Lyonchhen Jigmi Y. Thinley, 2011). Educational reform, beyond the infrastructure capacity building (i.e., making sure every child goes to school, making sure there are enough schools and teachers, allowing those who want to attend college can) must become part of the GNH 5-year national plans so that the move towards GNH and democratization is inculcated within the schooling system at all levels, including the tertiary education levels which are shaping the youth and developing the intellectual capacity of the country.

The GNH pedagogy reform demands theoretical rigor, moral courage, and political boldness. Educators and decision makers must think critically about how knowledge is produced, digested, and transformed as a force for social change and collective thought informing the culture of GNH and democratization. Pedagogical practices that instill self-discipline and an array of intellectual, emotional, social, and spiritual skills are crucial for preparing young people with the ability that will enable them to be able to govern with good governance, not just to be governed; and to use civic society as a community of practice to organize and lead moral and political energy.

Contemplative mindful practices can offer one approach. An example of a contemplative mindful practice in an academic setting is to offer a few minutes at the beginning of class for students to sit in silence. This experience can affect students to a deeper and enhanced engagement with the academic material; increase compassionate engagement with social, political, environmental, economic, and cultural issues; and nurture greater open-mindedness and creativity. In my experience, this typically leads students and myself to a more profound discernment and understanding of the topic at hand.

A reflective close reading techniques using the three prajnas, can be used to deeply examine short sections of important text (Dzogchen Ponlop Rinpoche, 2005; Tulku Urgyen Rinpoche, 1995). As the student's engagement with the material deepens, contemplative mindful reading naturally reveals the student's own personal lived experience relevant to the text.

The tension between a democratic GNH society and that of capitalism and corporate power is

upon Bhutan. Higher education has a role in the naming, reflection, and action contributing to which side of the tension Bhutan will move. The role of a liberal education is to educate for the whole person rather than the more traditional education paradigm of the Anglo-Indian model with specialists, technocrats, and an abundance of professionals. A GNH RUB higher education needs to remain as a public good rather than private good ensuring rights for civil society rather than a consumer society, universal rights for people rather than individualistic rights or commercial rights.

Higher education should not reduce intellectuals to technical experts, rather it should empower them as cultural guardians and servants to the collective well-being of GNH and democracy. Current trends in pedagogy, such as media literacy, need to be taken into account as the popular culture for the youth while education is restructured. Mapping the relationships between everyday life and popular culture so that they can be strategically and thoughtfully incorporated, as part of the production of knowledge and culture, is necessary to develop a GNH democratic society that balances modernization with the GNH framework. Educational pedagogy must make knowledge meaningful to students in order for it to become transformative for society. Educators must expand curricula to include elements of the popular culture and modern tools of technology, which play a powerful role in shaping the desires, needs, and identities of the students. Defining the relationship of self to the modern technologies available, and understanding the depths of how modern technologies activate one's desires, needs, and shape one's identity, are essential.

GNH education requires that teachers and students must learn how to critically read the world, theory, and technology alongside the visualization of a culture that supports GNH and democracy. Otherwise, the capitalist corporate entities will consume the youth. Pedagogy in the colleges must embody critical pedagogy and contemplative educational practices to awaken the student and the teacher developing the knowledge and skills necessary to attend to the tensions of Bhutan moving more fully into the modern world with 2 billion people to the north and 2 billion people to the south.

Lecturers who are committed to developing responsible social citizens require the knowledge and skills to make informed choices. If Bhutan wants to follow a righteous path of humility, compassion, loving kindness and basic goodness, then each and every class, lecturer, and student needs to be involved in mastering the tools of technology to develop the social and cultural sphere shaping a GNH democratic culture.

College level classrooms are responsible for fostering critical contemplative consciousness, demystifying dominant power and social relations and situating the student so that liberation of thought is at the center of the content. Education is not neutral. Education is about the study of current challenges, the contributing factors that led to the challenges, and the construction of a bridge to link the challenges with the vision of a GNH democratic collective society. Tertiary education must provide moral exercise and development addressing the gap between theory and practice. If institutions of higher education are willing to integrate thought and action, broadening the production of knowledge, then RUB's commitment and risk to transform their educational pedagogy appear to hold the ethical imperative and guidance for social engagement shaping the culture of Bhutan. Students and teachers at RUB must first self-critique the nature of their own thoughts, their own interests, and their own desires. Then engage in a dialectical dialogue with others to expose a more expansive paradigm shaping the conditions through which individuals and groups come together as well as differentiate.

GNH democracy requires a different kind of citizen. Philosopher and linguist Antonio Gramsci imprisoned during Mussolini's time in Italy for his stance on cultural hegemony, stated that "democracy requires … citizens who feel responsible for something more than their own well-feathered little corner,

citizens who want to participate in society's affairs, who insist on it, citizens with backbones, citizens who hold their ideas about democracy at the deepest level," (Berman, 1997, p. 37). Gramsci claimed that modern intellectuals are not simply those who think and teach, but practically oriented directors and organizers who help to produce hegemony by means of ideological apparatuses such as education and the media. To renovate and critique the *status quo,* the existing intellectual activity of the society is crucial to create an education that unites politics, education and culture. Education is central to the development of leadership, agency, and keeping the ideas of GNH, justice, and democracy alive while struggling with the components of the modern capitalist global society.

As the non-commodified sectors of Bhutan continue to slowly, and perhaps at times quickly, disappear, the tertiary levels of education become instrumental as to where the intellectual power will align. Will higher education prepare youth to serve corporate interests? Will the college curriculum and teaching build substantive knowledge as the basis for research, writing and teaching producing knowledge serving the interests of institutional power and culture of market labor, or will Bhutan utilize a pedagogy, contemplative critical pedagogy, to inculcate GNH into classroom practice and compassionate social action? Will a RUB college education produce:

> …graduates who are genuine human beings, realizing their full and true potential, caring for others, including other species, ecologically literate, contemplative as well as analytical in their understanding of the world, free of greed and without excessive desires; knowing, understanding, and appreciating completely that they are not separate from the natural world and from others; in sum, manifesting their humanity fully (H.E. Lyonchhen Jigmi Y. Thinley, the Hon'ble Prime Minister of Bhutan; Educating for GNH Workshop, December 12, 2009)

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About the author

DEBORAH YOUNG, PhD, EdS., Naropa University, Boulder CO, USA, began her career life as a juvenile probation officer. Due to the challenges and limitations of the justice system she moved into the educational system hoping to give a stronger voice to children. She trained with Dr. Caspari in Montessori's work for children and peace. She continues her passion of researching the special needs of single mothers and the impact of poverty on families and children. Over the past twenty-eight years, Debbie has set up programs to serve families impacted by poverty locally and internationally, and has constructed many schools based on experiential service learning. She currently works with programs in Central America, Kenya, and Nepal. Earlier this year Dr. Young visited the Royal University of Bhutan as a consultant and worked with the faculty at Paro College of Education. Through this work a collaborative participatory action research study with the faculty at Paro is planned for the spring 2012 semester. The study's focus is on the development of a Gross National Happiness classroom.

The impact of the Bhutanese Multigrade Attachment Program (BMAP)

T W MAXWELL

Abstract

Multigrade schooling was introduced to Bhutan to address Education for All (EFA) goals. The Bhutanese Multigrade Attachment Project (BMAP), involving a phase in Australia and another in Bhutan, was commenced in 1993 and finished in 2008. Three research studies of BMAP have been undertaken and these are reviewed. Together these provide evidence there are grounds to indicate BMAP did have an impact. The features that made BMAP successful are identified.

Keywords: *policy borrowing, continuing professional development, Bhutan, remote education, multigrade, impact.*

Introduction

The Bhutan Multigrade Attachment Program (BMAP) was developed to improve multigrade teaching in remote rural schools in Bhutan. BMAP followed soon after the introduction of multigrade schooling to Bhutan at the suggestion of Unicef in the early 1990s and is thus a specific example of policy borrowing (Phillips, 2000 but see also knowledge transfer (Jacobson et al., 2005)). The imperatives of Education for all (EFA) ideals of the 1990 Jontiem conference (reinforced later by the 2000 Dakar conference on Millenium Development Goals (MDGs)) had impressed the Bhutanese representatives because there was a need to get children from rural and remote into primary schools. The introduction of multigrade schools was an administrative necessity (but see Ninnes, Maxwell, Rabten & Karchung 2007) since there were too few children in the mountains to create full primary schools and yet the distances were too great to get all the children to existing schools (Maxwell 2001). Community schools were thus created where construction materials were provided by the Department of Education and the local community built the schools and provided the teachers' accommodation. In their simplest terms multigrade classes are those in which one classroom contains more than one grade level taught by one teacher at the same time. At the extreme one teacher can teach seven grades, that is, PP to grade 6 (see Cornish, 2006).

Within a short time Unicef supported a multigrade teacher development program that came to be known as the Bhutanese Multigrade Attachment Program (BMAP) hosted by the University of New England (UNE) in Australia (Laird & Maxwell 2000) from 1993 until 2008. More than 130 teachers, often school leaders, have been involved. From five to 20 teachers came to Australia in any one year. These represent part of the 10% of multigrade teachers who had been trained outside Bhutan (Kucita 2010, p. 89). Some Department then Ministry of Education officials and College of Education lecturers were included later to provide support and to introduce multigrade to College students respectively. A multigrade monitoring committee was also set up within the Ministry (Ninnes, Maxwell, Rabten & Karchung, 2007). The BMAP is unusual because not often do continuing professional development (CPD) programs exist for such a long period.

BMAP had multiple objectives (Maxwell, 2001) but the main task was to introduce participants to multigrade teaching and learning as practiced in Australia. The BMAP had two main capacity build-

ing phases that have not changed: (1) four to six weeks in Australia and (2) a period of several months upon participants' return (Maxwell, 2001; 2008). In the first phase the Bhutanese teachers focussed upon observing Australian multigrade teaching practices and gathering practical materials. Toward the end of this phase some teaching in multigrade classrooms was undertaken. Two different school placements of Bhutanese teachers in pairs in rural communities of about seven working days each were usual (Maxwell, 2001; 2008).

So, during their time in Australia the Bhutanese teachers learnt about, observed and also practised multigrade strategies using concepts and materials with which they are familiar. Formal and informal discussions with classroom teachers and UNE academics were structured into the program. Examples of good practices were noted and relevant materials gathered to take home. The practices and materials that impressed each Bhutanese teacher were written about by them and consolidated into a report used as a resource when they returned to Bhutan. Additionally, each individual selected up to ten ideas to adopt or adapt to their own situation when they returned to their home school. The teachers were thus in control of their own CPD. In the second phase, on return to Bhutan, the teachers attempted to incorporate teaching practices from Australia by either adopting or adapting ideas.

In fact there were changes made over time, two of which were particularly significant. In 1998 action research (AR) was introduced. Action research is a form of reflection upon action where the reflection is based on data that is collected over time to see if improvements had been made. In BMAP, action research was linked to trials in Bhutan by each teacher of at least one of the ideas learned in Australia. It could not be assumed that Australian practices would translate directly to Bhutan for example. Each teacher wrote a report based upon their action research and sent it back to UNE. A certificate, together with individual feedback, was awarded for completion of both phases. The second major change occurred in 2006 when materials, which focused upon Bhutan's environment, were developed to support the Bhutanese teachers' teaching multigrade classes in Australia.

The BMAP two phase model is quite different from the "one shot" model of CPD which has been heavily criticised (Garet, Porter, Desimone, Birman, & Kwang, 2001; Goldenberg & Gallimore, 1991; Maxwell, Bennett, Freebody, Grundy & Sanche, 1988). "One shot" models usually have a single, short out-of-school experience most often directed by an "expert". Little or no follow up usually takes place. Invariably participants enjoy the experience but not much change takes place back in the classroom following the CPD. So, impact is usually low.

One shot CPD contrasts strongly with more successful models. Cordingley, Bell, Rundell and Evans (2003, 4) identified six features that were common to successful CPD programs:

- observation with professional dialogue including *feedback***;**
- the use of external expertise linked to school-based activity;
- an emphasis on *peer support* rather than leadership by supervisors;
- scope for teacher participants to identify their own CPD focus;
- processes to encourage, extend, and structure professional dialogue; and
- processes for sustaining the CPD over time to enable teachers to embed the practices in their own classroom settings [their emphasis].

These features are consistent with the BMAP model.

Several points need to be noted. Australian multigrade practices were challenging to Bhutanese teachers who were used to teaching to the whole class (Maxwell, 2008). The move from teaching to the class (teacher-centred) to working with individuals and groups (learner-centred) is notoriously difficult and requires considerable conceptual knowledge, motivation and skill. In fact the education and train-

ing of teachers in Bhutan is in its early stages and many primary teachers do not have full secondary schooling to accompany their two years of professional training (Laird & Maxwell 2000). Appointment of teachers to (rural and remote) multigrade schools creates difficulties for teachers, especially young teachers. They are generally not favoured appointments (Maxwell, Rabten and Karchung 2004). Teachers have to be aware of the tight examination system in Bhutan (Maxwell, Rinchen & Cooksey 2010) and its impact upon children. They have to contend with a scarcity of resources that makes teaching in multigrade more difficult than monograde classes. As Little (2001) has pointed out, one of the paradoxes of multigrade teaching is that it is often implemented in contexts in which the required skills, attitudes and resources are lacking as is the case here. These barriers make multigrade teaching difficult in Bhutan yet it was considered important as a vehicle to achieve Bhutan's Millenium Development Goals. Now, one third of primary schools in Bhutan are multigrade (RGoB 2006). In fact multigrade education is found throughout the "developing" world including Vietnam (Aikman & Pridmore 2001), Peru and Sri Lanka (Hargreaves, Montera, Chau Sibli & Thanh, 2001), Turks and Caicos Islands (Berry, 2001) and Columbia (McEwan, 1998), to mention a few as well as in countries with long-established education systems, such as Australia (Lloyd, 1999), the United States (Burns & Mason, 2002) and Canada (Brown & Martin, 1989).

BMAP can be thought of as an example of policy borrowing by a developing country (east) of ideas from a developed country (west). So, how effective is north-south, west-east policy borrowing? Verspoor, (1993, p. 104) in a report by the World Bank indicated that the impact of educational aid to developing countries was "less effective than it could have been". BMAP is a small scale national project but one which continued for many years. London (1993), Powell (2001) and Moore and Chapman (2001) each point to difficulties of national projects associated with sponsorship. The focus of this paper is to investigate the impact of the BMAP on various stakeholders particularly on the teachers concerned. One important note is needed: I was directly associated with the BMAP from 1997 and led it from 2003 till 2008. I have been careful to provide credible data from three sources and mount an argument based upon these data.

Impact of BMAP

The fact that the Department of Education (followed by the Ministry of Education) and funding bodies made decisions to keep the BMAP going over 16 years indicates that BMAP had an impact from the point of view of two key stakeholders (Maxwell 2010). A variety of evidence is provided to support this assertion. The first is a Unicef evaluation study, the Munce Report. The second is a study undertaken by Maxwell (2010) based upon reports of action research undertaken as part of BMAP and the third is a Halloway and Maxwell (2009) study of multigrade practices resulting while using Bhutan-based bio-diversity materials.

The Munce Report

The Munce report (Munce 2001) covered BMAP from 1993 to 2001. She interviewed key figures in Australia and also in Bhutan and as well made an extensive review of project reports, files and other relevant documentation; and a one-week field trip visiting schools in Bumthang, Trongsa, Wangdue, Punakha and Paro Dzongkhags. The team visited 10 rural and remote schools (8 community schools and 2 primary schools) and held a one-day workshop in Bumthang with teachers whose schools were not visited. Overall, the team interviewed 14 teachers who had participated in the program, along with several non-participating teachers and three District Education Officers (DEOs) (Munce 2001, p.1).

Broadly, the Report stated "It is undeniable the attachment [BMAP] is a highly valued and appreciated experience for teachers and certainly many teachers have had success in implementing a range of ideas adopted/adapted from their Australian experience" (Munce 2001, p. 15). She reported these successfully implemented ideas:

> running records for reading, sorting readers by level, assessment folders, individual records with follow-up, ongoing monitoring of learning, organization of ability groups, reorganisation location of materials for easy access; establishment of routines, promotion of community participation, school planning and budgeting, fund raising, classroom displays, group work, classroom routine, reward system/positive reinforcement, sharing responsibilities between student and teacher, extension activities, peer teaching/support (p. 13).

These were significant changes in individual teacher classroom behavior, and also school level behavior, that the Munce Report had identified. They indicate that teachers learned new strategies to fit into teacher-centred approaches rather than any revolution toward multigrade teaching and learning *per se*.

The Munce Report noted an important effect in Bhutan: "attachees have shared their experiences with other teachers, whether through the annual National-based In-service Program (NBIP), School-based Inservice Programs (SBIP) or informally with colleagues" (p. 14). However, she also added the caveat: "While a considerable amount of peer support appears to have taken place, it is difficult to comment on the extent to which [these] other teachers have benefited from this or participation in the NBIPs, without any formal monitoring" (p. 14). Teachers attributed changes to the BMAP but she noted:

> It is difficult to comment on the extent to which behaviours have changed as a result of the attachment, by means other than the teachers' own comments. Responses varied on this point. While some commented: '(they are) *not planning differently now to before*', '*there are still difficulties with planning', 'assessment strategies have not changed as result of attachment', 'continuous assessment continues to be difficult*', others did indicate they can now do things which they couldn't do earlier (Munce 2001, p. 13).

The major ongoing difficulty in planning for multigrade lessons and the integration of subject matter from grade level structured curriculum documents is an ongoing theme in Bhutanese multigrade education largely because the planning at that time required attention to multiple documents. The Ministry of Education responded soon after the Munce Report by producing an aligned curriculum for multigrade teachers to plan from (Kucita 2010, pp. 104-11) and also arranged for the Royal University of Bhutan to add multigrade modules to its BEd by a distance education program. The aligned curriculum, "aligned" in the sense that key elements of the multiple curriculum documents were amalgamated into one document, eliminated a serious structural barrier to the implementation of mlutigrade.

The BMAP action research report study

Action research (AR) reports from BMAP participants provided clear evidence, or otherwise, of the implementation of ideas from Australia by Bhutanese teachers. As noted above, participants were required to gather triangulated evidence over time in an AR cycle resulting from their own efforts in changing their practices. It is important to recall that the ideas to adopt or adapt from Australia in Bhutan were those specifically chosen by the BMAP participant. It is assumed that the choices were intended by them to lead to change, indeed, improvements in practices.

In Maxwell's (2010) study, a stratified random sample of 20% of the AR reports from the years 1998-2007 (n=78 in total) that were available were subjected to analysis. The fact that some participants completed more than one cycle and others reported in more than one substantive area are indicators that

these teachers at least had tried out what they had decided would be useful from Australian multigrade schools. Practices learned from Australia and tried out at home were seen as improvements since they were considered as such by the participants who chose the change(s). Additionally, specific comments were identified which exemplified explicit statements of improvement by the BMAP teachers themselves. Some participants took the opportunity to reflect upon the experience of AR as CPD And these self reflections can be thought of as a form of impact.

In this Maxwell (2010) study, almost all the reports addressed issues related to classroom practice and just less than half of the cycles directly addressed multigrade practices such as across grade peer tutoring and ability grouping across grades. Practices unrelated to multigrade included hygiene and playground cleanliness. Recognisable AR reports from 75% of the sample varied from two to seven pages. Moreover, about two thirds of the reports analysed provided credible data that improvements had been made, that is, they had not just stated they had adopted or adapted ideas but had tangible evidence that they had improved in implementing these ideas through the AR cycle(s) (Maxwell 2010, pp. 132-3).

During the analysis it was possible to identify comments on their own improvement. For example

> During the AR cycle … my professional practice has changed considerably but more importantly my beliefs about teaching maths and how to teach [have] changed. (2001). I clearly see a change in their reading habit … [BMAP] helped me a lot in grow[ing] professionally as a teacher. (2004). The training made me confident and capable to tackle the difficult situation in remote schools of Bhutan like X [place name]. (2007)

Although these comments were not in the majority (such comments were not asked for), it is the strength of the comments that is important. These positive comments were made despite the difficulties participants experienced including large class numbers and the classrooms being too small. Furthermore, a small number indicated that they had run in-service sessions for their school staff supporting what Munce had found. Others indicated that they would take what they had learned to national in-service days (NBIPs) held each year in multigrade education. BMAP participants were regularly asked to be resource persons for multigrade in-service in Bhutan. BMAP thus had an impact, potentially beyond their own classrooms, in terms of the participants' unsolicited reflections.

In a subsequent analysis of 29 reports available electronically using a quite different methodology (*Leximancer*), Maxwell (2010, pp. 133-7) was able to confirm that students were central to the teachers' work and that classroom practices, not necessarily multigrade practices, were central to the reports. In terms of the substantive work brought back to Bhutan there is evidence from the AR reports that BMAP had an impact on classrooms. In summary, three forms of data from the AR reports separately and together give very strong indications that BMAP has changed teaching practices. BMAP has had an impact not on all, but certainly on a considerable proportion of those participating.

BMAP practices in Australia with bio-diversity materials

BMAP teachers used materials based on Bhutan's biodiversity in all teaching placements from 2006 when in the Australian schools (Halloway, 2007). These materials were very flexible and as such could be used in any multigrade classroom in Australia making good use of the Bhutanese teachers' knowledge of their own country. These same materials, provided via BMAP, were taken back to Bhutan by the multigrade teachers and so were available for their use in the primary Environmental Science (EVS) curriculum in its "aligned" version. Generally, team teaching to multigrade groups of students in Australia was intended in the context of interdisciplinary units, such as "How can Bhutan's unique plants and

animals be protected?" Australian teachers and schools facilitated this innovation so that ideas about how to teach such units in multigrade situations could be taken back to Bhutan.

In the study reported by Halloway and Maxwell (2009), but where the analyses were carried out independently of the present author, each BMAP teacher completed a questionnaire when they returned to UNE after each attachment (14 [2007] and 8 [2008] of respondents, a 100% response rate). There were 12 items seeking a response on a four-point scale. Comments were invited after each item. The items covered the usefulness of the materials, how they planned their lessons, and if they had grown in confidence from their teaching in the Australian schools. Additionally, in 2008 a questionnaire was also sent to schools asking for feedback on the use of the Bhutan: Teaching about Bio-diversity (BTAB) materials and the lessons taught by the Bhutanese. Five out of eight Australian teacher mentors responded.

The vast majority of the Bhutanese found the bio-diversity materials useful. Many reported an increase in confidence in teaching Australian multigrade classes from the first to the second attachment as a result of using the bio-diversity materials. The open-ended comments indicated that planning for multigrade was still an issue for them. However, one Bhutanese teacher clearly showed that groups were planned and taught with different learning outcomes:

> The lesson was taught with the assistance from the [Australian class teacher] in preparation of learning activities and materials. The kindergarten and Year 1 children were asked to select four animals, colour and name them. In the higher grades the children were asked to name the animals and classify them into different kinds of animals by looking at their characteristics (2008).

Five out of eight Australian teachers' who responded were broadly supportive of the Bhutanese teachers' efforts. One comment illustrates:

> Students gained a knowledge of biodiversity in Bhutan. It reinforced knowledge covered in recent science unit. Children were able to compare and contrast Australian and Bhutanese [biodiversity].

The three others were non-committal.

Taken together, the Halloway and Maxwell (2009) data indicate Bhutanese teachers were actively trying out ideas in the Australian classrooms. This means that they were more likely to try these same ideas out upon their return.

Discussion

Munce was broadly supportive of BMAP because a range of ideas had been implemented upon return to Bhutan. She caveats about its impact upon practices beyond the attachees themselves . The Maxwell AR report study provided direct evidence of impact on teaching practices certainly by a majority and just a half in using multigrade or multigrade-like practices. These are positive impacts since the addition of more student-centred strategies adds to the teaching and learning repertoire of the BMAP participants. Moreover, many of the Bhutanese teachers gained in confidence in the latter years of the project as they used materials specifically designed for the purpose which contained content that they knew (cf. Fullan, 1990) to teach Australian children who were usually interested. Self-reflective comments also support this conclusion.

From this evidence BMAP has adopted a model that is effective, indeed, has had an impact. This is especially the case in the latter years when structured teaching practice was introduced to the second placement of the Australian phase and from the early years when AR was introduced in order to put some pressure on the returning teachers to provide evidence of implementation.

In essence the BMAP model, to particularise the points about effective CPD above, included:

- observation with professional dialogue including feedback on placement in the first phase. An improvement would be the addition of dialogue in Bhutan perhaps at the end of the AR work, eg, via a network;
- the use of external expertise in the form of academic and professional input linked to school-based activity in Australia;
- school-based activity that went beyond observation and eventually included use of Bhutan-relevant materials;
- participants learned how to deal with the problems that were identified through the situational analysis of the AR, i.e. situated learning took place;
- professional, research-based knowledge about student learning was the focus of the AR;
- teacher participants chose their own CPD focus in BMAP that resulted in a full range of foci for the AR work;
- the AR process was used to encourage, extend, and structure professional dialogue;
- in-country, workplace-based AR sustained the CPD over time to enable BMAP teachers to embed practices in their own classroom settings;
- active, informal reflection on their practice occurred throughout as Bhutanese teachers compared their practices and attitudes to those of Australian teachers. AR itself is essentially reflective as obtaining meaning from the data collected is an essential part of AR;
- intrinsic and extrinsic motivation was built into BMAP; and
- time for teachers to test new teaching methods was evident in both phases. However, in Bhutan the demands of teaching in remote locations, with few resources, large class sizes and small classrooms, make this problematic. Nevertheless the majority of teachers completed AR reports and the majority of these used action research.

These features build out those characteristics identified by Cordingley, Bell, Rundell and Evans (2003).

There were difficulties also with this model. Cross-cultural capacity building is difficult as Munce observed. BMAP teachers sometimes could not overcome the vast resource difference between Australia and Bhutan despite our emphasis upon generic practices and low cost materials. Again, as Munce observed, peer support back home was limited. The fact that BMAP participants were used as resource persons for school-, cluster-, province- and national-based in-service events meant that some BMAP teachers became leaders in this area. Despite the apparent impact of the model, there was evidence of more student-centred practices rather than multigrade teaching practices.

Conclusion

The Bhutanese Multigrade Attachment Program was funded for more than a decade. This itself indicates Bhutanese Ministry of Education's and the funding bodies' confidence in it (Maxwell, 2010). Its purpose was to build the skills of multigrade teachers from rural and remote parts of Bhutan. The substantive areas where improvements were made included new teaching techniques that were more student-centred than previously used as well as new strategies for multigrade classes. There is sufficient evidence provided here, using three sources of data, indicating that the BMAP model of continuing professional development (CPD) had an impact upon the teaching practices of the majority of BMAP participants notwithstanding cross-cultural difficulties and other limitations. As an example of policy borrowing it was less successful: changed practices were not strongly multigrade but rather they were more student-

centred. This study of CPD impact is the only one known where the CPD has extended over more than a decade.

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About the author

TOM MAXWELL, PhD, is an Adjunct Professor at the University of New England, NSW, Australia. Tom took part in the development of one of the earliest EdD (Doctor of Education) programmes in Australia and led its re-development in the late 1990s. Dr. Maxwell has led four teacher education consultancies in Bhutan. The longest one concerned capacity building in multigrade education (1997-2008) and he led the B.Ed (Primary) by Distance Education Review (2006). In 2008 he led a team to establish the Royal University of Bhutan Centre for University Learning and Teaching (CULT). Tom has undertaken other international education consultancy work in Pakistan/Afghanistan, Vietnam, Cambodia and East Timor, as well as in Uganda and Zambia. In 2008 Tom was awarded an Australian Teaching and Learning Award Citation which read: "For a decade of national and international leadership in innovative curriculum development and research in more professional, workplace-oriented teacher education." Tom's more recent publications have focussed upon doctoral education as well as teacher education. Over the last ten years he has supervised 12 postgraduate research projects in teacher education and currently has four students undertaking PhDs in this area. Tom retired in July 2010 and was made adjunct professor later that year. He now lives with his partner in beautiful Coffs Harbour, NSW.

Feeder Road and Welfare:
Evidences from Bhutan

DIL BAHADUR RAHUT, SAURAV AND NAR BAHADUR CHHETRI

Abstract

Existence of rural-urban connectivity is the major channel for structural transformation of the rural economy. Most of the developing nations still have not witnessed structural transformation and Bhutan is one of them. Therefore, this paper focuses on the socio-economic impact assessment of Tekizam-Bejna and Khartungla-Kargpara feeder road using a peudo panel data collected for the period 2007 and 2009. The findings suggest that the rural households close to the vicinity of the feeder road have benefitted significantly both in social and economic aspects. The rural household along the feeder have witnessed significant increase in income, declined in inequality, increase in agricultural productivity, diversification in livelihood activities and increase accessibility to the socio-economic infrastructure like hospital, banks, extension centres, health centre and market.

Keywords: *Feeder, Welfare, Rural, Livelihood, Bhutan*

Introduction

Bhutan is a small locked country in South Asia with an estimated population of 695,822 (2010) covering an area of 38,394 square kilometres. Although the area is highly mountainous with rugged terrain majority of the population, around 70 percent, practice subsistence farming and derive their livelihoods from agriculture and allied activities. The agriculture sector's contribution to GDP over the years has been however dwindling due to low productivity, land fragmentation and over dependence on traditional farming practice. The contribution of agriculture to GDP was 21 percent in 1981 and 15 percent in 1985 and it dropped to further 13 percent in 2000 and 9 percent in 2010. The agriculture sector grew by 6 percent in 1980s, which declined to 2 percent in 1990s and 2000s. Such a dismal performance of the agriculture sector despite being the largest employer indicates the vulnerability of the rural households and inability of the economic growth and rapid structural transformation to move the population from agricultural sector to manufacturing and service sector.

Rural-urban migration to escape from poverty, secure non-farm employment and access social amenities like better health and educational facilities existing in the urban centres has been cause of concern among the policy makers. The policy underpinning the development of rural economy by investing in rural infrastructure like constructing feeder and farm roads are of paramount importance for revitalising the growth rates in agriculture in order to combat rural poverty and reduce rural-urban migration in Bhutan. Public investment in rural infrastructure not only helps to establish rural urban connectivity and linkages but provide access to markets for rural produce and creates an enabling environment for private investment facilitating growth of small entrepreneurs and business.

In Bhutan the construction of feeder roads have stimulated the rural economy there by raising the standards of living, exchange of ideas and increase in use of public services. The impact of feeder roads differs among countries depending upon the resources available among the rural household. Some

of the previous studies have shown that in most developing countries feeder roads helped in establishing good rural-urban connectivity thus improving trade among the regions. It also helps to reduce rural poverty (Van de Walle, 2000), by reducing income inequality and addressing the problem of food insecurity. In case of Bhutan, the study illustrate that the benefits is largely confined to households who are engaged in agricultural production or self-business and allied activities. Since, the rugged terrain makes it difficult to construct highways,the feeder and farm road provides a cost effective solution to develop an efficient rural transport system.

Section II discusses about the literature on impact of roads, section III explains data and methodology. Section IV explains result and finding while section V provides conclusion and recommendations.

Literature Review

Road connectivity brings numerous benefits and stimulates development of local economy. Merely targeting the poor and providing subsidy do not bring about sustainable development and rural growth. A policy and mechanism that link the supplier and consumers are of paramount importance for rural transformation and growth. In most of the developed countries like East Asian Tigers rural-urban linkage has been achieved (John Page, 1994). As a result the market is performing without any impediments. Recent decade has seen major diversion in the pattern of rural infrastructure investment in developing countries. There has been shift from large-scale projects to smaller scale investments, such as rural roads, and micro hydro power plants. Rural road densities decide the growth of rural economy. The inter-linkages of rural road have become an important path for exchange of ideas and services.

The benefits from such investments in rural infrastructure have attracted the attention of the researcher and the policy makers. Rural investment like road construction, rural electrification, and creation of green economy has strengthened the social welfare by creating positive externality. The rural investment simultaneously leads to reduction in rural poverty and increase in agricultural output, for example Ahmed and Donovan (1992), Lipton and Ravallion (1995), pointed out that the existence of strong linkages between rural infrastructure investment, increase in agricultural growth and poverty reduction. The short run benefits can be positive or negative but in long run the impact is positive. Such kind of investment has allowed economy to move to the path of sustainable development.

Rural farm road construction, a form of rural investment, is based on concept of inclusive development and pro-poor growth. The benefits of rural road can analysed from the social as well as the economic perspective. Economic benefits includes rise in rural wages, increase in income, reduction in production and transportation cost, diversification into high value farming and non-farm activities thereby increasing employment opportunities and income and reducing risk and vulnerability to poverty among rural households (Ratner et, al 2007). Social benefit includes access to basic services like health, education, sanitation, hospitals and other form of social assets. The current debate about the impact of rural roads is how fast the benefits can precipitate to the lowest level of the society. In the past rise in gains from farm surplus helped in establishment of manufacturing sector in countries like Iran, China and East Asian Tigers. The farm land productivity and cash crop production (Banister and Berechman, 2000) were the other source for ruralisation in different countries. Benefits of rural road construction also involves rise in investment in other sectors. Such outcome was seen in the case of Uganda (Deininger and Okidi, 2003). Similarly in Bangladesh, roads improvements led to lower input and transportation costs, higher production, higher wages, and higher output prices as well as to increases in both girls and boys schooling (Khandker et al.,2006). There are also cases where rural roads did not have any major

impact on the welfare of the people. For e.g. in Peru rural road construction did not have significant impact on agricultural production, income, and poverty (Escobal and Ponce 2003). In-depth analysis of different sectors is necessary in order to assess the impact of feeder roads on the welfare of the rural population. For mountainous and agrarian country like Bhutan the feeder/farm roads plays an important role in the rural development. Of many feeder/farm roads that have been constructed in recent years in Bhutan, this paper analyses the impact of the Tekizam-Bejna road (6.5 km) in western part of the country and Khartungla-Kangpara road(28.5 km) in eastern part of the country. These two feeder roads have helped in improving the wellbeing of household at different economic status.

Methodology, Data and Research Area

This study uses the pseudo panel data collected from the villages along the Khartungla-Kangpara feeder road in eastern Bhutan and Tekizam-Bjena feeder road in western Bhutan. The unit of analysis were the households and the data were collected using structure questionnaires and focus group discussion. Stratified random sampling method was adopted to select the samples (households). In the first stage, population were stratified into villages and hamlets and in the second stage the households were chosen based on the size of the population.

The Khartungla-Kangpara feeder road covers Brekha Gonpa (Khaling gewog), upper Thrimshing (Thrimshing gewog) and upper Tshangpo (Thrimshing gewog). The households within five minutes to one hour walking distance from the roads were selected from these villages, thereby generating a sample size of 144 households.

The Tekizam-Bjena feeder road covers Bjena Gewog under which there are several villages/hamlets like Balakha, Bejena Luma, Bjalo, Dagaygang, Eusakha, Gamakha, Jangtoe, Lamto, Lhamakha (Lhamtha) Phuentshogang (Puensagang), Tashitokha, Themakha and Tokha. The Tekizam-Bjena feeder road benefits about 85 households living in the area. The survey covered 77 households while five households were on seasonal migration to Phobjikha and three households had family problem. Thus, eight beneficiary households were left out from the study. These beneficiary households were located within five to forty five minutes walking distance from the feeder road. Therefore, the study of this road is based on census rather than the sample survey.

The survey collected data from households on a wide range of variables like demographic, livelihoods, income, productivity, consumptions, perceptions, access to facilities, housing and sanitation both for the current period and prior to the construction of the feeder road. The period before refers to the year 2007 and after refers to 2009. In the case of Tekizam-Bjena the construction of the road had been just completed while in the case of Khartungla-Kangpara, the major stretch of road was completed and the households were using it for transportation.

Result and Analysis

The communities living along the Khartungla-Kangparaand Tekizam-Bjena are typically agrarian communities deriving livelihood from production and sale of surplus farm produce. Potato is the main cash crop in both of the regions while maize is the main food crop grown in Khartungla-Kangpara area and rice is the main food crop in Tekizam-Bejna area. Besides farming, households have recently started diversifying into non-farm activities like retail business, seasonal trade of farm produce, transportation business and wage employment for their livelihood. The main sources of cash income are the sale

of potatoes; remittances and wage employment. The study found that households were mostly headed by females with low literacy rate and participation of the communities in government developmental schemes was also low. Given such socio-economic condition the feeder road construction will have greater socio economic impacts. In this study the impact of feeder road can be assessed in six different frames broadly categorised into economic gains and social gains. This includes impact on health indicators improvement in literacy, improvement in income and non-farm income, reduction in transportation time and food security which are discussed below.

Literacy and Education

Although the literacy level has increased in last five years, the literacy rate in Bhutan is regional centric. Other things remaining constants, the construction of the road would increase the ease in accessing the school, thereby increasing the school enrolment and decrease in school dropout. About 75 percent of the household along the Tekizam-Bejna community felt that their children will be able to get better schooling with the construction of the road as the feeder road would link the household to the primary school within the village and the secondary school in towns. Only six percent of the households said that road will not lead to better education opportunities. Similarly, about 71 percent of the households from Khartungla-Kangpara road felt that their children will get better education in future and only six percent of the household said that the road will not lead to better education opportunities for their children. (Figure1).

When the households were asked why they were not sending their children to the schools, many households responded that the education was not important, some household said that schools were far, few households said that they need their children to help them on the farms and rest said that they cannot afford the educational expenses.

Figure 1: Expectation on children education due to feeder road

Do you think any of your children get better education due to construction of road?
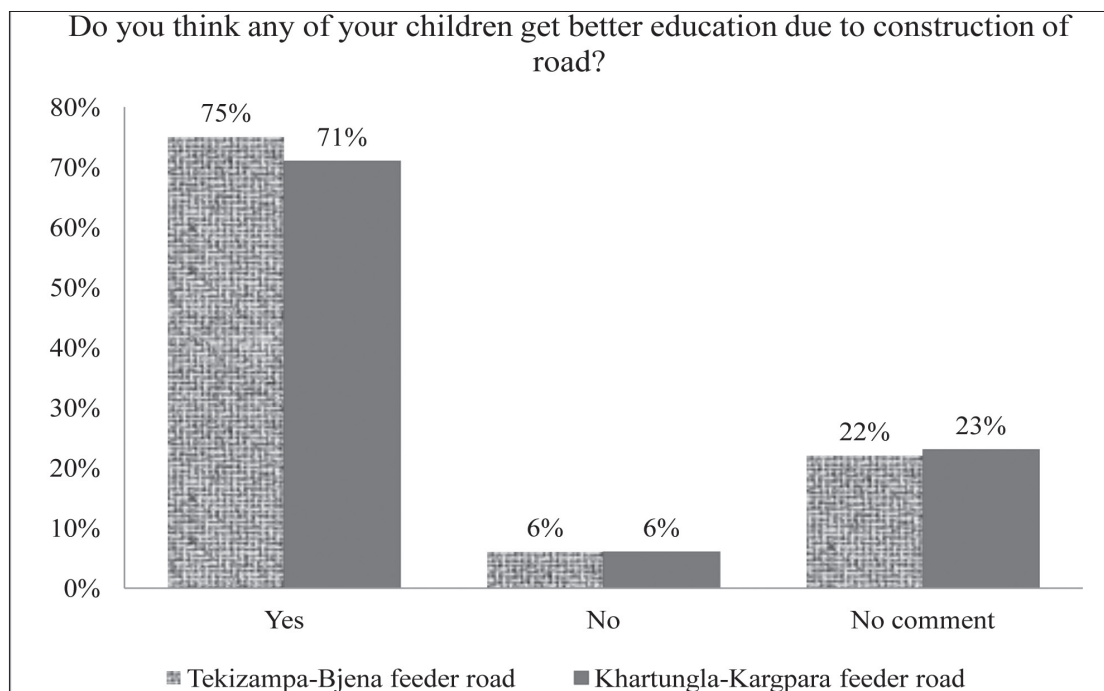
4.2 Income and inequality

Income: The result showed that after the construction of the Tekizam-Bejna feeder road the average gross household income registered an increase by more than 86 percent from Nu 40,623 to Nu 75,729. In the case of Kartungla-Kangpara the average household income registered an increase by more than 30.5 percent from Nu 28,191 to Nu 36,787. The major cause of such an increase in household income was due to increase in the income from sale of potatoes, which increased by more than 100 percent and 85 percent in Tekizam-Bejna and Khartungla-Kangpara regions respectively. The feeder road provided the farm household with ease in accessing the market and thereby allowing them to obtain better prices. The table 2a and 2b shows that potato is the main source of cash income in 2009. The other important sources of the cash income are remittances, self employment in non-farm, rice, livestock products, wage income and vegetables. In absolute value, the cash income from all these sources increased except for the chilies and vegetables which could have declined due destruction of some of the kitchen gardens from the construction of the road. There has been a dramatic increase by more than 100 percent in the income from self and wage employment in non-farm sector. The income portfolio is more diversified in 2009 compared to the portfolio prior to the construction of the road (2007). This indicates a large reduction in risk and vulnerability from the external shocks.

Figure: 2 a- Average Cash income by sources (Kartungla- Kangpara region)
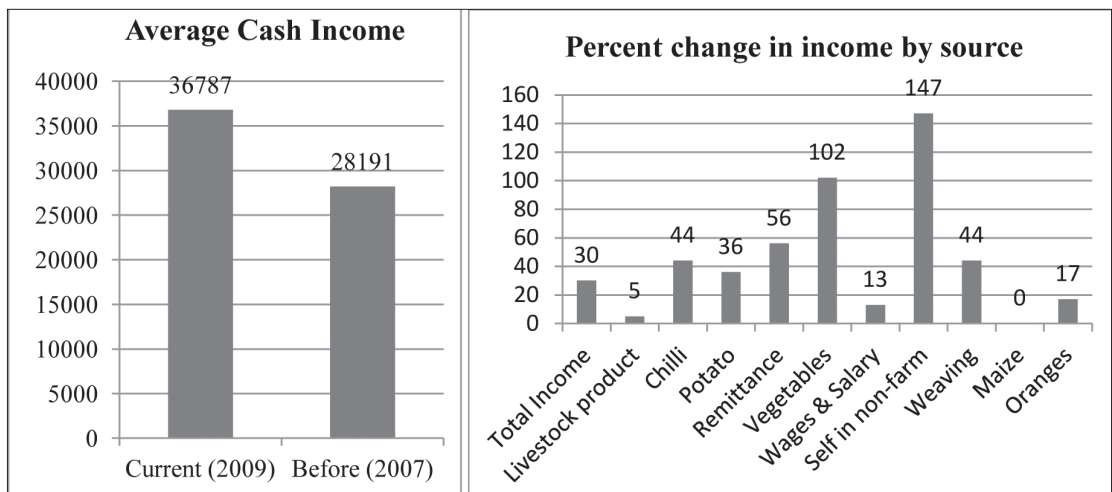
Figure: 2b Average cash income and percentage change in income source (Tekizam-Bejna region)
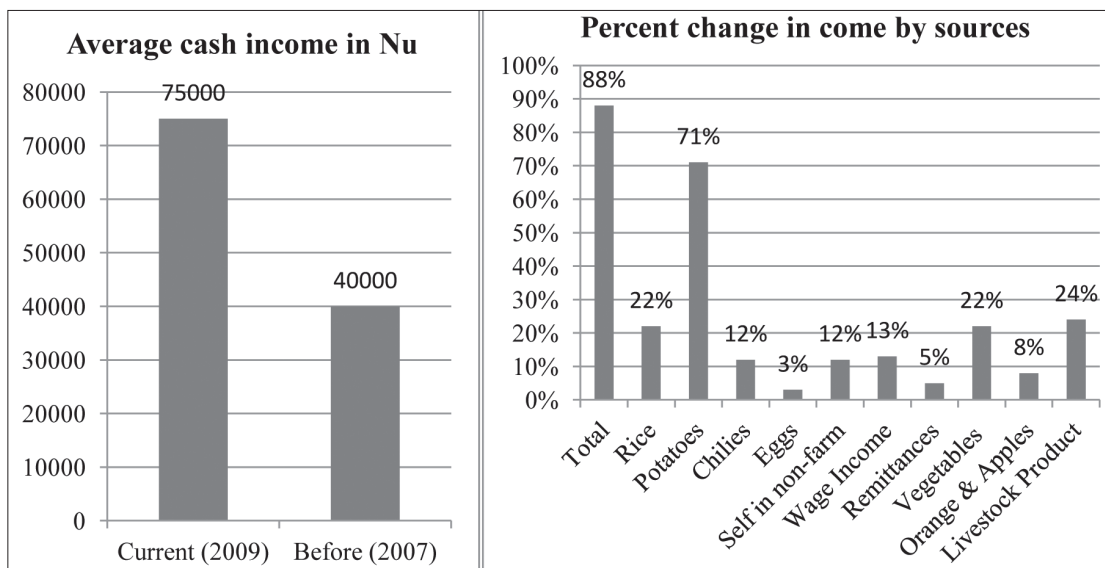
Inequality: With diversification in sources of income the income inequality as measured by gini coefficient declined, which is an indication that the income gap between the poorer and richer households is closing up. The average cash income of different quartile has also registered significant increase, indicating the improvement in the welfare of all four different quartiles. However, the percentage change in the lowest income quartile is the highest i.e. the poorest groups are benefitting the most (only in case of Khartungla-Kangpara, figure3).In case of Tekizam-Bejna data is not sufficient to construct gini coefficient.

Figure: 3 Average cash income and percentage change in income source (Khartungla-Kangpara region)
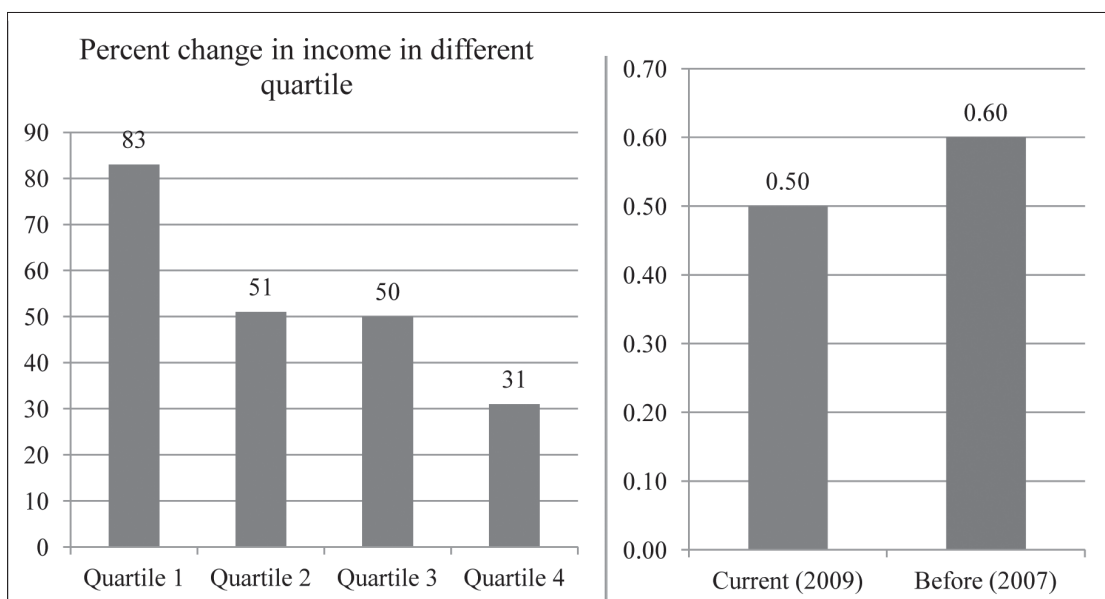
4.3 Mobility Matrix:

The table1 below on income mobility matrix of Khartungla-Kangpara region shows that 62 percent of the households remained static in quartile 1 while 15 percent moved to quartile 2, 18 percent to quartile 3 and 5 percent to quartile 4. This indicates that the socio economic status of large number of the poor household has improved. About 72 percent of the households in quartile 4 remained in quartile 4 but 22 percent fell to quartile three and six percent to quartile 2 and none to quartile 1. This indicates that socio-economic status of the richest few household declined but for majority of them remained in the same groups. Similarly, in other quartile too, we notice stability and improvement in the socio-economic status of the large number of households. However for Tekizam-Bejna data was not sufficient for construction of mobility matrix.

Table 1: Income Mobility Matrix (Khartungla-Kangpara region)

		Current			
		Quartile 1	Quartile 2	Quartile 3	Quartile 4
Before	Quartile 1	62%	15%	18%	5%
	Quartile 2	20%	57%	20%	3%
	Quartile 3	6%	35%	50%	9%
	Quartile 4	0%	6%	22%	72%

4.4 Livestock:

The feeder road construction has given new life to the farmers and households by providing them with the new opportunities and skills, thereby making a shift in the livelihood portfolio dynamics. No doubt the construction has led to increase in the road connectivity and access to market, financial services and health and school facilities thus bringing a major transformation in livelihood but on other hand we have witnessed a fall in livestock assets. Within a short period, the income has registered an increase basically due to increase in production as well as the increase in the prices resulting from the increase in the access to market. With the increase in the accessibility into the villages due to feeder road, the cost of transportation for the middleman has reduced as they no longer have to transport goods using traditional mode of transport so the middlemen are able to offer better prices. The major contribution of road construction was the creation of forward and backward linkages on farm and also strengthening supply chains. The livestock assets of the households have declined after the construction feeder road in both Tekizam-Bejna and Khartungla-Kangpara areas. Reasons for less use of horses could be the religious value or the livestock assets like horses are no longer economical mode of transport. Also due to the use of modern farm machineries, the number of bulls has also declined as the farmers have replaced them with power tillers to plough the land for efficiency reasons. The decline in the number of the livestock assets could also be an indication of shift in the livelihood dynamics of the communities from livestock rearing to more lucrative non-farm sectors like weaving for women, painting, and handicraft making for men.

Table 2:Livestock Assets Dynamics

Livestock	Tekizam-Bejna Feeder Road		Kartungla-Kargpara Feeder Road	
	Current	Before road	Current	Before road
	Avg. no. per house-hold	Avg. no. per house-hold	Avg. no. per house-hold	Avg. no. per house-hold
Horse	2.0	2.7	0.2	1.0
Cow	8.6	10.1	2.4	4.2
Bulls	3.6	4.2	0.9	1.4
Mithun	0.3	0.5	0.0	0.0
Pig	0.0	0.1	-	0.1
Goat	0.0	-	-	-
Chicken	1.0	0.7	1.6	2.3

4.5 Reduction in transportation time: After the construction of the Tekizam-Bejna and Khartungla-Kangpara feeder roads, the number of travel to all the facilities have increased significantly and even the percentage of the households travelling to the facilities has increased, which is an indication that the feeder road has increased the accessibility to these facilities listed below (table 3a, 3b). The reduction in transportation time led to saving of the time, which could be used either for other productive purposes or for leisure. In addition, it also leads to increase in participation in agricultural market.

Table 3a: Trips to facilities (Khartungla-Kangpara)

Infrastructure/facilities	Household that did not visit in past but visits now		Household making a trip currently			Household making a trip currently		
	Number	Percent	Number	Percent	Avg no of trip per household	Number	Percent	Avgnos of trip per household
Feeder road	115	79.9	124	86.1	23.61	9	6.3	0.97
Paved road	14	9.7	130	90.3	10.27	116	80.6	9.15
Nearest town	3	2.1	139	96.5	12.00	137	95.1	11.51
Market	10	6.9	131	91.0	13.31	123	85.4	12.24
Shops	12	8.3	142	98.6	26.37	130	90.3	22.94
BHU	5	3.5	124	86.1	7.07	130	90.3	6.08
Hospital	11	7.6	55	38.2	1.53	60	41.7	0.85
Primary School	12	8.3	90	62.5	27.64	83	57.6	24.87
High School	2	1.4	18	12.5	14.81	23	16.0	15.11
Post office	1	0.7	5	3.5	0.08	6	4.2	0.09
Telecom Office	2	1.4	4	2.8	0.05	3	2.1	0.03
Agri./vet center	9	6.3	93	64.6	2.10	90	62.5	3.07
Dungkhag office	10	6.9	102	70.8	4.06	97	67.4	3.94
Dzongkhag	5	3.5	26	18.1	0.43	23	16.0	0.40
Bank	2	1.4	7	4.9	0.12	5	3.5	0.08
Bus Stop	10	6.9	31	21.5	0.38	22	15.3	0.34
Place of work	0	0.0	5	3.5	0.30	5	3.5	0.31

Table: 3b- Trips to facilities (Tekizam-Bejna feeder road)

	Average number of trips per household per annum		Percent of household travelling to the facilities	
	Current	Before	Current	Before
Feeder Road	25.8	2.2	97	12
Paved road	21.4	20.4	96	92
Nearest town	19.1	16.5	94	96
Market	15.2	13.7	91	92
Shops	24.0	22.8	95	96
BHU	7.0	5.3	92	92
Hospital	3.2	2.6	54	54
Primary School	4.9	4.5	29	24
High School	11.0	3.8	13	10
Post office	0.1	0.0	3	1
Telecom Office	0.1	0.3	6	3
Agri./vet center	3.2	2.4	68	67
Dungkhag office	0.1	0.2	1	3
Dzongkhag	0.7	0.5	33	29
Bank	0.2	0.1	12	8
Bus Stop	1.5	1.7	42	33
Place of work	0.8	0.8	6	6

4.6 Food security:

Despite loss of some land to the construction of the feeder road, the table 4a and 4b below on the farm production shows an increase in the production of the majority of the crops. Increase in the production would ultimately lead to increase in food security and reduction in poverty. Since farm production and livelihood in Bhutan is vulnerable to climate change ensuring food security through increase in productivity is utmost important for the sustainable development of Bhutan. Roads also help in ensuring food availability to the remote rural villages in Bhutan.

Table4a: Agricultural Production (Khartungla-Kangpara road)

	Production		Percent of HH		Sale		Sale/Prod	
	Current	Before	Current	Before	Current	Before	Current	Before
Rice (kg)	367	317	79.20%	75.70%	5	-	1.30%	0.00%
Maize (kg)	946	926	97.90%	98.60%	15	4	1.50%	0.40%
Wheat (kg)	5	9	0.70%	0.70%	-	-	0.00%	0.00%
Millet (kg)	108	116	36.10%	35.40%	30	29	27.50%	25.40%
Potato (kg)	1,506	1,441	96.50%	96.50%	864	843	57.40%	58.50%
Vegetables (kg)	183	151	64.60%	60.40%	31	18	17.10%	11.90%
Apples (kg)	80	20	0.70%	0.70%	-	-	0.00%	0.00%
Orange (pieces)	834	2,500	2.10%	2.10%	667	1,667	80.00%	66.70%
Apricot (pieces)	.	.	0.00%	0.00%	.	.	0.00%	0.00%
Areca nut (pieces)	.	.	0.00%	0.00%	.	.	0.00%	0.00%
Pulses/Lentils (kg)	57	54	21.50%	24.30%	3	6	5.10%	10.60%

Oilseeds/Soybean (kg)	49	64	11.10%	12.50%	-	-	0.00%	0.00%
Chilies (kg)	187	175	86.80%	88.90%	35	36	19.00%	20.40%
Butter (kg)	30	30	35.40%	41.70%	10	9	34.80%	30.60%
Cheese (balls)	209	219	34.70%	43.10%	52	59	25.20%	27.00%
Skimmed milk (liter)	1,464	1,758	22.90%	29.90%	-	1	0.00%	0.00%
Meat or live animal(kg)	.	633	0.00%	2.10%	.	-	0.00%	0.00%

Table 4b: Agricultural Production (Tekizam-Bejna road)

Crops	Production		Sale		Percent of household producing		Sale/Production	
	Current	Before	Current	Before	Current	Before	Current	Before
Rice (kg)	1,388	1355	97	114	100%	100%	7%	8%
Maize (kg)	36	26	-	-	1%	100%	-	-
Wheat (kg)	122	143	-	-	1%	100%	-	-
Millet (kg)	-	-	-	-	-	-	-	-
Potato (kg)	4,317	4111	3,007	2956	100%	100%	70%	72%
Vegetables (kg)	563	490	321	376	100%	100%	57%	77%
Apples (kg)	137	119	50	25	100%	100%	37%	21%
Orange (pieces)	5,061	4989	4,360	3489	100%	100%	86%	70%
Apricot (pieces)	-	-	-	-	-	-	-	-
Areca nut (pieces)	-	-	-	-	-	-	-	-
Pulses/Lentils (kg)	29	19	13	9	100%	100%	45%	50%
Oilseeds/Soybean (kg)	300	203	117	100	100%	100%	39%	49%
Chilies (kg)	168	171	44	53	100%	100%	26%	31%
Butter (kg)	30	30	35.40%	41.70%	10	9	34.80%	30.60%
Cheese (balls)	209	219	34.70%	43.10%	52	59	25.20%	27.00%
Skimmed milk (liter)	1,464	1,758	22.90%	29.90%	-	1	0.00%	0.00%
Meat or live animal(kg)	.	633	0.00%	2.10%	.	-	0.00%	0.00%

4.7 Health

Housing, sanitation and access to water are few indicators of better health of an individual. It was noticed that after the construction of Tekizam-Bejna and Khartungla-Kangpara road the number of thatched roof houses, wooden roof houses have declined significantly while the zinc-sheet (tin roof) house increased drastically (figure5a, 5b, 5c). This clearly indicates that the well being of the households has increased after the construction of the feeder road. In Khartungla-Kangpara area, in the bamboo that were used to construct the thatched roof had started dying and the farmer had no choice but to borrow funds to use tin roofed houses. Although the replacement of the thatched roof with zinc-sheet was induced by lack of availability of bamboo, the feeder road played an important role in easing the transportation of the zinc sheet to the villages. For sanitation, number of households using an open area as the toilet has declined whereas percentage of the households using the public toilets has increased significantly. The households with piped water in the household premises also increased dramatically. This is an indication that the access to clean water has improved, which would significant impact on health of the rural population. The access to drinking water through piped water in the premises and use of public taps would also reduce the burden on women for fetching water besides being more hygienic.

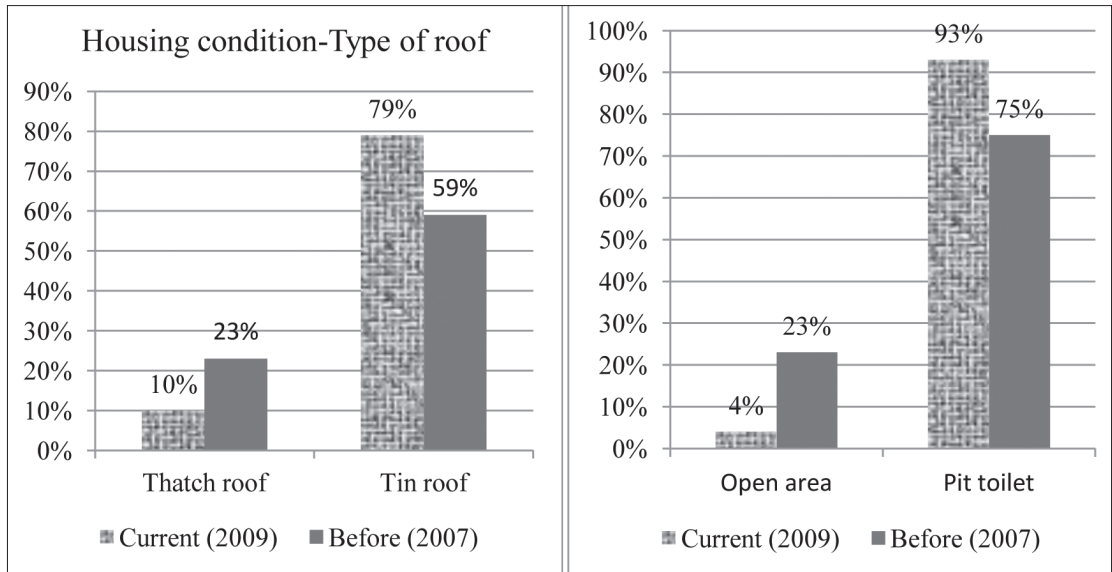**Figure 5a: Housing & Sanitation (Kangpara-Kartungla region)**

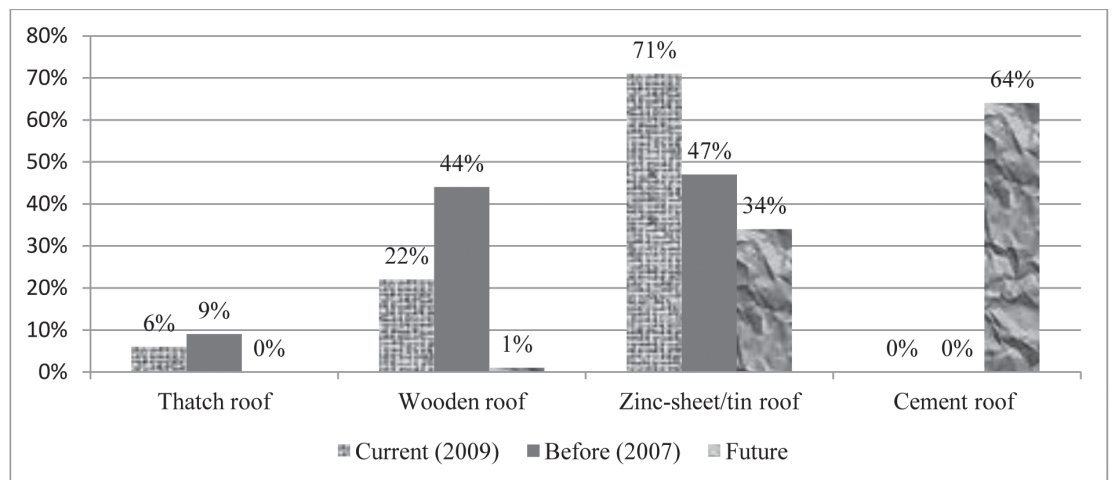**Figure 5b: Housing- Roof (Tekizam-Bejna region)**

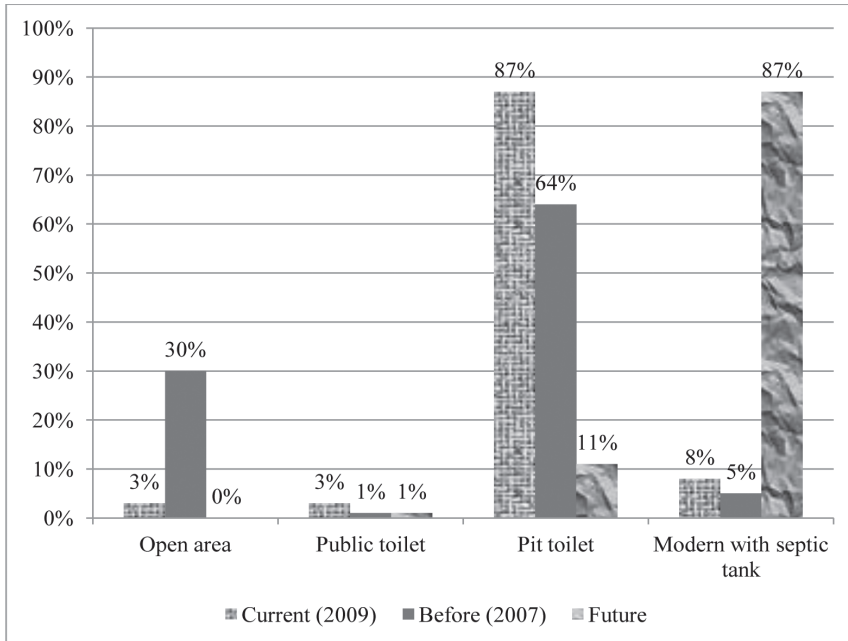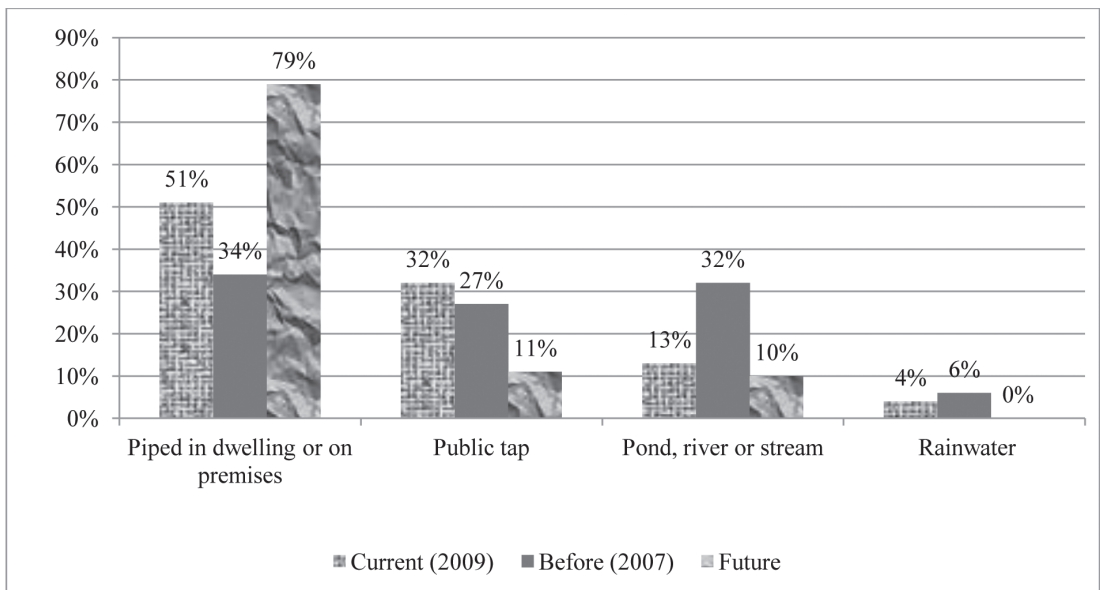**Figure 5c: Sanitation (Tekizam-Bejna region)**

Figure 5d: Access to drinking water (Tekizam-Bejna region)

4.8 Land endowment: In most of the developing countries when the villages gets connected by roads, many richer families from within the localities and outside purchase the land for economic reasons, which will ultimately leads to the destruction of livelihood and income of the poor families. However, in case of Bhutan after the road construction average land holding per household remained same even after road construction (table5). Such phenomenon can be due to:-

- Sentimental attachment
- Land Act does not allow the conversion of wetland into dry-land
- Small land holding
- Lands are productive and potato is the only source of cash income for the household

Table: 5 Total land ownership

Variable	Household total land ownership (Tekizam-Bejna)		Household land ownership(Kangpara-Kartungla)	
	Current (acres)	Before Road (acres)	Current (acres)	Before (acres)
Average household land ownership	2.93	2.93	2.89	2.89
Median household land ownership	2.45	2.45	2.08	2.08
Standard Deviation	2.36	2.36	0.98	0.98

4.8 Adverse social and environmental consequences

In the long run some of the impact of road construction tends to get goose bumps. There are many unintended negative aspects, too. For example, the feeder road leads to negative environmental changes, negative social consequences like drugs, imbalances in the social fabric. However, the time frame of the analysis is too short to observe such adverse social and environmental consequences. This could be the carried out as future research to exclusively look into the adverse consequences of the road but this would not mean that the government should not construct road but include plans that would reduce such adverse consequences.

5. Conclusion and Policy recommendation:

Although two year time frame is too early to access the actual impact of Tekizam-Bejna and Kangpara-Kartungla, we have observed significant impact in the rural economy of the surrounding areas. The analysis shows dramatic impacts of the feeder road on the livelihood, income, poverty, inequality, agricultural productivity and access to facilities.

Majority of the households earns cash income from the sale of their farm produce but due to lack of access to market these households were not able realize higher price for their farm produce. After the construction of the feeder roads the sale of the farm produced of the rural households registered an increase along with the increase in unit price. The productivity/yield too increased due to import and use of new technologies. The analysis also finds that the feeder road lead to increase in the access to market. The transportation has become more comfortable, easier and faster, which translated into higher price and increase in sales of farm produce thereby resulting into increase in cash income. The income source has become more diversified as large numbers of households have diversified into non-farm activities like establishment of grocery shops and plans for more shop keeping business. Apart from increase in income, household's accessibility to facilities like schools, hospitals increased.

However, due to the lack of the control samples, it is difficult to capture the net impact of the road on the income, inequality, livelihoods and farm production. Lack of the control sample and short time frame is the major shortcoming of this research and can be taken up in future research.

Policy Recommendation

The following recommendations can be made from this research:

i.   **Feeder road planning:** In order to develop more conducive environment to gain more benefits from feeder road the following considerations are important:

   a.   **Inter-linkages of roads**: The benefits were significant may be due to the fact that the two feeder road in the study connects the villages to the national highway. Therefore, feeder roads should be connected to the national and regional roads thereby improving the connectivity of the remote villages with larges towns.

   b.   **Environmental issues**: During the group discussion the villagers highlighted that contractors dumped the soil and boulder from the cliffs, thereby damaging the forest. Therefore, policies should be implemented to reduce the adverse impact on environment.

   c.   **Road Maintenance**: Better maintenance of roads will increase the movement of traffic thus benefitting various groups of people. Hence there is a need to develop better management framework.

   d.   **Employing the locals in construction:** The construction of the rural roads bring lot of benefit from short term activities, such as employment as labourers, petty contractors, suppliers etc. Therefore, local people should be given opportunity for such employment which empowers the local communities. The study also found that most of the local households were involved as sub-contractors in petty works and were able to generate cash income. The government and contractors should further encourage the local people to jointly take petty work like building retention wall etc, so that they can earn cash income.

ii. **Livelihood:** A holistic approach needs to be adopted particularly when development project aims to uplift the poorer section of the society. The holistic approach should include a program to enhance skills and endowments of the poorer section of the society, so that they could also take advantage of the opportunities accruing due to the construction of the roads. With the increase in ability endowments, the poorer households can also diversify their livelihood. This in turn would lead to a dramatic increase in the household income and reduction in poverty and inequalities.

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About the Author

DIL BAHADUR RAHUT, Assistant Professor in the Faculty of Economics, South Asian University, New Delhi, holds a PhD in development economics from the University of Bonn, Germany, and a Masters in international political economy from Japan as well as a Masters in business administration (Finance) from India. He began his career in the Research and Statistics Department of the Royal Monetary Authority of Bhutan. He also worked as a Junior Researcher at the Centre for Development Research (ZEF) in Germany, Research Fellow (Economics & Rural Livelihoods) at the Consultative Groups of International Agricultural Research (CGIAR-WFC), and Senior Fellow and Japan Chair at the Indian Council for Research in International Economic Relations (ICRIER). Before he moved to South Asian University Dr. Rahut was Chief of Research, Planning and Monitoring Department and Project Director (Credit Card) at the Bank of Bhutan. He was also the Chief Executive Officer of Bank of Bhutan Securities Limited and a member of the Board of Directors to the Royal Securities Exchange of Bhutan. Dr. Rahut has published in a number of international journals. His research interests include poverty and inequality, applied micro econometrics, impact assessment, household economics, rural livelihoods, social protections, natural resource economics and micro-finance.

Improving the Research Output of Academics at the Royal University of Bhutan:
An Action Research Reconnaissance and Early Initiatives

TOM MAXWELL AND PHINTSHO CHOEDEN

Abstract

The only University in Bhutan and just over six years old (2009), the Royal University of Bhutan was faced with the challenge of changing the mindset and working practices of the academics of its ten federated colleges. Prior to becoming part of the University, the role of academics had been to teach yet the University's Charter identified research as one of its key functions and this called for some action. The first author, as a senior member of staff whose responsibility was to enhance research activity, undertook several initiatives framed as part of an institution-wide action research cycle. The research reported here is an interim report of that study. These data showed a lack of research capacity and lack of infrastructure to support research. Five initiatives, including the development of three research centres are described, each intended to create improvement in research productivity in the institutes/colleges.

Introduction

One of the most significant challenges for the colleges and their academics of the newly established Royal University of Bhutan (RUB) was to come to terms with the changing concept of academics' work responsibilities so that RUB could take its place alongside the world's universities as a research institution. Previously RUB academics' role was only to teach but they were now expected to be involved in research as set out in *The Royal Charter and the Statutes of the Royal University of Bhutan* (RUB 2003) and affirmed in the *Wheel of Academic Law* (RUB 2006). To emphasize the crucial role of research in university teaching and learning processes, the Department of Research was established in 2005 and was entrusted with the task of promoting research in the University. This department faced very real challenges which included (1) developing academics' research capacity, (2) creating an enabling research environment, and (3) enhancing academics' knowledge of publication, and many more.

RUB is a young University facing numerous constraints. In an endeavour to begin the long term process of developing research in RUB, institutional action research could be undertaken. Action research is centrally about making and then monitoring improvements over time. However, action research is also time-consuming and therefore only a significant question(s)/issue(s) must be taken up. Maxwell (2003) argued that only a good reconnaissance will lead to the formulation of a significant action research question that is directly related to RUB needs. This paper sets out the reconnaissance and extended reconnaissance data, specifies the resulting action research question and then identifies actions for improvement. Before setting out the reconnaissance for the action research study, some comments about action research itself are necessary.

Action Research

Grundy (1995) identified the following characteristics of action research. It:
- is a process of change, but not just change for change's sake; it is change specifically directed towards improvement;

- • advocates 'rational' improvement;
- • is a powerful form of professional development; and
- • has two principle aims, namely, improvement and involvement.

There is a common thread running through all the above and it is 'improvement'. Maxwell (2003) also emphasized that action research is purposive, that is, the research is directly linked to action to create improvement.

According to Kemmis and McTaggart (1988) action research is a spiral process involving planning, action and observing and reflection following reconnaissance and identification of the action research question. Maxwell (2003, 6) developed an elaborated reconnaissance before the action research spiral model of Kemmis and McTaggart (1988) to provide a solid base for the ensuing study. The action research question is logically derived from the reconnaissance.

Reconnaissance

Reconnaissance is a diagnostic phase that requires insight to arrive at the most critical point of attack from which a positive impact can most likely proceed. Maxwell (2003) conceptualized reconnaissance as consisting of three parts, namely, situational analysis, analysis of competence of the action researcher and review of related literature. These three elements are interconnected and are usually completed over the same period of time. The objective of reconnaissance is to come up with an action research question that will lead to improvement. The following sections detail the reconnaissance associated with increasing research output at RUB.

Situation Analysis

In the wake of fast changing political scenario alongside the rapid development of the country through plans/projects since the 1950s, the Royal University of Bhutan was launched on 2 June 2003 and charged with the responsibility for provision of tertiary education that caters to the ever changing demands and needs of the Bhutanese society. However, its ten member colleges (2009) were established during the last fifty years as teaching institutions associated with various government ministries. They were gradually upgraded to the current level, mainly to cater to the country's demand for provision of in-country tertiary education. RUB is a collegiate federation of member colleges located in different parts of the country with a small Office of the Vice Chancellor (OVC) based in the capital city. The OVC coordinates the planning and operation of the University as a single entity and this is where the Department of Research[1] is located.

The establishment of RUB brought a paradigm shift, at least in concept, in the work responsibilities of the college academics. *The Royal Charter and the Statutes of the Royal University of Bhutan* specified research as one of the dual objectives of the University:

> To promote and conduct research, to contribute to the creation of knowledge in an international context and to promote the transfer of knowledge of relevance to Bhutan (RUB 2003, Article 2, 2.2, p. 3)

The Department of Research was involved in the development of the RUB Strategic Plan as part of Bhutan's Tenth Five-Year Plan. The Plan outlined the main challenges facing the University and its plans for future action. Based on these documents, the various departments of the OVC plan and budget their activities for each year. To date, the Department of Research has undertaken a range of activities, such as,

1. developing relevant policies, guidelines and strategies governing University research;

2.   linking with external agencies for collaborative research;

3.   sponsoring research studies of member colleges;

4.   exploring and seeking external funds;

5.   facilitating and coordinating capacity building trainings/workshops/seminars; and

6.   initiating the RUB *Journal of Research and Development*.

The broad objective of initiating research policies and implementing activities was to create an 'enabling research environment' that would excite and entice academics to undertake research. Capacity building was an important element of this approach. However, these early activities did not have the desired impact across the University. Interactions with the College Directors together with low research outputs indicated that research was not high on the priority list of RUB academics.

Research not only came as a novel idea but it was also viewed as an *additional* responsibility by the academics. They, especially those who had never ventured into research, did not welcome such a change. Further, the academics, except for very few through Masters' study, did not have the required research skills. The number of academics with research doctorate at RUB is almost negligible, although this number is growing. Moreover, research, if done at all, usually terminated with the conclusion of the study and therefore was rarely published. This probably results from a lack of awareness of, or lack of opportunities for, conference presentation and also lack of knowledge of how to publish (see Maxwell 2006).

There could be many reasons, apart from the two mentioned above, which led to passivity amongst the academics towards research. At this stage, since no in-depth study has been carried out, it is assumed that the other reasons for academics' low interest in research include:

1.   the policies and strategies developed were not adequate, relevant and encouraging enough and implementation processes had flaws;

2.   the incentives were not attractive enough;

3.   the perceived core function (teaching and learning) of the colleges acted as an impediment since full engagement in teaching left the academics with little/no time for research; and

4.   changing behaviours is difficult; especially when most academics are not knowledgeable about research.

Personal Competence

McNiff and Whitehead (2002) point out that in order to ensure that action research is an educative practice, it is essential to remember that 'I' remain at the centre of enquiry as a potential influence for good in the lives of others. Also, the participatory nature of action research makes it a social process of collaborative learning realized by groups of people who join together in changing the practices through which they interact in a shared social world (Kemmis & McTaggart, 2005). In this situation, the 'others' involved are those in the Department of Research in OVC and academics in the Institutes/Colleges.

As Director of Research, the first author's responsibilities entailed policy/decision making, planning and implementing, liaising and establishing linkages with Institutes/Colleges as well as external organizations; and exploring and seeking projects and funds. All these activities were directed towards promoting and supporting the University's research profile. Her role, therefore, is focused more on coordination and does not necessarily require her to be engaged in research projects.

In hindsight, although the intentions of the Department were good and with clear outcomes, there was an absence of a proper situational analysis. As a result, the critical role change demanded of the

academics was not realized. Participating in an AusAID Australian Leadership Award (ALA) Fellowship program in 2008/9 and attending the action research and leadership sessions has provided Choeden with new insights. Now, she feels better placed in terms of knowledge, skills and expertise in planning, developing, implementing and even participating in improving research quality and quantity via action research. The ultimate focus is for the colleges to develop an enabling research environment where every academic is genuinely interested and engaged in research. Clearly, this will take time.

Research in Universities

Each country looks towards its universities to do quality research in order to inform its people. Amongst governments, there is now a wider recognition of the role of research and innovation in creating a 'Knowledge Society' that is instrumental in developing national prosperity. Boyer's influential book entitled *Scholarship Reconsidered: Priorities of the Professoriate* (Boyer, 1990) set out four categories of research that universities might engage in: the scholarship of discovery, the scholarship of integration, the scholarship of application, and the scholarship of teaching (and learning). Boyer wished to raise the importance of teaching and learning amongst academics and his lead was subsequently followed by others such as Richlin (2001), Paulsen (2001) and Cottrell and Jones (2003). A major challenge for aspiring universities has been in raising the research output of the staff (Pratt, Margaritis, & Coy, 1999). Taking its cue from the experiences of well-established universities, senior staff at RUB knew that research was one aspect that it should focus on to develop its reputation. Currently the challenge that RUB faces in this respect is creating an enabling research environment and developing the capacity of its academics. Ironically, teaching and learning dominated RUB institute and college practices.

Tentative action research question

A close look at the situational analysis phase of reconnaissance suggested that if something constructive could be done about the knowledge of research and the research output of academics, the research environment at the institutes and colleges may become more enabling. Keeping Maxwell's (2003) advice in mind that any action research should aim to be specific, strategic, doable and be able to bring about improvement, the initial action research question derived from this reconnaissance was: "How can the research output of academics at the Royal University of Bhutan be improved?"

Extended situational analysis

Review of the situational analysis also revealed lack of hard data and the action research needed a stronger empirical base to confirm the direction of the work as set out in the tentative question. This meant an extended period of data gathering, conforming to an extended situational analysis, was required. Such data could be gathered from participants in an action research workshop held over four days in 2008.

Educational Action research (AR) workshop

A key activity was implemented towards achieving capacity building in action research and creating a research environment desired by RUB. An action research workshop, facilitated by the second author, was conducted at the College of Natural Resources (CNR) during August 20-23, 2008. Thirty selected academics (by Academic Deans[2]) from nine member colleges, including two officials from the Office of the Vice-Chancellor (OVC) , participated in the workshop. These academics had shown interest in re-

search and may well have completed some, but not necessarily, educational research generally or action research in particular. Of the 26 participants involved the vast majority were males. This gender imbalance mirrors the ratio of male to female academics in the Colleges. The age and qualifications of those in the study are comparable to those across the Colleges; about half of the participants were below 30 years of age. About half of participants had a Masters' Degree in their respective subjects or professional fields and none had a doctorate.

During the workshop, each participant developed action research plans to implement upon return to their workplace. The plans followed individual participant's reconnaissance and largely centred upon aspects of their own teaching. Thus the workshop can be considered as capacity building in the scholarship of teaching and learning in RUB. From the end of course evaluations, the workshop could be seen as a success in terms of providing knowledge and skills associated with carrying out action research. Clearly the great majority had at least heard about action research, though, initially, none had heard of the concept of *reconnaissance.* The participants were convinced about the 'doability and relevance' of AR in their professional lives. The key test, however, would be if they undertook any action research based upon their plans. However, following the workshops, only two participants implemented the AR proposals of teaching practice improvement in their colleges developed during the workshop. Two others reported some follow-up work. This is a poor result as evidence for workshop effectiveness, especially when compared with the success of these workshops in other international situations, for example, with classroom teachers (Maxwell 2009a).

There are a number of possible explanations including those identified above (lack of time, skills and incentives). Incentives were built in and included recognition by RUB's Centre for University Learning and Teaching (CULT) with its certificate of course completion and potential credit points towards a Graduate Certificate. Modeling practices in the workshop to move teaching practice more towards learner centredness, as set out in the *Wheel of Academic Law* (RUB 2006), clearly did not have an impact either. An explanation could be that Maxwell's earlier work was almost exclusively with school teachers/teacher educators whereas the vast majority of the workshop participants had different substantive backgrounds and, presumably, were less knowledgeable and interested in teaching practice improvement and most likely little knowledge of the scholarship of teaching and learning referred to earlier. Although they were university teachers, action research was not for most of them and so the opportunity for the development of the scholarship of teaching and learning across the university was largely lost.

In terms of the present project, the workshop also provided an opportunity to gather data about research in the member colleges. A questionnaire was designed in two parts. The first part, using a Likert Scale (strongly disagree to strongly agree), was designed to get an overview of the participants' knowledge and skills about AR processes (not reported here). More importantly, the second part required the participants to either list or give short descriptive responses about their research knowledge, attitude to research, publication and reasons for publishing. Just before the workshop, the questionnaire was administered to 26 of the 30 participants. The same questionnaire was administered at the conclusion of workshop and 25 participants took part. The pre- and post-test structure was to see the extent to which participants views had changed over the period of the workshop.

This study presents interesting revelations about RUB academics' knowledge of research issues including its publication. As such, they confirm but also go beyond earlier suppositions about RUB academics' relationships with research. Each of the areas of the second part of the questionnaire will now be considered in turn.

Research Knowledge and Skills

Table 1 provides the findings of how the participants rated themselves, pre- and post-workshop (W/S) on educational research issues. There was an across-the-board of increase in participants' perceptions of their own research knowledge and skills (final column, "Change"). This is interesting as the workshop was intended as an introduction to AR rather than general research skills development. This could be because of their previous lack of experience in and of research at RUB. The participants may have thought that AR was the same as research (although the difference was made clear). The positive changes, taken together, may also be a reflection of their general appreciation of the workshop itself as was indicated in the end-of-course evaluations.

Table 1: Research Knowledge and Skills

Knowledge and skills to conduct research	Pre w/s Mean (N=26)	Post w/s Mean (N=25)	Change
I have adequate skills to interview	3.77	3.92	+0.15
I have adequate skills to take field notes	3.65	3.8	+0.15
I can identify and discover patterns and themes	3.36	3.60	+0.24
I have adequate skills to design survey questionnaire	3.34	3.56	+0.22
I have adequate skills to analyze quantitative data	3.19	3.64	+0.45
I can use software to analyze quantitative data	3.15	3.48	+0.33
I know how to search for relevant literature	3.50	4.12	+0.62
I can take care of ethical issues in research	3.61	4.24	+0.63
I have good academic writing skills	3.50	4.64	+1.14
I know how to write a research report	3.19	3.76	+0.57

Attitude towards Research

Research is complex and often a trying process especially for the novice. To be a good researcher an individual needs to possess a positive attitude to research to overcome inevitable difficulties. Table 2 shows the respondents' attitude to research generally, their perceptions of its impact on society, and the institutional support that they receive while engaging in research. The general trend of the data is again a more positive attitude to research pre compared to post workshop. Several items indicate a lack of resources (time, finances and facilities) to complete research. Perceptions of even these increased pre and post. Why this should be is hard to imagine except that the workshop did show that research on one's own teaching was possible as exemplified by action research and this form of research requires few resources. A plausible implication was that the participants became favourably disposed to what was being tried through the workshop. Thus, the data need to be interpreted carefully. RUB academics consider themselves to have heavy teaching workloads. Further, many academics would normally have administrative responsibilities making it more challenging for them to find time to do research. Perhaps more importantly, there is no culture of research due to particular histories of the separate colleges. Participants indicated a need for recognition and better support services to do research through the provision of adequate resource support, recognition during promotions along with monetary incentives. RUB, therefore, needs to improve the infrastructure and facilities across colleges, institute research grants and awards and recognize researchers to help develop positive attitude to research and inquiry by its academics.

Table 2: Attitude towards research

Table 2: Attitude towards research

Attitude towards research	Pre w/s Mean (N=26)	Post w/s Mean (N=25)	Change (%)
Research supports and improves my teaching	4.23	4.68	+0.45
Research impacts on policy and society	4.15	4.60	+0.45
I get sufficient time to do research	2.54	3.28	+0.74
Researchers are recognized during promotion	3.27	4.20	+0.93
Financial resources are adequate for research	2.46	3.56	+1.10
Facilities are adequate to conduct research	2.31	3.20	+0.89
There is adequate financial incentives for researchers	2.73	3.20	+0.47

Knowledge about Publication

Initial ideas about RUB academics' poor knowledge of key ideas about publication were confirmed in this study. It was known that few had achieved a journal publication and this was confirmed by only five of the participants who had journal publication to their name. Again, this is understandable since the member colleges were mainly involved with teaching/learning processes prior to becoming part of RUB. Before the workshop, only 11.5% of the respondents knew the difference between a refereed and a non-refereed journal while only 7.7% were aware of the processes of publishing (Table 3). The workshop succeeded in making a significant difference in participants' knowledge of publication (+72.67%) and process of publishing (+34.42%) within the period of the workshop.

Table 3: Knowledge of publication

	Pre w/s (%, N=26)	Post w/s (%, N=25)	Improvement (%)
Knew difference between a refereed and non refereed journal	11.5	84.2	72.7
Knowledge of the process of publishing	7.7	42.1	34.4

Reasons for publishing

Table 4 shows the participants' views on the reasons for publication prior to and after the workshop. Participants were required to list three important reasons for publication of research and scholarly works. The data presented in Table 4 are the respondents' reasons by percentage and rank. The majority of the participants thought that the main reasons for publishing were expanding their own personal academic profile and benefit their parent institutions, especially post-workshop. There was a noticeable decline in "Share knowledge with the society and improve their lives." This could be due to the information input they received during the course of the workshop and the realization that research and scholarly activities that academics pursue contribute towards positive image building of their parent institutions. There were increased perceptions of institutional pressures (and incentives) to publish post workshop, probably attributable to emphasis at the workshop when more pragmatic concerns were addressed and this possibly dominated participants' reasons.

Table 4: Participants' reasons for publishing (% choosing that item)

Reasons	Pre-w/s Data (Rank)	Post-w/s Data (Rank)
1. Expand academic profile (personal and institutional)	50.0 (1)	79.0 (1)
2. Share knowledge with the society and improve their lives	42.3 (2)	5.3 (8)
3. Human resource development	30.8 (=3)	31.6 (2)
4. Help the nation in policy and plan formulation	30.8 (=3)	10.5 (=5)
5. Generate new ideas and innovation and contribute to pool of existing knowledge	26.9 (5)	10.5 (=5)
6. Improve teaching and education	15.9 (6)	10.5 (=5)
7. Institutional pressures	0.0 (8)	21.1 (=3)
8. Others (including incentives)	7.7 (7)	21.1 (=3)

Reasons for not publishing up to this point

Analysis of Table 5 data indicates that more than half (57.9%) initially pointed out that the primary reason for not publishing was not having done research acceptable for publication. This diminished to about one third post workshop. Prior to the workshop about one third believed they did not have the capacity, which decreased to one fifth post workshop. Other reasons for not publishing, such as 'no time', increased.

Table 5: Participants' reasons for not publishing (% choosing that item)

Reasons	Pre-w/s Data, %	Post-w/s Data, %
1. Have not done a research acceptable enough for publication	57.89	34.62
2. Do not have necessary capacity to write an article for publication	36.84	23.08
3. Have no time to do research or write articles	10.53	19.23
4. Do not know where to publish	10.53	15.38
5. There is no incentives for publishing articles	10.53	15.38

In summary, the data from the workshop confirmed the general understanding of the state of research at RUB. Academics did not have enough skills or motivation to complete research on their own teaching even though teaching was their most important role up to recent times. Their knowledge about publishing and the reasons for it improved but they identified inhibiting factors to publishing.

Additionally, Choeden was able to find out more about the Institutes/Colleges' support of research by making visits to six of them. Lack of research infrastructure in member colleges was evident and yet understandable. For example, there were no Research Deans whereas there were Academic Deans (in 2009). There was also no mechanism for Colleges and RUB to monitor research output. There was no hub of research activity at different points across the University. The extended situational analysis confirmed the tentative action research question: **"How can the research output at RUB be improved?"**

Early initiatives

Following the extended situational analysis several initiatives took place.

Participation in International Seminars/ Conferences

It was hoped that opportunities for academics to attend research-related international conferences and seminars would work as an incentive for research production. A call for papers to present at interna-

tional conferences was made in early 2009 and nine proposals were received. Using selection criteria, five proposals were accepted and the academics were supported to present their papers, interact with other researchers and establish useful networks. Further, five students from the College of Science and Technology were sponsored to participate in the Asia Pacific Robot Contest in Pune, India in 2008. This initiative was envisaged to be a continuing process to tap and enhance the research potentials of not just academics but also of students of RUB.

Establishment of Research Centres

The Centre for Educational Research and Development (CERD) already existed at Paro and had a record of research publications. Based on this experience and a concept paper for establishment of research centres at RUB, the following three research centres were established in 2008:

- The Centre for Buddhist Studies at the Institute of Language and Cultural Studies in Thimphu;
- The Centre for Population and Development Studies at Sherubtse College, Kanglung in the east; and
- The Centre for University Learning and Teaching (CULT) at Samtse College of Education in the south,

Intended to provide more avenues for research and to expedite the research outputs of RUB academics, these Centres initiated seminars/workshops, research studies and linkages with relevant organizations/industries/agencies. Visits to these centres led to positive interactions with the academics leading to drawing up of action plans to develop these centres into hubs of research/scholarly activities, documentation/information centres and "think tanks".

RUB Academics' Code of Conduct

A Code of Conduct for academics, developed through a project sponsored by CULT (Maxwell, Reid, Gyamtso, & Dorji 2008), includes research as a key role for RUB academics.

Other initiatives

Apart from this study's AR Workshop and the three initiatives above, the following activities were identified to help RUB academics develop their research capacity and increase publication of their scholarly works.

Development of a research database

Very few RUB academics have been engaged in research and publications. There was also no mechanism for Colleges to monitor their research output. Therefore, with the objective of encouraging the academics to publish and market their expertise to outside of the University, it was intended to collect information on various research and scholarly works of academics by the Department of Research.

Research Scholarships

RUB continued to support well qualified academics in their scholarship applications to obtain research Masters/Doctoral degrees outside Bhutan. Special arrangements with long term partners have been set up to achieve this as well as continuing to take part in the scholarships available through donors' support.

Institute/College Seminars

Discussion with the management and academics of colleges revealed that there was no local forum to present academics' research knowledge and expertise. This is a common practice of universities worldwide and has been found to support and stimulate research activity.

Continuation of the AR Cycle

It is not yet clear if this particular action research has contributed in research capacity building of academics. The initiatives identified above will take time to mature and show their effects. However, reconnaissance has been achieved to establish the baseline data. Key indicators of research improvement will be, firstly, the number of academics actively involved in research and secondly, the number and quality of research publications. Findings of this study show that some participants who took part in this study still lack the essential skills and knowledge required to carry out research and these will need to be addressed over time. Hence the third indicator will be the percentages of academics who have achieved research qualifications at Master's and Doctoral levels. The participants also expressed lack of time as a major impediment in carrying out research. This has been addressed by various means including the adoption of incentives and monitoring of academics' role as set out in the Code of Conduct. Monitoring of the academics' role against the Code will be necessary if research outputs are to improve. The necessary structures to support research and the development of a research culture are still in their infancy. The adequacy of support structures will the fourth important indicator.

Discussion

In time it is likely that research will become an important component of promotion process at RUB. Much more difficult is the establishment of ways of doing research by the academics themselves. Ultimately, a culture favourable to research needs to be established in each institute/college. In this regard, a key role is likely to be taken by those undertaking, or recently graduated from, research degrees. Perhaps as important is finding the practical mechanisms to support research at the department level where the history of academics' practices and of the institution is one dominated by teaching. To some extent, this has its parallel with the effects of amalgamation on the lecturers of College of Education in the late 1980s in Australia where the teaching role had to change to encompass research as well as teaching (see Maxwell 2009b). Special arrangements with the college management to ensure that time is available for active researchers to carry out research could be established, alongside research skills development and new incentives to complete research projects. Opportunities to undertake research projects, perhaps in collaboration with external partners, need to be created to develop the research capacity of RUB academics. Incentives to publish at local, national and international levels are needed (see Maxwell, 2012).

Conclusion

This study was intended to begin to understand the knowledge, skills and attitude to research by RUB academics. Certainly there is much that is researchable in Bhutan. Findings of this study revealed that although the academics were aware of the value of action research and research per se in their professional growth and development, certain factors impeded their engagement in research and scholarly activities. Lack of recognition, lack of time, insufficient resource support and lack of incentives were pointed out by the participants as the main barriers towards developing a positive research culture at RUB. There were some structural barriers as well and some initiatives have been undertaken to address them.

There is, however, good scope for encouraging RUB academics to be more enterprising in initiating research and scholarly activities. For this, there is an urgent need to institutionalize systems and mechanisms to recognize good quality research work and provide necessary support in terms of resources and facilities. No doubt a future paper will report on progress.

Notes

1. Now called the Directorate of Research and External Relations.
2. Not Research Deans since this position did not exist in the Colleges at that time.

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About the authors

PHINTSHO CHOEDEN is the Executive Director of the National Commission for Women and Children (NCWC) in Bhutan. Before she moved to NCWC in July 2011 she was the Director of Research and External Relations at the Royal University of Bhutan for about six years. During her tenure at the university she was involved in the establishment of a university research management system which included mostly policy development, establishment of external linkages, and promotion of the university. She has worked in various capacities in the Bhutanese education system -- as a teacher, headmaster, principal, district education officer, and college dean. Her professional interests include women and children, research management, and education leadership. Phintsho Choeden will be one of the Conveners for the 32nd Annual International Society for Teacher Education (ISfTE) Seminar to be held in May 2012 at Paro College of Education, Royal University of Bhutan.

Influence of Organizational Justice and Workplace Trust on Employee Engagement:
An Empirical Investigation in Bhutanese Corporations

MD. HASSAN JAFRI

Abstract

The present exploratory - empirical research is designed to investigate influence of organizational justice and workplace trust on employee engagement. Data were collected from 250 employees working at different levels from three corporations in Bhutan using non- probability sampling method. A structured and standard questionnaire was used to measure all the variables of interests of the study. Multiple hierarchical regressions were carried out to test hypotheses of the study. Results revealed that organizational justice and workplace trust significantly and positively explain variance in employee engagement. The study findings have strategic implication on organizations with regards to laying emphasis on organizational justice and workplace trust. Organizations or management should adopt the policy of workplace justice including all its three forms (distributive, procedural and interactional justice) and practice the same if organizations want to have engaged employees. The study also implies that   organizations should create and maintain a climate of workplace trust and use the same as a strategy to create highly engaged workforce. The findings suggest that organizations should not undermine the value of these highly delicate things otherwise it may have negative implication on the engagement level of their workforce thereby influencing negatively on employee's productivity and in turn lowered organizational performance.

Keywords: *Employee engagement, organizational justice, workplace trust.*

Introduction

In dynamic and fast changing business environment, engaged employees help in creating a competitive advantage for the organization (Center for Human Resource Strategy, 2009) and is considered as one of the critical factors for high performing work organization (Accenture's High-Performance Business Research, 2011). Engaged employees use their talent, strengths, dedication and commitment effectively at work to deliver high levels of performance. Engaged employees are absorbed intellectually and emotionally in their work and vigorously invest their best efforts to achieve organizational goals (United States Merit System Protection Board, 2009). Meta-analytic work has shown that engaged workforce have significant impact on a number of organizational outcomes including performance, productivity, profitability, loyalty and organizational success (Simon et al., 2009). The concept of employee engagement is catching considerable interest and attention to practitioners and researchers because of its business relevance. Because of its importance and relevant organizational outcomes, employee engagement has assumed considerable significance for organizations across the globe in present time.

Why the present study?

Researches in employee engagement have by and large remained confined to various consulting firms and research organizations. From time to time these organizations come out with reports on employee engagement showing trends, drivers and consequences etc. However the issue is not given much attention by academic researchers. Research on engagement is in a stage of relative infancy and much

more needs to be done in order to understand its antecedents, process mechanisms, and outcomes (Van Rooy, Whitman, Hart & Caleo, 2011). Moreover, very few empirical studies have been taken to verify the various aspects of the concept. On the subject of employee engagement, empirical studies by social scientists are few and far between (Mohapatra & Sharma, 2010). Further research has revealed about the downtrend in employee's engagement level (Aon Hewitt, 2011). This raises question that how to effect employee engagement especially during highly competitive, uncertain and volatile business environment where employees have become asset more important than technology. Organizations in Bhutan also strive to grow and to achieve this end they need, among other things, engaged workforce. Also the present research has not come out any research on the issue in Bhutanese context. It is because of these factors, the present study is a modest attempt to understand empirically employee engagement in relation to organizational justice and workplace trust.

Concepts and Literature Review

Employee Engagement

Employee engagement has been defined in different ways by consulting firms and scholars. According to Robinson, Perryman & Hayday (2004), employee engagement refers to the positive attitude held by the employee toward the organization and its values. Engaged employees are concerned with their organization and works hard to improve performance within the job for the good of the organization. Gallup Research Group, a consulting firm, defines employee engagement as the individual's involvement and satisfaction with as well as enthusiasm for work (Harter et al. 2002). Another global consulting firm, Towers Perrin, defines it as the extent to which employees put discretionary effort into their work, beyond the required minimum to get the job done, in the form of extra time, brainpower or energy (Towers Perrin, 2009). However looking at different definitions it can be said that employee engagement refers to employees' positive attitude towards organizational values and goals, passion and enthusiasm to do the job, to work beyond the call of duty and to help organizations succeed. Engagement is the result of both employee and employer. Employees bring in capabilities, dedication, willingness etc. and must be supplemented by the employer providing an environment conducive to allowing the employee to work at their potential level. Three types of engagement exist in organization – engaged, not engaged and disengaged (Meere, 2005). Employees are considered as **engaged** who work with passion and feel a profound connection to the organisation. According to Gallup, engaged employees are *builders*. **Not engaged** refers to those employees who attend and participate at work but are timeserving and put no passion or energy into their work. **Disengaged** are those employees who are unhappy at work and who act out their unhappiness at work. According to Meere (2005), disengaged employees undermine the work of their engaged colleagues on a daily basis. Various factors influence employee engagement in an organization. Employee engagement is something that is produced by aspects in the workplace (Miles, 2001) while others assert that it is something that the individual brings to the workplace (Harter, Schmidt & Hayes, 2002). Thus it can be inferred that organizational as well as personal factors contribute in employee engagement.

Organizational Justice

Organizational Justice refers to employee's perceptions of the fairness of treatment received from organizations (Cropanzano & Greenberg, 1997). Organizational justice is composed of three distinct dimensions; procedural, distributive and Interactional justice (Colquitt, 2001). Distributive justice is em-

ployee's perception of the fairness of decision outcomes or the perception about fairness in distribution of reward in the organization. Procedural justice refers to the perceived fairness of the means and / or processes used to reach the decision outcome or to determine the reward and resources. Interactional justice refers to the fairness and quality of interpersonal treatment employees experience in organization i.e. how employees are being treated with dignity, concern and respect.

As stated that employee engagement is something that is produced by aspects in the workplace (Miles 2001). Organizational justice is also a workplace aspect that can have relations with the engagement. Frank, Finnegan & Taylor (2004) conducted a survey in thirty-two countries and found that the factors that most influence employee engagement are the fairness, a form of justice. Saks (2006) also did a study and found that engagement significantly and positively correlated with a number of situational factors which include procedural justice and distributive justice. Saks took only two forms of justice in his study. Perception of justice in organization enables employees to play justice to the organization by offering their best. Macey & Schneider (2008) views that if management respects the energy people bring to the work place, can create the conditions for employee engagement. It can be inferred from the study of Macey & Schneider (2008) that some relationship exists between the two. When employees have perceptions of justice and fair in their organization, they are more likely to feel obliged to work with sincerity, commitment and dedication for the organization, an indication of engagement. Organizational justice is widely researched area and has been linked to a number of beneficial employee attitudes and behaviors (e.g. Colquitt, Greenberg, & Zapata-Phelan, 2005). But employee engagement is relatively new area of research by academic researchers, so this is not much explored empirically in relation to organizational justice. On the basis of few researches, as mentioned above, a firm relationship between the two concepts is difficult to justify and generalize on wider segments. So one of the objectives of the study is to explore that how organizational justice as a whole and its three different forms influences employee engagement. Thus it is conjectured that:

H1: Organizational justice will positively and significantly explain variance in employee engagement.

Workplace Trust

The concept of workplace trust has got significant importance and has emerged as a prominent area of research in modern business. Trust may seem like a vague and intangible notion, but its value in today's economy is decidedly real and concrete (Accenture's High-Performance Business Research, 2011). Trust in workplace is strategically significant for the organization's increased productivity. Colquitt, Scott & LePine (2007) in their meta-analysis of 132 trust studies, concluded that trust is a vital component of effective working relationships.

Importance of trust in workplace is realized by almost all but lacks consensus in its definition among scholars and practitioners. Robbins & Judge (2009) defined trust as a positive expectation that another will not –through words, actions, decisions – act opportunistically. Albrecht & Travaglione (2000) described workplace trust as an employee's willingness to act on the basis of the words, actions, and decisions of management under conditions of uncertainty or risk. However looking at the two above definitions and others available in the literature, it can be said that trust involves at least two parties, employees and employers, and key dimensions that involves the concepts of workplace trust are integrity, competence, consistency, loyalty and openness. Black (2007) views that trust in the workplace is the foundation of employee engagement.

In organization, workplace trust can be conceptualized as organizational trust and interpersonal trust. Organizational trust refers to employee's trust in the system as a whole that derives from structures and

processes within the organisation (Barling & Philips, 1993). Interpersonal trust in workplace is employee's trust with the management and with the colleagues (Bagraim & Hime, 2007). Ferres & Travaglione (2003) also conceptualized workplace trust from three levels – organizational, management and coworkers. However, the present study focuses on the interpersonal form of trust in workplace (i.e. employee's trust on management as well as on coworkers).

Trust in management is an interpersonal form of trust (Mayer et al., 1995) that emerges from an employee's perceptions regarding the management's benevolence, integrity, ability, openness to share information, and consistency of behaviour (Mayer et al., 1995). Employee's trust in his supervisor / management increases work performance (Colquitt et al., 2007; Brower et al., 2009) and makes employees to put an extra effort to create value for the organization (Mayer & Gavin, 2005). Management can play an important role in creating engaged workforce. Researches have revealed that immediate supervisor is the single strongest influence on employee's engagement (Wagner & Harter, 2006). Researchers affirm that employees don't leave organization; they leave bosses (Reid & Crisp, 2007). This also shows that importance of management in developing employee's attitude and behaviour including employee engagement. United States Merit System Protection Board (2009), in its research also emphasized the role of trust in creating engaged workforce. The board revealed that engagement level is higher in organization in which senior leader built trust with employees by aligning their words and actions, communicating openly and freely with employees and treating them as valued partner. Engagement is the two way processes but the role of management or leader is in driving seat to create it (Prost, 2007).

Trust in coworkers refers to the employee's perceptions in colleague's intentions and behaviours and has assumed significance in modern organization where employees have to work together to achieve organizational goal. This is especially more important where team work is emphasized. Dirks & skarlisky (2002) says that focusing on the management is not good but exploring trust from the colleague's perspective is essential in the growing presence of lateral relationships with the organization. Individuals who have rewarding interpersonal interactions with their coworkers should experience greater meaning in their work and this meaningfulness in work is an intrinsic reward that drives employee engagement (Thomas, 2009). Coworker's support in stimulating engagement and enthusiasm in employees is also emphasized by Vance (2006). Role of trust in colleagues in different organizational outcomes have not been given much attention by researchers (Ferres, Connell & Travaglione, 2004; Bagraim & Hime, 2007). Some of the findings trying to establish relationship between the two constructs referred in this study (e.g. Vance, 2006; Thomas, 2009) are taken from consulting or research organizations. Realizing the lack of empirical studies and increased significance of trust in organizational outcomes especially employee engagement, the present study tries to establish association that how workplace trust contributes in creating engaged workforce. Thus it is conjectured that:

H2: *Workplace trust will positively and significantly explain variance in employee engagement.*

Methodology

The present study is exploratory-empirical and is based on primary research method. Cross-sectional design is used to collect the required information to test hypotheses of the study.

Sample and Procedures

The present study is conducted on employees working in headquarters of three well known corporations – Druk Air, Druk Green Power Corporation (DGPC) and Druk Holding and Investments (DHI), of the

kingdom of Bhutan. Organizations included in the study are selected from the list of all major corporate of the kingdom on the basis of simple random sampling method. But the selections of respondents from the three organizations are based on convenience sampling procedure. Data on standard questionnaire covering all the variables of interest were taken from a total number of 250 employees in the early parts of the year (2012). Respondents represented in the sample from above three organizations in this study are 60 percent, 30 percent and 10 percent from DGPC, DHI and Druk Air respectively. Efforts were made to represent respondents from each organization based on the size of the organization. Data were collected from employees across the levels which includes managerial and non-managerial and also includes both the genders. The present sample size meets Roscoe's (1975) criteria which states that sample sizes larger than 30 and smaller than 500 are appropriate for most research (Cavana, Delahaye & Sekaran, 2001). Information on respondent's selected demographic profile such as gender, age, educational qualification was also taken. Data were collected from respondents during working hours and the questionnaires were completed in the presence of the researcher. All the necessary information regarding the study objective and ways to respond on questionnaire were shared with all respondents. Respondents were assured of confidentiality of their responses and were told that their responses shall be used for the research purpose only.

Measures

Organizational Justice Scale: Organizational Justice in the present study was measured through 13 – item scale adapted from the Colquitt's (2001) scales of Organizational Justice. The scale measures justice on three dimensions namely Distributive Justice, Procedural Justice and Interactional Justice. Responses were taken on 5-point scale anchoring (1) To a Very Small Extent to (5) To a Very Large Extent. Psychometric properties of the scale revealed reliability is 0.79 (alpha) of Distributive Justice, 0.69 (alpha) of Procedural Justice and 0.72 (alpha) of Interactional Justice.

Trust – Trust in this study was measured with 8 - item scale adapted from Workplace Trust Survey (WTS) developed by Ferres & Travaglione (2003) and Cook and Wall's (1980) interpersonal trust at work scale. The scale measures trust from two dimensions namely Trust in Management and Trust in Colleagues. The reliability of the scale in the present sample is 0.73 (alpha) for Trust in Management and 0.65 (alpha) for Trust in Colleagues. The responses were rated on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Employee engagement - In the present study employee engagement was measured through 8 – item scale adapted from employee engagement survey developed by Robinson et al (2004). Responses were taken on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Reliability of the scale was found to be 0.72 (alpha).

Results and Analysis

Analyses of Data

As the study aims to see the influence of organizational justice and trust on employee engagement, multiple regression analysis were carried out to test the hypotheses. Before testing the hypotheses, factor analyses were initially undertaken for the study variables. Gender, age and educational qualification may influence employee engagement; these variables were controlled in the statistical analyses.

Profile of Respondents

Respondents include both male and female in the ratio of approximately 138 (55 percent) and 112 (45 percent) respectively. The respondent's age ranged between 25 and 53 years with average for the sample being 34 years approximately. Approximately 54 percent of respondents are graduate and high in qualification and the remaining are below graduate.

Scale Development and Reliability

Before testing hypotheses of the study, factor analysis using principle component methods with Varimax rotation was conducted to validate the underlying structure of organizational justice and trust and employee engagement. In interpreting the factor, only a loading of 0.4 or greater on the factor were considered. Items which were loaded with the lesser value to .4 were subsequently deleted. The initial 34 items scale was reduced to 29 items scale in all. Similarly in identifying the factors using the Varimax rotated analysis, Eigenvalues greater than 1 are taken. Reliabilities were calculated for each areas of both explanatory and outcome variables to ensure the reliability of the measures used. It can be noticed that values calculated were more than the acceptable alpha limit of 0.6 (Sekaran, 1992). Factor loadings after factor analysis of both explanatory and outcome variables are given in table 1 and table 2.

Table1: Factor Loadings and Scale Reliabilities of Explanatory Variables

Variables	Items	Factor Loading	Total items	Reliability
Distributive Justice	Are the outcomes you receive from your organization appropriate for the work you have completed	.875	4	.792
	Do your outcomes reflect what you have contributed to the organization	.818		
	Do the outcomes you receive from your organization reflect the effort you have put into your work	.740		
	Are your outcomes justified given your performance	.523		
Procedural Justice	Procedures used to reach outcomes uphold moral and ethical values	.808	5	.690
	Procedures used to reach outcomes in this organization are free of biases	.791		
	Procedures used to reach outcomes are based on appropriate information	.726		
	Are you able to appeal the decisions arrived at by those procedures	.703		
	Procedures used to reach outcomes are applied consistently in this organization	.605		
Interactional Justice	Management refrained from improper remarks or comments	.791	4	.725
	Organization treat you in polite manner	.707		
	Organization treat you with dignity	.542		
	Organization treat you with respect	.635		
Trust in Management	I feel that management has faith on employee's capability and intentions	.800	5	.730
	I believe that management follows words through with actions	.791		
	I believe that management displays integrity in their actions and behaviours	.691		
	I believe that management acts in good faith	.603		
	I feel quite confident that the organization will always try to treat me fairly	.573		

Trust in Colleagues	I feel confident that my coworkers are truthful in their dealings with me	.763	3	.651
	Most of my colleagues can be relied upon to do as they say they will do	.544		
	If I got in difficulties at work I know my colleagues would try to help me out	.523		

Initial Eigenvalues	5.250
Cumulative Percentage of Variance Explained	64.349
KMO Measure of Sampling Adequacy	.772
Approximate Chi Square	1460.828
Significance	.000

Table2: Factor Loadings and Scale Reliability of Outcome Variable (Employee Engagement)

Variables	Items	Factor Loading	Total items	Reliability
Employee Engagement	I am willing to put in a great deal of effort beyond what is normally expected	.822	8	.723
	I find that my values and the organization's values are similar	.809		
	I always do more work than actually required in this organization	.799		
	This organisation really inspires the very best in me in the way of job performance	.766		
	I am personally motivated to help my organization succeed	.773		
	I try to help others in this organization whenever I can.	.694		
	I frequently make suggestion to improve the work of my team/ department/ service	.505		
	I volunteer to do things outside my job that contribute to the organization's objectives/ goals.	.497		

Initial Eigenvalues	3.475
Percentage of Variance Explained	59.303
KMO Measure of Sampling Adequacy	.766
Approximate Chi Square	491.000
Significance	.000

Multiple Hierarchical Regression Analysis

Research hypotheses were tested using multiple hierarchical regressions. Present analysis showed the relationship between variables in two steps. First, respondents' characteristics were entered into Step 1 as controlling variables. Second, dimensions of organizational justice and work place trust were entered into Step 2 as response variables (main effect). Following tables presents the summary of the multiple hierarchical regression analyses.

Table - 3: Summary of Regression for Employee Engagement as a Function of Organizational Justice

Explanatory variables	Outcome variable					
	Step 1			Step 2		
	Beta	t-value	Sig.	Beta	t-value	Sig.
Controlling Variables						
Gender	.068	.918	.360	-.025	-.385	.701
Age	-.039	-.446	.656	-.037	-.498	.619
Qualification	.095	1.068	.287	.011	.136	.892
Response Variables						
Distributive Justice				.291	4.209	.000**
Procedural Justice				.257	3.388	.001**
Interactional Justice				.156	2.311	.022*
R	.147			.544		
R²	.021			.296		
Adjusted R²	.006			.273		
R² Change	.021			.274		
F Change	1.368			23.900		
Sig. F Change	.254			.000		
Durbin–Watson	1.744					

** Significant at the 0.01 level (2- tailed)
* Significant at the 0.05 level (2- tailed)

From the Table 3, it can be seen that three control variables explained 2.1 percent of the variation in employee engagement but not statistically significant manner (F change = 1.368, p = 0.25). Of the three control variables, none were found to significantly explain variance in employee engagement. When the model variables (dimensions of organizational justice) were added into Step 1, the additional variance explained was 27.4 percent (F change = 23.900), which was significant at 1% significance level (Sig. F = 0.000), thus confirming the fitness of the model. The Durbin–Watson of 1.744 falls within the acceptable range (1.5 < D < 2.5), indicating that there is no auto correlation problem in the data and that the error term is independent.

Results presented in the above table also reveal that organizational justice explain variance in employee engagement positively and significantly. R² for employee engagement is found to be 0.296, which indicates that around 30 percent of variance in employee engagement is being explained by organizational justice.   F values with 23.900 corroborates this as it is found to be significant (p = .000). Thus, hypothesis 1, which predicted that the organizational justice significantly explain variance in employee engagement, was supported. Beta vales of distributive justice (β = .297; p = .000), procedural justice (β = .257; p = .000) and Interactional justice (β = .156; p = .022) reveals that all the three dimensions of the organizational justice individually are predicting employee engagement significantly and positively. Therefore it can be argued that organizational justice plays significant role in creating employee engagement. Moreover, the findings also indicate that the most important dimension of organizational justice that explains the variance in employees' engagement is Distributive Justice, which was significant at the 0.00 (p < 0.01) levels.

Table - 4: Summary of Regression for Employee Engagement as a Function of Workplace Trust

Explanatory variables	Outcome variable					
	Step 1			Step 2		
	Beta	t-value	Sig.	Beta	t-value	Sig.
Controlling Variables						
Gender	.068	.918	.360	.041	.566	.572
Age	-.039	-.446	.656	-.010	-.112	.911
Qualification	.095	1.068	.287	.113	1.312	.191
Response Variables						
Trust in Management				.216	2.981	.003**
Trust in Co-workers				.134	1.865	.064
R	.147			.305		
R²	.021			.093		
Adjusted R²	.006			.069		
R² Change	.021			.072		
F Change	1.368			7.299		
Sig. F Change	.254			.001		
Durbin–Watson	1.750					

** Significant at the 0.01 level (2- tailed)

From the Table 4, it can be seen that three control variables explained 2.1 percent of the variation in employee engagement but not found statistically significant (F change = 1.368, p = 0.25) in explaining variance in employee engagement. When the model variables (dimensions of workplace trust) were added into Step 1, the additional variance explained was 7.2 percent (F change = 7.299), which was significant at 1% significance level (Sig. F = 0.001), thus confirming the fitness of the model. The Durbin–Watson of 1.750 falls within the acceptable range (1.5 < D < 2.5), indicating that there is no autocorrelation problem in the data.

Results presented in the above table reveals that work place trust influences employee engagement positively and significantly. R² is found to be 0.093, which indicates that around 9 percent of variance in employee engagement is being explained by workplace trust.   F values with 7.299 corroborates this as it is found to be significant (p = .001). Thus, hypothesis 2, which predicted that the workplace trust significantly explain variance in employee engagement, was supported. Here only one dimensions of the trust, i.e. trust in management (β = .216; p = .003) was found to be predicting significantly and not the other dimension, although the second one also has positive effects on the out come variable. So it can be said that trust matters in creating engaged workforce in organization.

Discussion

The present study was planned to achieve two objectives – (1) to explore how organizational justice explain variance in employee engagement and, (2) how workplace trust explain variance in employee engagement.

Findings of the study support the assertion that an organizational justice influences employee engagement. If organization or organizational agent deals with employees in fair and transparent man-

ner, systems and procedures are in place and properly followed in taking decision related to employees, no partiality are shown to any one etc.; results a perception of justice in employees and this probably makes employees to be more attached and committed with the organization and to do work hard to help organization achieve its goal. Engagement is dyadic in nature and probably because of this employees return with engagement of the offer made by organization with the justice and fair way of doing the business with employees. The present result is in line with the results reached in earlier researches as well (Frank, Finnegan & Taylor, 2004). Justice at workplace is the stronger forecaster of behavioral expression (Dailey & Kirk, 1992) and employee engagement can also be considered as a behaviour shown by employees in organization. The findings also draw conclusion that when there is low perceptions of fairness and justice, are likely to cause employees to withdraw and disengage from their work roles. When employees perceive unfair treatment at workplace, their outcome will be in negative emotion and behavior (Latham & Pinder, 2005). It is also found from the study that all the three components of organizational justice – distributive, procedural and Interactional justice, are predicting employee engagement individually as well. This shows that organization should not undermine the importance of any of these forms of justice, other wise it may affect engagement negatively. Organization should distribute rewards and resources with the principle of equity, follow fair and transparent system and procedures in distribution of rewards and resources and should treat employees with respect, dignity and with human values.

The present findings also support the second assertion of the study that engagement is influenced by workplace trust. Workplace trust matters in creating engaged workforce in organization. Engagement is a sort of relationship between employer (organization) and employees and in any good relation trust is the fundamental, as the result revealed. The present finding is in line with the findings of Frank, Finnegan & Taylor (2004) who also found trust as the influencing factor of employee engagement. If there is values of fairness, integrity, good faith and intention on each other (both parties), employee's good and hard works are recognized and appreciated, employees concern are taken care of in organization, employees develop faith and trust and this probably results into greater engagement with the work and organization. Trust given and received creates climate for service at the deepest level (Tatum, 1995), an indication of engagement. In the present study two foci of workplace trust – trust in management and trust in colleagues, are studied in elation to engagement. Trust in management has been found to be significant and positive predictor of engagement than trust in colleagues. This means trust in management is more important in creating engaged workforce than the trust in colleagues. This may be probably employment relationship (here engagement) is primarily made between employer (organization) and employee and in this relationship employees have certain expectations from employer such as respect, open communication, transparency in systems and process, keeping promises and commitment made to employees etc. The way in which leaders and managers behave and communicate with employees contributes towards making work meaningful and engaging (Macey & Schneider, 2008). If there is perception of mismatch between words and action, employees become disgusted, frustrated and probably try to distance themselves from the work and organization. In this respect the saying that employees leave the bosses and not organization, holds true. Employees who trust their managers are more likely to be engaged and higher management (executives) have stronger correlation with engagement than trust in immediate managers, reveals Blessing White Research (2011), a consulting firm. Trust in colleagues is not found to be the significant predictor in this study. It doesn't mean that trust in coworkers doesn't influences engagement. A closer look of the beta values indicate that it is positively related to engagement but not in statistically significant manner. This means that that being cared and shared about by colleagues, help in engagement.

Conclusions and implications

Employee engagement is an important factor in modern time to keep organization current and relevant. And organizational justice and workplace trust, both contribute in creating engaged workforce. There should be perception of a sense of the justice in the organization. Management should show justice in all of its three forms – distributive, procedural and interactional justice. Perception of injustice in any of its form may result into reduced engagement from employees. Organizations should also ensure that there is a climate of trust in organization especially management is encouraged to demonstrate consistency in words and actions which is the basic in creating trust. This sense of trust or trusting relation helps in creating engaged workforce. There should be trust between employees and management and between colleagues. But trust between employee and management is more important in creating engaged workforce than trust with colleagues. Employee engagement is a direct reflection of how employees feel about their relationship with bosses. Stressing the importance of creating an atmosphere of trust, Whitener et al. (1998), propose that organizations be designed in a way that supports trust and managers be encouraged to develop trust-based relations.

The present research has both practical and theoretical implications. Insights collected from this research provided strategic approaches required in engaging employees. Organization can use organizational justice and workplace trust, things which some times are ignored intentionally or unintentionally, to bring desired effects on employee engagement. Organizations can invest in developing system of justice and building climate of trust in workplace and more important, practice the same, in order to have considerable impact on creating engaged workforce. By showing integrity, respect, good manner, care, transparency in system and procedures etc., organizations can have long way in benefiting in terms of engaged workforce. Theoretically, the study will extend contribution and enrich the literature of employee engagement. The study provides support for the theoretical model regarding how organizational justice and workplace trust produces engaged workforce. Both the variables are essential to have engaged employees in organization. The study will help and support in building theory on employee engagement.

Limitations and future research

The study has several limitations, so findings of this study should be taken with caution. One of the limitations is its relatively small sample and also only three corporations are taken in this study, this poses limited ability to generalize findings at wider perspective. Another limitation is that the study is based on self - report survey which may be affected by the social desirability, thus affecting the research outcome. The present research is based on non- probability sampling and not on the probability sampling. Perception of justice and trust also depends upon the profile of employees, which have not been considered in depth in the present research. All these may affect the ability to generalize the result of the research in broader perspective. Taking all these limitations in to account, the author recommends undertaking further research in order to have more meaningful insight of organizational justice and workplace trust on creating engaged workforce. Author also recommends doing a comparative analysis between and /or among the organizations in order to have organization wise insights on the issue. Nevertheless the study can be considered as useful because it provides understanding on the issue empirically.

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About the author

MD. HASSAN JAFRI is presently working as a Sr. lecturer in Gaeddu College of Business Studies, Gedu, Bhutan, in the area of OB / HRM. He is MA, MBA and Ph.D. from Jamia Millia Islamia (Central University), New Delhi, India. Before he moved to the GCBS, he worked as an Associate Consultant in a boutique consulting firm based in New Delhi. He also taught in Rohilkhand University, Bareilly in UP, India. The author has published in more than a dozen papers in refereed journals in India and abroad. The author also has presented two papers in national and international conferences in India. His research interests include Employment Relation, Psychological Contract, Employee Engagement, Employee Commitment and Psychological Capital among others