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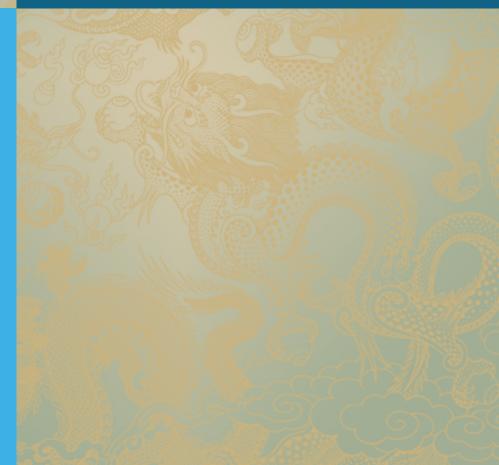Research & Development

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CONTENTS

Teaching and learning practices in five colleges of RUB: A cross case analysis - Part II; the middle path

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This study breaks new ground in examining the nature of teaching and learning practices in the Royal University of Bhutan (RUB). It is extracted from a wider study and focuses on the implementation practices of the same set of lecturers as examined in our first paper on the nature of their planning (Gyamtso & Maxwell, 2013). Again, a mixed-methods approach based on interpretivist principles using a multiple case study design was adopted. The analysis indicated that there was a combination of teacher-centred/ transmission and learner-centred/facilitation practices in the selected colleges of RUB. More learner-centred characteristics were prevalent in the colleges of education. Although the policies and regulations of RUB were used to guide the teaching and learning practices in the colleges, there were gaps in their implementation.

Introduction

This paper, based upon Gyamtso's (2012) PhD, complements our earlier publication (Gyamtso & Maxwell, 2013) which focused on the planning practices in the classrooms of select colleges of the Royal University of Bhutan (RUB). A significant aspect of the original study was the exploration of a shift in focus from the teacher-centred model emerging from the progressive *Wheel of Academic Law* (*Wheel*, RUB, 2015) which advocates learner-centredness. Such re-conceptualisation of teaching is demanding and will take time. Added to this institutional imperative, concerns about the quality of education in Bhutan add to the importance and timeliness of this study. This paper focusses upon the implementation of planning reported earlier.

For some time now universities 'have been faced with the challenge of moving to an approach to teaching that is learner-centred in order to enhance student learning experiences' (Budge, Clarke, & de la Harpe, 2007, p. 68) rather than adopt a teacher-centred approach. This has come about 'in response to new insights developed within related disciplines such as cognitive psychology, learning sciences and instructional psychology' (Segers, Dochy & Cascallar, 2003, p. 2) and the understanding that learning 'covers a much larger field that includes emotional, social and societal dimensions' (Illeris, 2009, p. 2). We explore these developments within a culturally sensitive approach.

Teaching and learning in higher education

In the past twenty years research into conceptions of teaching and learning in higher education (HE) has increased considerably.

Conceptions of Teaching

Biggs (2003) and Entwistle et al. (2008) describe conceptions of teaching as idiosyncratic, largely unarticulated composites of individual teachers' assumptions, knowledge, and beliefs about teaching. While some researchers have identified two or three or even six conceptions, from the literature reviews two broad orientations of conceptions of teaching emerge. One is teacher-centred, concerned essentially with organisation of the content of the teacher's knowledge for *transmission* to students (e.g. Dall'Alba, 1991; Martin & Balla, 1991; Samuelowicz & Bain, 1992; 2001). The other is a student-centred conception, concerned with *facilitating learning* (e.g. E. Martin & Balla, 1991; Murray & MacDonald, 1997; & Trigwell, 1999; Kember & Kwan, 2000). However, this duality has been contested. For example, Kember (1997) extended the duality into five conceptual categories.

The sources of different conceptualisations have also been studied. Pajares (1992) suggested that the conceptions of teaching come predominantly from teachers' experiences as students. Changes in conceptions also occur as a result of reflection on the effects of continued teaching experiences (Åkerlind, 2004). Teachers' conceptions tend to be consistent with policy and cultural priorities (Brown, Lake, & Matters, 2009).

Conceptions of Learning

There is a substantial body of research on conceptions of learning in HE (e.g. Marton, 1988). The idea of 'conception of learning' grew out of the original research by Marton and Säljö (1976a; 1976b). Surface approaches led to poor outcomes, and deep approaches to better ones (Fry, Ketteridge, & Marshall, 2008). According to Entwistle and Ramsden (1983, p. 17), deep and surface conceptions of learning 'appear to be a powerful form of categorisation for differences in learning strategies'. The desire to learn (and achieve high grades) is also important (Entwistle & Ramsden, 1983; Biggs, 1987; Haggis, 2009).

In essence, the surface approach to learning is characterised by an intention to complete the task, memorise information, make no distinction between ideas and existing knowledge, and treat the task as externally imposed. Rote learning is the typical surface approach in which facts are learnt without a meaningful framework. The level of cognitive processing is also superficial (Fry et al., 2008, p. 11) and higher order thinking not usually present (Ross & Bell, 2007, p. 1).

On the other hand, a deep approach to learning is typified by an intention to understand and seek meaning leading students to attempt to relate concepts to existing understanding and to each other, to distinguish between new ideas and existing knowledge, and to critically evaluate and determine key themes and concepts (Entwistle, 1987; Fry et al., 2008). Deep approaches lead to the more abstract forms of learning that are demanded in higher education (Svensson, 1977).

Research by Baeten, Kyndt, Struyven, & Dochy (2010) confirms that student-focused teaching deepens students' learning and this has been corroborated by Sivan, Wong Leung, Woon, & Kember, (2000), Tiwari Chan, Wong, Wong, Chui, Wong, et al. (2006) and Waters & Johnston (2004). The defining characteristics of student-centredness are active learning, construction of knowledge through gathering and synthesizing information and integrating it with the general skills of inquiry, communication, critical thinking, problem solving (Barr & Tagg, 1995; Huba & Freed, 2000; Weimer, 2002). Leung, Lu, Chen, and Lu (2008) found that teacher-centred teaching approaches were mainly positively related to a surface learning.

Student-centred teaching, which involves students in active and independent learning, is more likely to encourage a deep approach to learning. Deep learning is consistent with orchestrating the lesson, in seeking clarification when a contribution is not clear, paraphrasing a student's contribution for the rest of the class, 'shaping' the language used by students and 'scaffolding' new concepts and language as well as students constructing their own notes. In contrast, typical approaches in teacher-centred learning include the teacher asking closed questions, constantly interrupting students, students' out loud text reading, dictated notes and students listening a lot. Teachers therefore may restrict or facilitate learning opportunities during the implementation phase in their moment-by-moment decision-making. Having said that, there are times when teacher-centredness may be required such as in defining concepts or processes.

Biggs (1987) proposed another learning approach: the achieving or strategic. In such an approach, students organise their learning to the cues they receive about their assessment schemes (Ramsden, 2003) with the intention to obtain highest possible grades (Entwistle, 1987). They organise time and distribute effort to greatest effect, ensure conditions and materials for studying are appropriate, use previous examination papers to predict questions and be alert to cues about marking schemes (Entwistle, 1987, p.16). Whereas the first two approaches describe ways in which students handle a learning task, the achieving/strategic approach indicates how students organise their learning e.g. when, where, how long they learn (Biggs, Kember, Leung, 2001; Lonka, Olkinuora, & Mäkinen, 2004). Some studies on approaches to learning suggest that the strategic approach should be more correctly seen as a component of the deep approach (Kember & Leung, 1998; Zeegers, 2002, 2004). On the other hand, Entwistle and McCune (2004) maintain that the strategic approach varies from the deep approach because of the characteristics of organised studying (including time management) and effort management (including concentration). Distinctions among the three approaches to learning - deep, surface and strategic - are particularly useful for teachers who want to create learning environments that encourage students to achieve desired learning outcomes (Biggs, 2003, p. 13).

Effect of culture on learning

Ethnicity, family, community and other culturally determined factors influence conceptions of learning and the ways students learn (Manikutty, Anuradha & Hansen, 2007; Burnett, Pillay & Dart, 2003; Dart et al., 2000; Mugler & Landbeck, 1997; Volet, Renshaw & Tietzel, 1994) just as they do teaching. However, most of the research has been concentrated in western countries such as Australia (Prosser et al., 2005), the Netherlands and Finland (Eklund- Myrskog, 1998), the United Kingdom (Marton, Dall'Alba, & Beaty, 1993), and USA (Samuelowicz & Bain, 1992). Examples of how cultural dimensions affect students' approaches to learning are cited in a research report by Manikutty et al. (2007, pp. 70-78). Two cultural dimensions, collectivism and power/distance are identified by Hofstede (1986, in Manikutty et al., 2007) as playing important roles in determining teacher/student relationships. When the distance is greater, teachers' 'wisdom' and teachings are not questioned (Hofstede, 1986 and 2002, in Manikutty et al., 2007). Thus, class discussions would tend to be more in the nature of clarification than active debating about what the teacher has taught. A cultural context can lead to learning by rote, students' lacking skills of analysis and critical thinking and this would likely be the case in many Bhutanese classrooms. However, care must be taken in generalising.

Ramsay (2011) found no support for the notion of students from Asian backgrounds adopting essentially surface or rote approaches to learning. Although memorisation is usually associated with poor academic outcomes in Western cultures (Watkins & Hattie, 1981, in Kandlbinder & Peseta, 2011, p. 137), it is clear that memorisation is an essential part of developing understanding in Eastern cultures and Kember (1997) describes this as adopting surface strategies with deep purposes.

Merriam (2007, in Paulus, 2008, p. 4) notes that while Western notions of learning focus on a movement toward becoming more independent and productive, non-Western perspectives view the process as becoming "more fully human." While knowledge gained by means of the scientific method is privileged in Western cultures, sacred or "revealed" knowledge is highly valued in other societies. Rather than separating the mind from the body, as Western perspectives tend to do, other perspectives involve mind, body, spirit, and emotions in their views of learning. Such views are reflected in Bhutan too and influence the way Bhutanese approach teaching and learning.

While culture does play a role in the way that students approach their learning, globalisation and the ease with which international communication can occur may negate those effects in the near future. Such discussions can facilitate significant and useful understandings into how academics conceptualise teaching, and how students conceptualise learning.

Following this extended discussion, teaching and learning (implementation) practices in select colleges of RUB will be examined centred on this research question:

How do the lecturers implement their prepared plans in a way to support student learning?

Frameworks for analysis

The framework (Table 1) used to examine implementation of lessons is the same one used in the analysis of academics planning (Gyamtso & Maxwell, 2013). The framework was largely guided by the conceptions of student-centredness reflecting our idea that it is potentially more useful in Bhutan at this time. It is also consistent with RUB policy.

Table 1. Implementation categories and associated indicators

Category	Indicator
Learning Outcomes	Focus on what the student should know/understand and/or realistically be able to do at the end of a period of learning (lesson/module).
Teaching and Learning approach	Approaches that influence, motivate and inspire students to learn. Organises active/passive engagement with learning tasks. Provides opportunities for interaction amongst students and with the lecturer. Initiates vigorous and critical interaction with knowledge content (invokes deep learning).
Content Knowledge	Knowledge of discipline-specific content appropriate for his/her teaching field. Communicates depth and breadth. Links content to other subject areas and everyday life of students (relevance)
Assessment	Measures students' learning/expected learning outcomes. Selects, constructs and utilises appropriate assessment strategies (formative and summative). Assesses prior knowledge of student learning.
Resources	Use of appropriate and variety of resources to enrich learning
Role of Teacher	Helps the student to learn. Creates conducive learning environments. Encourages students to accept responsibility for their own learning and accommodates the diverse learning needs of all students. Demonstrates maintains an ability to convey the content to students
Role of Student	Accepts responsibility for learning. Actively participates in the class. Collaborates/teams with other students.

Methods

Details of the methods of the study can be found in Gyamtso & Maxwell (2013). Based on interpretivist principles using a multiple case study design (Stake, 2000), mixed-methods (Tashakkori & Teddlie, 2003) were adopted to collect data. Five of the ten RUB colleges were chosen as 'instrumental', defined by Stake (2005) as 'a particular case [that] is examined mainly to provide insight into an issue … it plays a supportive role and facilitates our understanding of something else' (p. 445).

Data collection

There were five data types: (1) lesson observations (n=26); (2) standardized open-ended interviews before and after the lessons with each lecturer (n=26); (3) in-lesson questionnaires completed by students (n=800) after the observed lessons; (4) informal conservational interviews using stratified sampling with the teaching staff (n=10), students (n=15)and administrative staff (n=15) for additional information on teaching and learning practices in the colleges; and (5) field notes were also used to maintain analytic distance (see Woods, 2006). To further strengthen the data, background characteristics of staff were collected. A research learning and management matrix (Maxwell & Smyth, 2010; Smyth & Maxwell, 2008) provided a framework for monitoring ongoing progress.

Data Analysis Procedures

As set out in the previous study, manual analysis of the data was most appropriate as the data was 'thick' with descriptions, and required thinking through to make meaning. Thematic analysis was the appropriate technique to employ in order to analyse the data. There are three aims of thematic analysis across the cases: i) examining commonality; ii) examining differences; and iii) examining relationships (Gibson & Brown, 2009, pp. 128-129). Additionally, the different settings of the colleges were used to show how the interplay of factors such as resources impacted on the teaching and learning. In addition to triangulation of data collections, the data analysis was also triangulated within cases.

Assuring Quality: Trustworthiness

Establishing the trustworthiness of interpretivist research is critical. Reid and Gough (2000) recommend that credibility, transferability, dependability and confirmability are required for trustworthy research to have taken place. Triangulation served as a powerful tool to strengthen credibility as were thick descriptions (Lincoln & Guba, 1985). In addressing the dependability issue, the research processes were reported in detail (Gyamtso, 2012). Finally, confirmability was supported by triangulation of data gathering and analysis. A pilot study (Gyamtso & Maxwell, 2012) ensured that methods and instruments were tried and tested. This study was conducted under the University of New England's Human Research Ethics Committee requirements. Both authors have considerable experience in HE teaching and both are knowledgeable about HE teaching and learning in Bhutan (Gyamtso & Maxwell, 2013). This experience was important in interpreting and analysing the data.

Results

The cross-case analysis

Cross-case analyses provide insights on how implementation practices have been influenced by the different histories, settings and purposes of the five colleges. Throughout the discussion, links will be made to the available literature. This analysis is organised around the seven categories of implementation identified above. In the case studies, the implementation practices were seen as a continuum rather than as dichotomous teacher- and student-centred approaches presenting a sufficient insight into the teaching and learning practices in the classrooms of RUB. Conventional 'lectures' (38% of observations) which were teacher-centred, typically led to surface learning except perhaps in the hands of an exceptional academic. The lecture was the most widely-used strategy in three of the colleges. Midway along the continuum were those lectures with embedded activities (31%) that triggered some deep and active learning. A learner-centred approach (31%) was at the other end of the continuum. The two colleges of education had a comparatively more extensive repertoire of teaching and learning such as group discussions, individual activities, and group presentations that actively engaged the students with the learning tasks although students reported that lecturing was also evident in one of them.

Implementation of Learning Outcomes (LOs)

There were similarities and differences across cases in relation to the implementation of LOs. Lecturers mostly implemented LOs. Examples of teaching of unplanned LOs were seen in all the colleges.

'Unplanned' LOs point to the notion of the 'hidden curriculum' (Giroux & Penna, 1983) which is understood as students learning knowledge, skills and values that were not set out in the lesson plan.

While the planned LOs mainly focused on the lesson content, positive unintended LOs were personal-generic, where, for example, the lecturers modelled good practice for students, promoted scientific values, showed sensitivity to cultural/religious values, placed greater responsibility on the students for their learning and created conducive learning environments. On the other hand, there were other unintended LOs which did not enhance learning. Certain types of behaviour, for example the lecturers' indifference to a large number of students, had a negative effect on those students.

Implementation of planned teaching and learning approaches

The lecture was the most common planned teaching approach (Gyamtso & Maxwell, 2013). There was, however, variation in the ways that lectures were presented. In the conventional, teacher-centred lecture (46% observed), the lecturers talked while students listened resulting in passive and probably surface learning for most students. The interactive lectures (54%) included demonstrations, brief individual/group activities, class discussions, and Q&As which enhanced interaction during the lecture. In these, learner-centredness occurred accompanied by some degree of deep learning. One of the best demonstrations of an interactive lecture was a sociology lesson that used Q&As followed by class discussions. Interaction with the materials and content of the lesson was seen in lessons in two colleges. However, the learning effectiveness was not always fully exploited. For example, during the guided practice of mathematical calculations, opportunities were not provided for students to share their findings. Instead, lecturers provided the solutions.

The full use of learning activities, as such, was seen only in the two colleges of education. There students were involved with activities that promoted comparatively deeper levels of engagement. Students were generally engaged. They were not passively taking information from instructors but were reading, writing, discussing and problem-solving. The challenge to the lecturers organising such activities was in presenting content that was educationally seamless or integral to the learning. This is an important point, as the customary thinking about using such activities in Bhutan has been that they are add-ons or mere illustrations The activities required students to think about what they were doing (content) with how they were doing it (process) that resulted in meaningful learning.

A Dzongkha[1] lesson deserves special mention. It was an exceptional student-centred lesson in which the lecturer engaged the class using both individual and whole-class activities with high levels of engagement. It was, by far, the most learner-centred lesson observed and challenged Phuntsho's (2000) view that learning Dzongkha is generally traditional and [1]teacher-centred. At the other extreme was a direct instruction lesson (Cavanagh, 2004) which requires teacher-centredness. Direct instruction is most effective for teaching basic or isolated skills (Kroesbergen & Van Luit, 2003). The objective was stated, skills reviewed, new information presented, questions were asked, group instructions given and individual practice undertaken followed by assessment and then more practice. In this case perhaps this was appropriate to the learning context. Our data indicated that elevating learning to higher levels rather than encouraging mere regurgitation of facts and figures are challenges RUB lecturers face. Some lecturers managed to create this kind of learning despite the large numbers present.

Findings from the case studies have confirmed that lecturers using pedagogical content knowledge intuitively drew on, and were able to utilise, many aspects of teaching and learning. While this was the core of the teaching and learning principles in the two colleges of education, it, however, was not given priority over the presentation of content in the other three. The interconnectedness of content and pedagogy play an important role in effective teaching (Shulman, 1986) and both are crucial. Evidently this link was not well-established in the minds of lecturers where the lecture, as knowledge transmission, was the primary teaching and learning approach. As they commented, it was easily accessible and required relatively less planning and organisation for large classes.

Implementation of Content Knowledge

There were strong contrasts between the two teacher education colleges and the other three. Observation of the latter revealed that lessons were dense with content knowledge. Beaudry (2000) argued that too much content without analysis and reflection could lead to surface learning. McCombs (1992) declared that more content does not necessarily mean more learning. On the other hand, in 15 of the 18 lessons observed at the two colleges of education the content knowledge was mostly relatively well paced.

The amount of content to be covered, brings to the fore the most contentious conflict in education, the debate on depth vs. breadth (Schwartz et al., 2008). It is not just more content but the right content which develops deep learning. Teachers who strike an appropriate balance between depth and breadth would be more effective in facilitating successful performance of the students (Paek, Ponte, Sigel, Braun, & Powers, 2005). Additionally, contextualised teaching relates subject matter content to real world situations and thus motivates students to make connections between knowledge and its applications to their lives (Berns & Erickson, 2001).

The results indicated that in lessons in which the focus was on content, student learning was poorly supported. Students' poor behaviour in teacher-centred classrooms contrasted with lessons that incorporated student activities as well as lecturer input and students were actively engaged.

Implementation of Assessment

Summative assessments were clearly set out in the module plans. Formal examinations occupied a major portion of the assessment strategies in these plans. This suggests the importance assigned to summative as opposed to formative assessment.

The most common form of assessment across the case studies was informal formative assessment which included observation, monitoring, questioning and consequent feedback. Mostly questioning was used to check understanding. Formative assessment has the potential to directly improve learning because it takes place while instruction is in progress and can serve as the basis for providing timely feedback to increase student learning (Sadler, 1989; Shepard, 2005).

The skill with which informal formative assessment was implemented varied. Most lecturers merely asked for recall. Such lower cognitive questions are to assist students in committing this knowledge to memory as often happened in the lessons observed. In lessons in which convergent questions were asked, only single answers were required, and further responses or opportunities for discussion did not occur.

There were few examples which included questions requiring higher levels of thinking. Divergent questions valued a range of responses, based on informed opinions and analysis, and encouraged more

participation and discussion. Angelo and Cross (1993) indicated that the use of quality questioning allows lecturers to know more about what the students think and how they learn, and therefore adjust their teaching and/or plan accordingly.

Other informal assessment techniques were less used. Excellent monitoring was evident in just two lessons. Assessing students' prior learning at the beginning of the lesson was observed in just two lessons. These lecturers spent a great deal of the lesson recapping previous topic learnt and clarifying the concepts, establishing links before embarking on the lesson topic. A large body of findings shows that learning proceeds primarily from prior knowledge, and only secondarily from the materials presented (e.g. Roschelle, 1995).

Effective assessment is inseparable from good teaching and learning and therefore should be aligned with the learning outcomes and activities of the lesson (Biggs, 2003; Cotton, 2001). Alignment was well established in the colleges of education but less so in the three other colleges. Assessment tasks should mirror the LOs, because as far as the students are concerned, the assessment is the curriculum (Ramsden, 2003).

Resources

In lessons in which the teaching went beyond simple transmission of ideas, greater use was made of resources to enhance the learning experience. A mixture of resources was employed, ranging from the ubiquitous chalkboard to PowerPoint presentations, video films, from activity/worksheets to textbooks and manuals, real objects and models each of which contributed to student learning. The best examples of resource use were in the colleges of education. However, the data also showed that sound instruction based on skilful teaching could occur with the help of little or no resources.

Although resources can contribute greatly to teaching and learning, it is important to note that the lecturers themselves are an important resource. As curriculum planners, implementers and assessors, lecturers have the greatest impact on students and their learning. They also organise resources and make available additional information and teaching/learning aids for students. Their understanding and knowledge of the curriculum is fundamental to their teaching. Lecturers in the case studies demonstrated adequate knowledge and understanding of their subjects.

Implementation of Role of teacher

Equally important is the lecturers' conceptual understanding of their role as a teacher. Examples of their ability to influence the direction of a lesson, and their ability to make or break a lesson were observed. Their professional attitude and behaviour were critical factors in promoting learning. One example of teacher warmth and concern contrasted with others at the same college in which the lecturers were distant and mainly engrossed in their presentations. While all lecturers assumed the role of knowledge expert, the emphasis placed on that aspect of their teaching varied from teacher-centred to learner-centred.

The imparter of information (Kember, 1997) was the most teacher-centred, and typical examples were observed in lecturers from four of the five the colleges. The majority of lecturers were transmitters of knowledge. The directors of active learning were evident across the colleges but the facilitators of understanding were more evident in two colleges of education but also in at least one other college.

However, there were differences in their facilitation roles. For instance in some lessons, the lecturers began by establishing a collaborative relationship with the students. They provided a clear description of the learning tasks, created an environment favourable to learning, and ensured that everyone was included in the learning activities. Lecturers listened to the students during the lesson, were sensitive to their requirements, used humour appropriately in the lessons and generally made the atmosphere conducive to learning by their resourcefulness and creativity. In this role the lecturers closely guided students through the learning tasks.

None of the lecturers were seen to be asking students to think critically and originally, to question existing knowledge, explore new ideas, see new dimensions or become independent learners (Åkerlind, 2004). Nonetheless some traces of these features were seen in a small number of lessons where the lecturers attempted to encourage students to think about their learning.

The scheduling of consultation hours for students to meet the lecturers one-on-one occurred only in one college. This indicates a clear conception of teaching as a support role to students' learning. This was a good practice considering the large number of students in some of the classes. It is surprising that this practice does not appear in other colleges.

Implementation of Role of student

The students were variously passive, responsive and/or active. These roles were largely dependent upon the role assumed by the lecturers, and to a certain extent the learning environment created by both the lecturers and the students themselves. In the passive role, students were to a large degree disengaged, sitting disinterestedly, not making any effort to get involved. Some slept quietly. This role could be attributed to a number of factors, such as large student numbers, over-crowded classrooms, lecturers 'voice' and their engrossment with the act of teaching. Responsive recipients listened attentively, answered questions and made notes. They were involved in the structured knowledge and represented a majority. Active recipients also responded to questions, asked questions, got involved in the class/group discussions, and by and large were actively engaged in learning. Only rarely were students in the fourth category, active creators, present observed mostly in the colleges of education.

Of particular interest was the role of students in the two colleges of education. The lecturers provided planned learning activities in which the responsibility for learning was placed on the students and active participation was required. Only a small number of students were passive. The large majority were genuinely involved in the mathematical games, group discussions, individual activities, and practical work. This feature was generally not observed of the other three colleges.

Bhutanese culture and tradition, and learning experiences in Bhutanese schools appeared to play a powerful role in shaping students leading to their desire for extensive course content, and a leaning towards passive learning behaviours. However, the student interviews and comments in the in-lesson questionnaires indicated the desire by some in three colleges to learn in much more active ways. Additionally, to add another layer of understanding, students entering RUB would mainly be the Gen-Xers and Millennials (Oblinger, 2003) and so were greatly attracted to information technology and are comfortable using it for their study and leisure. Although students may not be very forthcoming in taking responsibility for their learning that this appears possible is illustrated at the two colleges of education.

Conclusions

The lecturers in five colleges of RUB employed combination of teacher- and learner-centredness in their lessons during the implementation of plans. While some were facilitative, others used straightforward transmission approaches and some used a combination of these. However, the transmission approach prevailed, being commonly practised in three of the five case studies. However, there were examples of how lecturers' behaviour could make a big difference to the learning atmosphere even while teaching in the conventional lecture style. Even with limited use of resources, a lecture could be made interactive thereby promoting student learning.

There were similarities in that all the colleges required LOs for their lessons. The exercise of developing LOs is seen as a significant shift towards student-centred practices however, their implementation in student-centred ways was not always evident except in two of the five colleges. There is thus a good deal of work to be done in order for lecturers to re-conceptualize their role and so change the way they set up learning situations and guide students toward learning outcomes, carry out formative assessment, interact with students, and even how they define student success. Formative assessment of LOs was not one of the strengths observed.

While all lecturers assumed roles of the knowledge expert, they played this role in differing degrees. They variously took on the 'sage on stage' role whereas others demonstrated a more 'guide on the side' role. Thus it was that the lecturers supported student-centredness in varying degrees across the colleges despite the RUB policy that encouraged this.

As discussed above, student roles varied across the Colleges where the key factor was the lecturer's role. Sometimes this enabled students to overcome cultural and personal school histories and be actively engaged as observed in the two colleges of education. Student passivity was dominant in the other colleges although there were occasionally parts of lessons in which they became more active. Only rarely were students active creators wherein they were provided with tasks that required thinking and analysis.

The common Q&A sessions, which could have been a valuable learning opportunity, were generally not well executed. The belief that time spent on active learning exercises would make it impossible to teach the required syllabus was not uncommon, and is reflected in the knowledge transmission model in some colleges. These findings lead to the conclusion that implementing planned learner-centred LOs does not necessarily generate opportunities for deep learning. To reiterate Entwistle (2008, p. 28): "In the end, 'best practice' is whatever helps students to engage more deeply with the subject and to become more actively responsible for their own learning."

This is the way forward: to take the middle path by using the best of teacher- and learner-centred approaches when appropriate and employing them effectively to support student learning. By 'middle path' we mean here the judicious selection of the best learning strategy for the knowledge and skills for the particular students resulting in a balance of the approaches over a given period of time. What ultimately matters is that the lecturers should 'teach' well. Yet, fundamental changes to the quality of university teaching are unlikely to happen without changes to lecturers' conceptions of their role (McAlpine & Weston, 2000, p. 377). Consistent with RUB's *Wheel*, it is important to direct lecturer development and training efforts towards evaluating their conceptions of their role and to engage in teaching for understanding.

Finally, the simple adoption of Western models of teaching and learning will not necessarily answer the challenges of tertiary education in Bhutan. There are other factors such as cultural appropriateness, availability of resources and the consideration of how the lecturers can successfully implement teaching/learning in order to promote student learning. By realising this RUB should chart a 'middle path' by taking the best from good western practices, keeping the cultural appropriateness of teaching and learning conceptions of the Bhutanese lecturers and students at the forefront.

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Gender differentials in urban youth unemployment: A case study from Bhutan

JIGME NIDUP

Urban youth unemployment has been a major concern for the government of Bhutan. This study uses Bhutan Living Standard Survey (BLSS) of 2012 to find the determinants of urban youth unemployment using a probit model. Further, an extension of Blinder-Oaxaca decomposition technique is employed to see if there are any gender differentials. Findings suggest that age, marital status, married household head and education significantly explain youth unemployment. However, the higher the qualification, the more likely youths are to be unemployed. Results from the decomposition analyses indicate clear gender discrimination, which is mostly accounted by the observed characteristics. In terms of specific variables, secondary education and above, female-head, and married household head increase the gender gap in urban youth unemployment. These findings have several policy implications, which this study attempts to address.

Keywords: *BLSS; Youth; Unemployment; Probit; Blinder-Oaxaca; Bhutan*.

Introduction

The International Labour Organization (ILO) measure of youth unemployment includes number of jobless youth (aged between 15-24 years) who are willing to work, who are available for work and who are actively seeking employment but cannot find any (ILO, 2015). Over the next decade, it is estimated that one billion youths will enter the labour market and providing them with gainful employment will be a major challenge around the globe (ILO, 2015). Young people are found three times more likely to be unemployed than adults (ILO, 2015). The fact sheet provided by ILO (2014) summarizes that almost 74 million youths were unemployed in 2013, accounting for 13 percent of global youth unemployment rate. Though opportunities have increased with rapid globalization and technological change, the difficulties of finding a decent job are still a setback for youths, more so, for females who are believed to face more challenges compared to males (ILO, 2008). Evidence from ILO work transition surveys suggest that young women have more limited access to information and job search mechanism than young men. In some countries, for reasons unknown, there is striking preference to hire young men rather than young women (ILO, 2008).

Bhutan has a very young demography. Around 50.3 percent of the projected population of about 733,004 were below the age of 24 in 2013 (National Statistics Bureau [NSB], 2014). The overall official total unemployment rate ranges from 2.9 percent in 2003 (NSB, 2004) to 2.1 percent in 2012 (Ministry of Labour and Human Resources [MOLHR], 2013). Though, the overall unemployment rates are relatively low by international standard, a concern has been rising with regard to youth unemployment. Of the unemployed youths, female unemployment rates are generally higher. In 2012, female youth unemployment rate was recorded at 11.6 percent as opposed to 9.5 percent for male youths (NSB, 2013). Within this unemployment structure, youth unemployment is more pronounced in urban areas as compared to rural Bhutan. The urban youth unemployment rate was 20.2 percent and 29.5 percent for males and females respectively in 2012 (NSB, 2013).

Youth unemployment is undesirable in many ways. Being unemployed at a young age can hurt self-esteem and employment prospects throughout their lives (ILO, 2008). Future security becomes questionable because they are not able to save and invest when they are young. This has negative repercussions on country's economy as well. Moreover, unemployed youths are more vulnerable to personal and social destructive behaviour and more likely to become involved in illegal and dangerous activities (ILO, 2008). In Bhutan, it is premature at this time to establish any meaningful association between youth unemployment and related social problems. No study has proven the relationship but there are indications that youths are engaging in illegal activities. In 2012, out of 705 youths who committed crime, 48.5 percent were unemployed and the illegal activities mostly occurred in urban areas (Rabten, 2014).

Previous empirical studies are mostly focused on developing countries. For instance, Nganwa, Assefa, and Mbaka (2015), Escudero and Mourelo (2013), and Msigwa and Kipesha (2013) studied determinant of youth unemployment in Ethiopia, Kenya, and Tanzania respectively. Similarly, Ahmad and Azim (2010), Akhtar and Shanaz (2006) studied youth unemployment in Pakistan. Besides, Isengar (2003) studied institutional determinants of youth unemployment in Germany and United Kingdom. Overall, the common determinants of youth unemployment are age, marital status, household head characteristics and area of residence. In particular, education qualification is found to have varied affect on unemployment. It is commonly observed in these studies that higher education qualification *led* youths into unemployment. This is an indication that educated youths are not willing to take up low paying jobs. In almost all the studies, females are less likely to gain employment as compared to males.

Therefore, the first objective of the study is to find the possible micro determinants of urban unemployed youths in Bhutan. The determinants are separately measured for male and female youths. Findings from probit estimate indicates that youths who have experience and those who are married are less likely to be unemployed, whereas those who come from larger household size, whose qualifications are secondary and degree education and if the household head is married, youths are more likely to be unemployed. However, experience is seen to matter only for females.

Employment of females has grown by many times over the years in Bhutan. However, there are huge differences in the numbers of males and females employed. In 2013, Bhutan had a total of 24,856 civil servants among whom only 8,217 were females (Royal Civil Service Commission, 2013). Employment of females has not matched those of males. Only few females are seen taking up higher-level employment positions. Discrimination theorists believe that female employment is adversely influenced by certain stereotypes in regard to their commitment to work (Anker, 1997). As a result, most firms employ more males than females.

There are studies that have specifically focused on gender discrimination. Reimer and Steinmetz (2009) compare gender differences among tertiary graduates in Spain and Germany. Lavanos, Yalkin, and Nuñez (2009) studies gender discrimination in employment in Greece and the United Kingdom. Mohanty (2002) analyses teens' participation decision and hiring decision in Los Angeles County in the United States. It is commonly observed in all the above studies that there is clear gender discrimination, favouring males in the workplaces.

Therefore, the second objective of the study is to see if there is gender discrimination in urban youth unemployment in Bhutan. Results from the Blinder-Oaxaca decomposition suggest that there is gender discrimination in urban youth unemployment and it is mostly contributed by endowment or characteristic effects, in particular experience, education qualification and marital status of the household head.

This article is arranged as follows. In the next section, data and methodology is presented. In section 3, probit regression and decomposition results are presented. The final section concludes with some policy recommendation.

Data and Methodology

Data

The data for the study comes from a nationally representative Bhutan Living Standard Survey (BLSS) conducted by National Statistics Bureau (NSB) in 2012. Out of a total of 8968 households covered in the survey, the current study uses a sample of 1107 individuals who are aged between 15-24 and who reside in urban areas only. The BLSS is based on the World Bank's Living Standard Measurement Study (LSMS) methodology and provides wide range of information such as demographic characteristics, education and employment. Urban youths were considered unemployed if they did not do any work be it paid or unpaid and if they did not have any profitable business but if they were actively looking for job or trying to start a new business in the last seven days.

Methodology

The analysis is based on two different methodologies. The determinants of urban youth unemployment are estimated using probit models. Probit model can be specified as:

(1) $$U_i^* = \beta'Z_i + e_i$$

where Un_i^* is the urban youth unemployment variable of individual , taking the value of 1 if the urban youth is unemployed, otherwise 0. The vector of parameters to be estimated is given by $\beta'Z_i$ is a vector of explanatory variables such as age, household size, educational level, marital status and household head characteristics. The term is a random error term e_i assumed normally distributed.

The observed binary dummy variable for youth unemployment is defined as follows:

(2) $$U_i = \begin{cases} 1 & if\ U_i^* > 0 \\ 0 & if\ U_i^* = 0 \end{cases}$$

The probability of event occurring for any value of is:

(3) $$Prob[U_i = 1|Z_i] = \Phi(\beta'Z_i)$$

(4)
$$Prob[U_i = 0|Z_i] = 1 - \Phi(\beta'Z_i)$$

Where $\Phi(\dots)$ is the standard normal cumulative distribution function. The parameter β just measures the association so, marginal effects of urban youth unemployment is calculated as follows:

(5)
$$\frac{\partial\, Prob\, (U_i=0|Z_i)}{\partial Z_i} = -\Phi(\beta'Z_i)\beta'$$

(6)
$$\frac{\partial\, Prob\, (U_i=1|Z_i)}{\partial Z_i} = \Phi(-\beta'Z_i)\beta'$$

In the second analysis, the estimation of female discrimination in employment uses an extension of Blinder-Oaxaca (1973) decomposition technique. The present study employs the version of the Blinder-Oaxaca methodology for categorical dependent variable, developed by Gomulka and Stern (1990) for a probit model. This technique allows decomposition of inter-group differences in mean levels of outcome, into differences that may be due to observable characteristics or endowments and differences that may be due to unobservable characteristics or coefficient effects.

The female-male urban youth unemployment gap can be expressed as:

(7)
$$U^f - U^m = \Phi(\beta^f, Z^f) - \Phi(\beta^m, Z^m)$$

where and are the predicted unemployment probabilities for females and males respectively. Equation (7) is then decomposed as:

(8)
$$U^f - U^m = \{\Phi(\beta^f, Z^f) - \Phi(\beta^m, Z^f)\} + \{\Phi(\beta^m, Z^f) - \Phi(\beta^m, Z^m\}$$

where and are the vectors of parameter estimates associated with females and males respectively. The individual characteristics for females and males in the equation are represented by and . In equation (8), the first term in the braces describes the change arising from the changing coefficients given the distribution of the explanatory variables and the second the changes arising from the change in distribution of explanatory variables for a given values of the coefficients.

Having found the changes arising from changing coefficients or change in distribution of variables, the contribution of each individual explanatory variable can be determined. The input of variable to the observed/explained or characteristics effect is calculated as follows:

(9)
$$X^i\{\Phi(\beta^i, Z^f) - \Phi(\beta^i, Z^m)\} \text{ where } X^i = \frac{(\bar{z}_i^f - \bar{z}_i^m)\beta_i^*}{\sum_{i=1}[(\bar{z}_i^f - \bar{z}_i^m)\beta_i^*]} \text{ and } \sum_{i=1}^i X^i = 1$$

The contribution of variable to the coefficient effect or unobserved/unexplained is computed as:

(10)
$$S^i\{[\Phi(\beta^f, Z^f) - \Phi(\beta^i, Z^f)] + [\Phi(\beta^i, Z^m) - \Phi(\beta^m, Z^m)]\}$$
$$\text{and } S^i = \frac{(\beta_i^f - \beta_i^m)Z_i^*}{\sum_{i=1}[(\beta_i^f - \beta_i^m)Z_i^*]} \text{ with } \sum_{i=1}^i S^i = 1$$

In the present study, coefficients are estimated for male and female including the interaction term to proxy for the structure that would prevail in the absence of discrimination.

Variables

The variables that are used in the study are mostly inspired by the extent literature provided earlier. Age is included as a proxy for labour market experience. The older the age, the higher the probability of employment among the youths. Age Square is also included to capture the quadratic effect or the non-linear relationship between age and unemployment. It is expected to have negative relationship with unemployment. The relationship between household size and unemployment is rather complicated. On one hand, large numbers of household members are likely to impose financial constraints requiring participation in the job market. In such a case, household size is likely to have negative association with unemployment. On the other hand, women, especially, are more likely to be unemployed when the household members are huge due to increased household chores and other household responsibilities.

Varying level of education is expected to have varying impact on unemployment. Individuals with higher level of education are less likely to be unemployed compared to those less educated. Education is believed to provide extra value in the employability on an individual. Marital status of an individual is likely to have substantial influence in finding employment due to financial and social demands. It is likely to have negative relationship with unemployment. However, the relationship is likely to differ between male and female. There is the possibility that females are more likely to remain unemployed due to family commitments in the household.

As the household head in Bhutan takes most of the decisions, it is very likely that youth unemployment is also to a certain degree dependent on household head characteristics. Especially if the household head is a female, it is more likely that an individual youth will be employed to reduce the financial constraints of the household. If the household head is employed in a regular paying job, youths are less likely to be unemployed. A regularly employed household head is more likely to have close associates in and around his work, which helps in employability of his/her children. Marital status of the household head can also influence the employment status of youths. Married household heads are more likely to be financially and socially stable. Children from such households are more likely to get higher education and thus have higher chances of employment. Detailed variable definition is provided in Table A1 in the appendix.

Results

A self-explanatory summary statistics on various variables used in the study is provided in Table A2 in the appendix.

Determinants of youth unemployment

The marginal effects from the probit model are presented in Table A3 in the appendix. Column 1 provides the results from total sample while column 2 and 3 represent of the results for female and male youths respectively.

It is evident from column 1 that females are 4.8 percent more likely to be unemployed compared to male youths and it is statistically significant at 10 percent level of significance. This hints at possible youth gender discrimination in employment in Bhutan. Further, age is found significantly affecting unemployment in case of female youths only and age square is found statistically significant for the total sample and female youths. This suggests that the probability of being unemployed reduces for female youths as age increases. This is also an indication that experience matters for females while it is insignificant for male youths. Household size is a significant determinant for youths in general but when youths are segregated, it does not matter. Though the priori sign suggest that with more number of household members, youths are more likely to be unemployed, it is statistically insignificant.

Education is assumed to provide value addition in employability of an individual. However, it proves to be otherwise in case of Bhutan. As evident from column 1, 2 and 3, youths with primary education have insignificant impact on unemployment compared to uneducated youths. In contrast, youths with secondary and degree education are more likely to be unemployed compared to those uneducated youths. The likeliness of unemployment is more pronounced as education level increases. From the total sample, youths with secondary and degree education are 24.6 percent and 59.8 percent more likely to be unemployed. Further, with same level of education, female youths have higher degree of unemployment as opposed to male youths. It is clear from column 2 and 3 that females with secondary education are 28.1 percent more likely to be unemployed compared to 18.4 percent of males. With degree education, again females are 60.2 percent more likely to be unemployed against 56.2 percent for males. Such results indicate that youths with less education are more likely to take up any jobs. However, youths who are educated seem more inclined towards white-collar jobs, leaving many unemployed.

Marital status of youths has statistically significant impact on unemployment. Overall, married youths are 18.9 percent less likely to be unemployed. Again, marital status also seems to affect females more than males. Female youths are 21.5 percent less likely to be unemployed compared to 15.7 percent of male youths. Firstly, this result indicates that married youths undertake with greater household responsibility thereby wanting employment to support the household. Secondly, the findings show that married females are more likely to look for jobs and get employed compared to married males.

The characteristics of household head are found to have minimal influence on youth unemployment. It is only the marital status of household head that has statistically significant impact. The relationship is positive implying that if the household head is married, youths are more likely to be unemployed. This could be possible via way of education. Married household heads are more likely to have stable family and they are able to provide education to their children but due to limited employment opportunity with education, the relationship could be positive. Positive and statistically significant association is also observed between female-headed household and male youths. This is possibly because female-headed households could be putting in extra effort to educate male children due to expected higher returns, but due to over-education and unemployment issue in Bhutan, male youths are more likely to be unemployed. Whether a household head works for regular paid job or not is not a significant contributor, indicating employment depends on individual capacity and not on parental influence in Bhutan.

Decomposition Analysis

This section ascertains the structural and compositional sources of gender gap in the incidence of urban youth unemployment in Bhutan. The overall gender differential is provided in Table A4 in the appendix. The predicted gender differential is around 8.7 percent and it is statistically significant at one percent significance level. This indicates that there are gender differentials in urban youth employment between males and females. Decomposing the predicted differentials, the results show that endowment and coefficients have almost the same effect at 5.93 percent and 5.67 percent respectively. Interaction term has negative coefficients and it statistically significant at 10 percent significance level. The decomposition analysis suggests that provided females had the same characteristics as that of males, 5.93 percent of unemployment gap could be reduced. Similarly, female youth unemployment rate could be abridged by 5.67 percent if females enjoyed the same coefficients as that of males. However, as coefficient and interaction term are considered unexplained effect, it is relatively less compared to the explained portion. This suggest that youth gender gap in employment in Bhutan is mostly described by the explained or endowment or the characteristics effect.

Further insights are provided in Table A5 in the appendix, which details the contribution of individual variables to endowment effect, coefficient effect and interaction effect. Since, endowment effect contributes the most in explaining the urban youth employment differentials in Bhutan, the discussion will be focused mostly on endowment effects only. The variables that have significant contribution to the endowment effect are secondary education, degree education, female-headed household and marital status of the household head. All these variables bear positive indications, indicating that male-female differences in these characteristics contribute in increasing the gender gap in employment. All these variables have almost equal contribution in explaining the gender gap in urban youth employment.

In regards to coefficient effect and interaction term, female-headed household is the only variable that has significant influence in explaining the youth gender gap in unemployment. This shows that factor returns from the decision taken by female-headed households are likely to create dissimilarity in employment position of male and female youths and thus increase gender unemployment gap amongst the youths. In general, the results indicate that labour markets in Bhutan attribute more value to endowments compared to the unexplained portion.

Conclusion and Recommendations

This paper examined the determinants of urban youth unemployment in Bhutan, with particular focus on assessing the level of urban youth employment gender gap. The analyses were carried out based on Bhutan Living Standard Survey (BLSS) data of 2012, employing Probit model to find the determinants and an extension of Blinder-Oaxaca (1973) decomposition in assessing the gender gap.

The result from the Probit estimate suggested that age as the proxy of experience significantly explained youth unemployment for female, indicating that experienced mattered for female youths in reducing unemployment. This also indicated that experience in particular is important for females to compete with male youths. Higher education, it is expected to reduce unemployment but for both urban male and female youths in Bhutan, those who had secondary education and above were more likely

to be unemployed. Marital status of male and female youths also exerted opposite effects indicating married youths were less likely to be unemployed. Among the household head characteristics, youths in households with a married head were more likely to be unemployed, most probably via way of becoming over-educated for the jobs available.

The findings from Blinder-Oaxaca suggested that observed characteristics accounted for most of the gender discrimination in urban youth unemployment in Bhutan. In terms of specific variables under observed characteristics, the significant variables are secondary education, degree education, female-headed household and marital status of the household head in increasing the gender gap in urban youth unemployment. From the unobserved characteristics, it was only female-headed household that had significant contribution in the gender gap.

From the policy perspective, both government and youths must share equal responsibility for employment policies to be effective. As for the government, firstly, policies should be aimed at fostering the growth of self-employment schemes. This could be done by way of providing tax incentives and collateral free loans to those educated youths who are willing to take up their own business. Secondly, government should look into providing fiscal incentives and bonuses to those private companies who hire fresh high school and university graduates. Thirdly, government need to look at lowering skill mismatch between labour supply and demand. This could be done by introducing job related subjects into the school curriculum. Such initiative will definitely increase employability of youths after graduation and can help tune the mind-set of youths towards blue-collar job as well. Lastly, government should also see that job requiring physical labours are paid higher wages as wages could be a deterrent in taking up blue-collar jobs.

Unless youths are ready to change attitude towards work, the problem of youth unemployment is bound to persist. Youths should seek employment outside white-collar jobs. Looking beyond office job is the key to reduce unemployment. As un-educated youths are less likely to be unemployed, it shows that most of the un-educated youths take up blue-collar jobs, which are abundant in Bhutan. Out of thousand graduates each year, very few take up self-employment schemes. The lack of self-motivation to take up such scheme could also be due to parental aspiration. Most parents in Bhutan want their children working behind a desk. Therefore, the onus of employment also falls on parents as well.

Gender discrimination is mostly explained by characteristics differences between male and females in Bhutan. In order to solve such differentials, firstly, government should help organizations and companies to encourage female recruitment by providing fiscal incentives. Such incentives should most probably come during the time when females take up maternity leave. This can help companies and organization to reduce cost in hiring temporary recruits. Secondly, female youths need encouragement and facilitation. Working environment should also be amended to accommodate female needs. Offices should be encouraged to have a child care facility, which will enormously encourage female youths to take up jobs. Thirdly, government should look into providing more internship programs to females so that they already have experience while seeking employment. Internship program also should be properly monitored (unlike the existing practice). HA collaborative effort from both intern providers and interns will go a long way in delivering the required job experience.

Lastly, it is important to mention some of the limitations of the study. Endogeneity issue is the biggest concern but having many variables that are probably endogenous in the model and not having

any righteous instrument has left the study incomplete to conduct instrument variable regressions. Though multicollinearity does not violate regression assumptions but it is still a concern because it can have serious impact of coefficients. Since there are no formal tests designed to check multicollinearity in probit models, an alternative regression was performed assuming the dependent variable as a continuous variable. By doing so, the Variance Inflation Factor (VIF) test suggested no multicollinearity problem in the model. However, this is not a standard approach, so, multicollinearity could still exist in the model.

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About the Author

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Appendix

Table A1. Variable Definition

Variables	Definition
Unemployed	Binary dummy variable taking the value of 1 if the youths are unemployed, otherwise 0.
Age	Age of the Youths between 15-24
Age Square	Age Square of the Youths aged between 15-24
Household Size	Total household members in a household
No Education	Binary dummy variable taking the value of 1 if the youths have no education at all, otherwise 0.
Primary	Binary dummy variable taking the value of 1 if the youths have atleast primary education, otherwise 0.
Secondary	Binary dummy variable taking the value of 1 if the youths have secondary education, otherwise 0.
Degree	Binary dummy variable taking the value of 1 if the youths have degree, otherwise 0.
Married	Binary dummy variable taking the value of 1 if the youths are married, otherwise 0.
Head Female	Binary dummy variable taking the value of 1 if the household head is a female, otherwise 0.
Head Regular	Binary dummy variable taking the value of 1 if the household head is employed in a regular paying job, otherwise 0.
Head Married	Binary dummy variable taking the value of 1 if the household head is married, otherwise 0.
Urban	Binary dummy variable taking the value of 1 if the youths reside in urban areas, otherwise 0.

Table A2. Summary Statistics

Variables	Total		Female		Male	
	Mean	SD	Mean	SD	Mean	SD
	(1)	(2)	(3)	(4)	(5)	(6)
Unemployed	0.243	0.429	0.285	0.452	0.198	0.399
Age	21.511	2.118	21.262	2.210	21.778	1.983
Age Square	467.219	88.260	456.958	91.227	478.189	83.676
Household Size	4.603	2.052	4.647	2.032	4.555	2.075
Married	0.293	0.455	0.301	0.459	0.284	0.451
No Education	0.168	0.374	0.1678	0.374	0.1682	0.374
Primary	0.113	0.317	0.068	0.252	0.161	0.368
Secondary	0.615	0.487	0.643	0.479	0.585	0.493
Degree	0.104	0.305	0.121	0.326	0.086	0.281
Head Female	0.238	0.426	0.327	0.469	0.144	0.351
Head Regular	0.615	0.487	0.600	0.490	0.632	0.483
Head Married	0.753	0.431	0.790	0.408	0.714	0.452

Table A3. Marginal Effects from Probit Model

Explanatory Variables	Outcome Variable: Unemployed		
	Total	Female	Male
	(1)	(2)	(3)
Female	0.048*	-	-
	(0.025)		
Age	0.167	0.305*	0.008
	(0.103)	(0.156)	(0.123)
Age Square	-0.005*	-0.008**	-0.001
	(0.002)	(0.004)	(0.003)
Household Size	0.017**	0.017	0.012
	(0.007)	(0.011)	(0.007)
Primary	0.039	0.158	-0.033
	(0.073)	(0.125)	(0.068)
Secondary	0.246***	0.281***	0.184***
	(0.034)	(0.051)	(0.046)
Degree	0.598***	0.602***	0.562***
	(0.071)	(0.085)	(0.124)
Married	-0.189***	-0.215***	-0.157***
	(0.024)	(0.039)	(0.028)
Head Female	0.004	-0.075	0.094*
	(0.030)	(0.047)	(0.050)
Head Regular	-0.007	0.017	-0.023
	(0.026)	(0.040)	(0.031)
Head Married	0.146***	0.150**	0.110***
	(0.025)	(0.046)	(0.030)
Observation	1107	572	535

Notes: Robust standard error in the parenthesis. ***, **, * denotes significance at 0.001, 0.05 and 0.10 respectively.

Table A4. Decomposition: Youth Gender Unemployment Gap

	Coefficients	Percentages
Predicted Female Unemployment rate	0.285***	28.5
	(0.019)	
Predicted Male Unemployment rate	0.198***	19.8
	(0.017)	
Total differentials	0.0871***	8.71
	(0.009)	
Endowment	0.0593***	5.93
	(0.003)	
Coefficients	0.0567**	5.67
	(0.008)	
Interaction	-0.0289*	-2.89
	(0.016)	

Note: Standard error in the parenthesis. ***, **, * denotes significance at 0.001, 0.05 and 0.10 respectively

Table A5. Detailed Decomposition

Variables	Contribution			Percent Share		
	Endow	Coeff	Inter	Endow	Coeff	Inter
Age	-0.00393	3.210	-0.0687	-6.63	5661.38	237.72
	(0.059)	(2.939)	(0.067)			
Age Square	0.0167	-1.679	0.0674	28.16	-2961.2	-233.22
	(0.058)	(1.563)	(0.067)			
Household Size	0.00105	-0.0060	-0.00011	1.77	-10.63	0.38
	(0.002)	(0.037)	(0.001)			
Primary	0.00307	0.0160	-0.0083	5.18	28.22	28.82
	(0.006)	(0.013)	(0.007)			
Secondary	0.0110*	-0.0011	-0.00009	18.55	-1.92	0.34
	(0.006)	(0.032)	(0.003)			
Degree	0.0108*	-0.0007	-0.00027	18.21	-1.31	0.93
	(0.006)	(0.006)	(0.002)			
Married	-0.00319	0.0123	0.00065	-5.38	21.69	-2.24
	(0.005)	(0.012)	(0.001)			
Head Female	0.0137*	-0.015**	-0.0172*	23.10	-26.46	59.52
	(0.007)	(0.007)	(0.010)			
Head Regular	0.000698	0.0174	-0.00079	1.18	30.69	2.76
	(0.001)	(0.020)	(0.001)			
Head married	0.00947**	-0.0153	-0.00147	15.97	-26.98	5.09
	(0.004)	(0.031)	(0.003)			

Note: Robust Standard error in the parenthesis. ***, **, * denotes significance at 0.001, 0.05 and 0.10 respectively. Endow, Coeff and Inter stands for Endowment, Coefficient and Interaction effects.

Evaluation of efficacy of *Cestrum nocturnum* L. leaf extract on selected species of pathogenic insect vectors and parasites

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Abstract
The use of synthetic chemicals to control insect vectors and parasites like tick, mosquito and bedbugs have numerous environmental and ecological implications. An ideal bio-control have been evaluated in Cestrum nocturnum leaf extract. The leaf extract was prepared through soxhlet extraction from different solvents and decoction preparation. The extract were diluted to make different concentration and bio-assay was done on Culex (mosquito), Cimex lactelarius (bedbug), Boophilus microplus (tick) and Chironomous. The percentage of mortality was corrected using Abbott's formula and the average mortality (M%) was determined in different solvent extracts on test organisms. The data were analyzed through simple linear regression to find the relation between concentration of the extract and mortality in the test organisms using MS Excel 2010. The results of the experiment showed that methanol extract was highly toxic with 97.2 per cent mortality, and the least toxic was ethanol extract 58.3 per cent mortality. The mortality rates in vectors and parasites was significantly higher ($p<0.05$) as the concentration levels of the solvent increased. These results indicate that there is presence of potential insecticidal property in the leaf extract of C. nocturnum, as a natural strategy to control pathogenic insect vectors.

Key words:- *Cestrum nocturnum*, Efficacy, Bio-control.

Introduction

The genus *Cestrum* is predominantly found in subtropical and tropical areas. *C. nocturnum* L. (Solanaceae) commonly known as night-blooming Jasmine, is an evergreen shrub with creamy white tubular volatile flowers. The leaf of *C. nocturnum* has been long known for pharmacological significance (Khan, et al., 2011), more significantly it is known for toxic effect on the mosquito species (Jawale, Kirdak, & Dama, 2010). Many researches have evaluated larvicidal activity of *Cestrum* species on mosquitoes and found a steroidal bioactive compound responsible for mosquitocidal activity (Ghosh & Chandra, 2006) and (Jawale, Kirdak, & Dama, 2010).

According to Defense Pest Management Information Analysis Center (DPMIAC, 2001), there are five Vector borne-diseases in Bhutan as of 2001 and some of these are caused by mosquitoes in Bhutan which are reported as *Aedes vexans, Culex minutissimus, Anopheles peditaeniatus, Anopheles peytoni, Anopheles reidi, Anopheles varuna,* and *Heizmannia greeni.*

Although malaria morbidity and mortality has declined significantly since 2001 till 2008, but there are many malaria infection chances for which further strengthening of the control and prevention strategies are going on (VDCP, 2013).

There were many attempts to find a natural solution for the control of mosquitoes from plant extracts. The extract of aerial parts of *Tagetes minuta* was tried in *Aedes aegypti* larvae (Dinesh, Kumari, Kumar, & Das, 2014), *Enicostemma axillare* and *Ageratum conyzoides* against *Culex* species by Suganthi, Kangabam, Kumar & Govindaraju as cited by (Srivastava & Satyanarayana, 2011), and the most successful tests were in Solanaceae members such as *Solanum villosum* (Chowdhury, Bhattacharjee,

Laskar, & Chandra, 2006) and (Chowdhury, Ghosh, & Chandra, 2008), *Cestrum diurnum* (Ghosh & Chandra, 2006), *C. nocturnum* (Jawale, Kirdak, & Dama, 2010) and many others.

Likewise according to Rushton, Pilling, & Heffernan, (2001), the ticks and tick-borne diseases (TTBDs) are widely distributed throughout the world, particularly in tropical and subtropical countries. It has been estimated that 80 per cent of the world cattle populations are at risk from TTBDs.

High levels of infestation by *Hyalomma spp. and Boophilus spp*. during rainy season appears to be the primary concern of dairy farmers (Rushton, Pilling, & Heffernan, 2001). Farmers try to get rid of ticks from their cattle by rubbing the animal skin with kerosene or by cattle urine. Some of the tick species reported in Bhutan as of 2001 are *Boophilus microplus, Amblyomma integrum, Dermacentor auratus, Haemaphysalis bispinosa, Haemaphysalis intermedia* and *Ixodes acutitarsus* (DPMIAC, 2001).

There are some plant extracts that have been documented for controlling ticks. *Tephrosia vogelii* leaf extract for ticks, also as reported by Srivastava & Satyanarayana (2011), an isolated fraction of leaf extract of *Lantana camara* has been found effective for tick control. So it is of great need if there can be any easy and efficient ways to control ticks and further explore the most effective plant extract.

The bed bug infestations are common in places with poor sanitation. Bed bugs possess scent glands and emit a characteristic odor that can easily be detected in heavily infested areas (DPMIAC, 2001).

Bedbugs have not been recorded for causing any type of disease in particular but it is known for its nocturnal activity in humans as parasites leading to secondary infection causing wounds or swellings. So therefore it is of great importance for the emerging research personals to verify and try possible means to thoroughly drive away these vectors in warm and southern region of the country.

This study aims at finding a new bio-control for the aforementioned insect vectors and parasites. Synthetic insecticides such as (DDT) dichlorodiphenyltrichloroethane have been in use from as early as 1939 but due to environmental concerns and ecological effects and development of resistance, and also the emergence of plant based phytochemicals which are easily biodegradable and target specific, their use has decreased the interest in using synthetic insecticides. Since then, the hunt for plant based and organic bioactive compounds started with numerous promising bio-insecticides and pesticides being manufactured at commercially (Dinesh, Kumari, Kumar, & Das, 2014). As of now more than 2000 plants species have been known for the property for its ability to control pests and insects (Mari, 2013).

Bhutan with 70% organic farming, has been striving for going organic to which development of organic insecticides, pesticides, compost, vermicomposting, integrated pest management, and many more green activities were carried out (Confino, 2014).

As of now there are no organic insecticide being commercially manufactured in the country, but a lot of indigenous knowledge based practices many of which are explored by researches prevail. To address this issue and contribute to providing a substitute for synthetic chemicals for agriculture and livestock pest and disease management and human pathogenic insect vector management, this project will analyze the efficacy of *C. nocturnum* leaf extract to selected species of human-livestock disease causing insect vectors.

Objectives

This research is designed to prepare leaf extract of *C.nocturnum* using different methods (solvents). And perform efficacy (bio-assay) and record the mortality of Mosquito, Bed Bug and Tick with the prepared extracts.

Methodology

Study Area

The present study was conducted at Sherubtse College, Kanglung (27^{0}17'24'' N; 91^{0}32'24''E) from where the plant was also collected. The insect vectors were collected and reared prior to the preliminary bio-assay necessary nourishments (Khan, Inayat, Khan, Saeed, Khan, & Rahman, 2011) .

Extraction

Extraction was prepared using different organic solvents namely, methanol, butanol, hexane, ethanol and water and followed similar procedures like that of (Khan, Inayat, Khan, Saeed, Khan, & Rahman, 2011); (Prasad, Prabhu, Thakur, & Ruparel, 2013) and (Jawale, Kirdak, & Dama, 2010). An aqueous extract was prepared by crushing 42.5g fresh green leaves using mortar and pestle and filtered. All the extract were weighed and dissolved in suitable volumes of distilled water to make different concentrations of 20% (0.5g/ml), 40% (0.25g/ml), 80% (0.0.16g/ml) (Chowdhury, Bhattacharjee, Laskar, & Chandra, 2006) to ready for the efficacy tests.

Bio-assay

For the evaluation of larvicidal bioassay of mosquito, the standard protocols of World Health Organization (1981) with slight modifications as followed by Jawale, Kirdak, & Dama, (2010). (hexane extract was negligible in quantity it was not used). During this process we also evaluated mortality test for *Chironomous* larvae, a non-target organism aiming to find if it is equally harmed with mosquito larvae since their habitat would be similar.

Statistical Analysis

The percentage of mortality observed (%M) was corrected using Abbott's Formula during the observation of the bio-assay test and the average mortality (M%) was determined in different solvents. Simple linear regression was used to find the significance between the concentration of plant extract (irrespective of the type of solvent) and mortality in all the vectors and parasites. MS Excel 2010 was used for the data analysis both in tabular presentation of corrected mortality and regression analysis.

Results

The results of the experiment showed that methanol extract was highly toxic with 97.2 per cent mortality, and the least toxic was ethanol extract 58.3 per cent mortality (Table 1). Looking upon the corrected mortality through Abbott's Formula 100 per cent mortality was found in 20%, 40% and 80% of methanol extract in tick and mosquito and 100 per cent mortality in 20% and 80% for bed bug. A concentration of

20% of aqueous extract also gave 100 per cent mortality in bed bug. Similarly concentration of 20% and 80% of butanol had 100 per cent mortality in bed bug.

Table 1. Toxicity of different solvent extracts on test organism, and average mortality (M%)

Concentration	Test Organism				Avg. M%
Methanol Extract	Tick	Mosquito	Bed Bug	Chironomous	
20%	100	100	100	77.6	
40%	100	100	88.8	100	97.2
80%	100	100	100	100	
Aqueous Extract	Tick	Mosquito	Bed Bug	Chironomous	
20%	22.2	66.6	100	0	
40%	66.5	100	94.3	0	63.8
80%	77.7	100	94.3	44.2	
Ethanol Extract	Tick	Mosquito	Bed Bug	Chironomous	
20%	88.8	66.6	100	0	
40%	66.5	66.6	88.7	0	58.3
80%	100	100	22.3	0	
Butanol Extract	Tick	Mosquito	Bed Bug	Chironomous	
20%	77.6	33	100	66.5	
40%	77.6	33	94.3	77.6	77.2
80%	100	66.6	100	100	

Mortality in per cent; 20%, 40%, 80% (concentration)

A simple linear regression was used to analyze the relation between concentration and mortality (Table 2). Multiple r=0.99 indicating there is a strong positive correlation between independent (concentration) variable and dependent (mortality) variable. The R^2=0.99 (1% standard deviation change in concentration will increase mortality rate by 0.99%). Mortality in vectors and parasites was significantly higher ($p<0.05$) as the concentration levels of solvent increased

Table 2. Significance between the conc. of plant extract irrespective of the type of solvent and mortality in all the vectors and parasites.

Regression Statistics								
Multiple R	0.997							
R Square	0.995							
Adjusted R^2	0.989							
Standard Error	2.780							
Observations	3							
	Df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	1431.501	1431.501	185.290	0.047			
Residual	1	7.726	7.726					
Total	2	1439.227						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 5.0%*	*Upper 5.0%*
Intercept	255.700	3.404	75.113	0.008	212.446	298.954	255.432	255.968
X Conc.	87.571	6.433	13.612	0.047	5.828	169.315	87.065	88.078

Discussion

Evaluation of different solvent extracts on the basis of mortality rate and target specificity.

The mortality rate of vectors and parasites from this study was similar to Jawale, Kirdak, & Dama, (2010) who found methanol extract highly toxic with 100% mortality rates in 24 hours which were tried on *Aedes aegypti*. Chowdhury, Bhattacharjee, Laskar, & Chandra, (2006) and Chowdhury, Ghosh, & Chandra, (2008), also found very effective results in methanol extracts which was extracted from leaves and berry of *Solanum villosum* on *Culex quinquefasciatus* and *Stegomyia egypti* mosquito species in 24 hours and 72 hours respectively.

Ethanol extract was also found to be very target specific with 0 per cent mortality in Chironomous. A positive result with 98 per cent mortality was seen in Bed bug by butanol extract with 100 per cent in concentrations of 20% and 80%.

Evaluation of different solvent extracts for particular target insect

For a particular insect vector excluding non-target insect the best extract for mortality of *Culex* mosquito is methanol extract of any concentration with 100% mortality and aqueous extract (40% and 80%) with 100 per cent mortality. In case of mortality of Tick the best extract is methanol extract of any

concentration with 100 per cent mortality and for Bed Bug the best extract for its mortality is methanol extract (20% and 80%) with 100 per cent mortality.

Therefore based on both the measures for evaluation of the appropriate and most effective extract, it has been found that methanol extract is toxic to wide range of organisms, if handled carefully and specifically to target insects it will have promising results (tick and bed bug) but may not be wise to use for *Culex* since it will kill even the non-target aquatic insects. As for ethanol (*Culex*, tick and bed bug) and aqueous (*Culex* and bed bug) extracts, it has also shown promising mortality rates and target specificity.

Recommendation

The results and analysis of this study opens up a space for one more bio-control strategy to control vectors and parasites which have been harming mankind times immemorial. Despite the fact that synthetic control measures were taken development of resistance have jeopardized the effort. Also another school of thought have found many ecological and environmental implications of synthetic control measures. Bio-control measures are very much invited and anticipated by the present era, as a matter of fact this study has taken shape in pursuit of developing a bio-cide for common insect vectors and parasites of Bhutan.

As it has been deduced methanol extract has high potential with 97.2 per cent mortality in tick and mosquito. Ethanol extract was target specific with 0 per cent mortality in Chironomous and 98 per cent mortality was seen in Bed bug in butanol extract. In deed the results were very promising and thought provoking. Therefore, this study could be further verified and taken forward by upcoming enthusiasts.

According to the results it is clear that methanol extract is most suitable for tick and mosquito with 100% mortality in all three concentrations, and in case of bedbug butanol extract with 100% mortality in 20% and 80% concentrations. But looking at a high level of mortality (92.5%) of non-target organism (chironomous) it can be deduced that methanol extract is not feasible and target specific.

As per the results depicted by the corrected mortality butanol (98 per cent) and aqueous extract (96.2 per cent) were best for bedbug. Conventionally either aqueous or ethanol extracts could be very much feasible and suitable (availability and feasibility).

C. nocturnum leaf extract has a great potential to be used as bio-control strategy. For easy preparation, access and target specificity, ethanol extract and aqueous extracts would be better to use. The main reason behind recommending it is because the extract preparation method is very simple that require no laboratory instruments, hence can be prepared by any one in need. Considering amount of extract obtained and time required for preparation, it has been found that there is maximum yield of extracts in very less time and resource in this two methods (concentration of 20-40%). But if the insect vector infestation is severe and has to be dealt at large scale level methanol extract would be best to prioritize with concentration of 20-40%. On the other hand butanol would be very least advised to use as the preparation is time consuming and not target specific.

There is scope in finding a strategy and to further work on the ethanol and pure extracts for controlling *Culex* and Bed Bugs, since there is an immediate need to address this issue in the country.

Also the quantitative study of the phytochemical constituents and extraction the steroidal components are some the areas to recommend on, and also working on extracts of Solanaceae family species would be some of the areas of interest to further work on.

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Exploring role of teacher's gender in student learning: Perspectives of students, parents, and teachers

PHUNTSHO DORJI AND SANGAY BIDDHA

Abstract

This study, which explored the role of teacher's gender in student learning in 6 primary schools of Paro, employed a qualitative approach based on the interpretivist principles. The dominance of female teachers in primary schools particularly in urban areas compelled the researchers to carry out this study. Data were collected by employing interview and class observation as the main tools. The findings suggest that there are not only teaching differences between male and female teachers but also different effects on boys and girls when taught by male and female teachers.

Key Words: *teacher gender, performance, impact, preference*

Introduction

Bhutan has seen change in the proportion of teacher's gender in Primary Education since it began its modern education system in the 1960s. In the 1960s and 1970s, the primary schools were filled with male expatriate teachers from India and the Bhutanese national teachers were mostly male too. Female teachers were rare. Then in the late 1960s and 1970s, with two teacher training colleges established, the number of Bhutanese national teachers increased, but male teachers still outnumbered the female teachers. As education picked up in the next decade, the number of female teachers also increased and a new trend developed: more male teachers taught the higher classes while more female teachers were drawn to the lower classes. Consequently, most children--both girls and boys alike--were taught by female teachers, especially in urban schools, throughout their primary education. The concern is, if Pre-primary to class six are considered as foundational years for children's holistic development, and if, as Dee (2006, p. 70) states, what happens in the classroom has long term effect on the future achievement of children, then there is an urgent need to study if teacher's gender has an impact on boys' and girls' learning.

Therefore, our central research question was: *What impact does teacher's gender have on students' learning in Upper Primary?* Some specific inquiries made to obtain an in-depth understanding of the impact were: *What differences are there in the way the male or female teachers teach?; How differently do the students learn when they are taught either by a male or female teacher?; and what difference is there in the male and female learners' achievement when taught by male or female teachers?*

The purpose of this study was to understand in greater depth the effect of teacher's gender on boys' and girls' learning in upper primary in six schools in Paro Dzongkhag.

Researchers' Experience in relation to this study

The researchers feel that they should emphasize their ethical positions in the context of this study. The two researchers are male and female respectively who have both been teaching for over twenty five years. Presently, both of them work as lecturers in a teacher education college. With their experience, the researchers are of the view that knowing more about gender would help remove some stereotypes akin to gender in the classroom. As the study has been primarily driven by a long-time experience of the researchers with issues relating to gender-oriented influences on students' interaction in teaching and learning environments, the researchers have been as objective as possible about their experience from influencing the findings and interpretations of this study.

Literature Review

The dominance of female teachers in the elementary school is a growing concern in many countries. In Canada (Ontario) the male teachers below aged 30 at the Primary-Junior level represent only 14 per cent of all teachers and aged 55 and above stand at about 25 percent of teachers at the Primary-Junior level (Giguere, 1999), and the gender gap is widening further with less male inflow and the senior male teachers retiring every year. In America, the Bureau of Labor and Statistics 2011 reported that only 18.8% of elementary and middle school teachers were men (Wood, 2012). The gap is more critical in the elementary, and Bhutan is witnessing the same widening gap, for instance, statistics of eleven primary schools in Paro indicate only 34% of teachers as men (Staff & student Statistics, 2013).

According to Coulter and McNay (1993, p. 2), in Canada and the United States, there were urgent calls for 'male teachers' in the elementary school. They believed that male teachers 'serve as role models for boys and father substitutes for children from female-headed families.' Wilson (College Registrar) argued that something needed to be done to correct this imbalance because 'some children may feel more comfortable or learn better with a male or female teacher' and that schools must provide them with both experiences (Giguere, 1999).

However, a recent quantitative study by Carrington, Tymms, and Merrell (2005) to test the hypothesis that male teachers produce more positive attitude amongst boys and female teachers amongst girls concluded that their research found little support to make such claims. Further, another study carried out in Finland by Lahelma (2000) found that gender did not appear to be relevant when young people talked about teachers. This indicates that earlier claims of role modelship drives for recruitment of or deployment of teachers along gender lines is not based on adequate evidence. Even earlier study by Gold and Reis (as cited in Coulter and McNay, 1993, p.3) concluded that there wasn't any research based on theoretical constructs to support the claims for male elementary teacher as 'same sex role model.'

Meanwhile, recent research studies show that there are differences in the general characteristics between the male and female teachers, which may impact the students' overall achievement. Alghazo (2005) studied teachers' perceptions and found significant differences in the amount of time that the male spent on planning and how they rated the effectiveness of their instructional management. Driessen (2007) noted that in year 6 the male teachers in Netherlands tested their students more often than the female teachers did and the male teachers emphasized cognitive objectives more in the classroom. Chudgar and Sankar's (2008) evidence of male teachers in five Indian states being focused on maintaining classroom

authority by enforcing strict discipline, and Green, Shriberg and Farber's (2008) finding that females perceived behaviour challenges to be more severe than did their male colleagues are evidences to show that differences exist. Wood (2012) in the study of the teacher perceptions of gender-based differences among elementary school teachers in the US found that majority of the participants perceived female teachers as more nurturing and male teachers as more laidback, and also that male teachers as more dominating and commanding with students. If there are differences in the general characteristics of male and female teachers, it may be assumed that students' learning in the classroom is impacted in some way.

Dee (2006, p. 71) confirmed this assumption with his claim that a "teacher's gender has large effects on the test performance, teacher perceptions of students, and students' engagement with academic materials." His study showed that boys performed better when taught by male teachers and girls performed better when taught by female teachers. Some other studies also showed that the children emulated the behaviours that they think are stereotypical or gender appropriate, especially the girls, for example, Beilock, Gunderson, Ramirez and Levine (2010) found that the female teachers' math anxiety affected the female students' math achievement. The math achievement of students who were taught by female teachers with math anxiety were measured at the beginning and end of the year and compared. Findings showed that girls' performance dipped while the boys' had remained the same.

Even though research points out that teacher's gender has an impact on the students' learning, so far research has been focused on teachers (Alghazo, 2005; Driessen, 2007; Chudgar & sankar, 2008; Wood, 2012) or on pre-service or practising teachers (Green, Shriber & Farbers, 2008) except Dee's (2006) research that investigated a survey and a test score of students that was collected in 1988. While the methods used by Alghazo (2005), Driessen (2007), Chudgar and sankar (2008) and Green, Shriber and Farbers (2008) were quantitative, Wood (2012) used a survey that included open-ended questions and Dee (2006) used the data from another study. Therefore, there is a need for a qualitative study to investigate the impact of teacher gender that involves students, teachers and parents.

As Dee (2006) stated that the students' experience in schools and classrooms may have a long-term impact on the students' future achievement, it was felt urgent to study the issue in the Bhutanese primary school.

Research Design

This study was carried out using an interpretive qualitative study which helps us understand and explain the meaning of social phenomena with little disruption of the natural setting (Merriam, 1998). It is a form of research "that explores phenomena in their natural settings and uses multi-methods to interpret, understand, and explain and ..." (Anderson & Arsenault, 1998, p. 119).

The sample for this study comprised of 12 teachers, 12 students and 12 parents purposefully sampled from 6 primary schools of Paro *Dzongkhag*, representing rural, urban or semi-urban areas. These schools were selected based on the criteria that schools: 1) had upper primary classes; 2) had male and female teachers in the upper primary; and 3) had a balance of boys and girls in the class.

The data were collected through semi-structured and unstructured interviews and class observations. The observations of classroom teaching were carried out in a more natural, open-ended way using an unstructured format (Punch, 2005). Classroom observations were carried out in the same

class where the male teacher and the female teacher both taught. For example, the researcher observed when the female teacher taught for a 40-minute period, after which the researcher continued to sit in the same class to observe the male teacher teach for the next 40 minutes. This was the pattern of observations followed in all the 6 schools that were observed. This helped the researchers to observe the same students and note if there were any differences in the way they responded in the male teacher's class and female teacher's class. As part of the observation process the following series of steps recommended by Creswell (2007) were used: selecting the site; identifying who or what to observe and deciding on time; deciding on the roles; designing an observational protocol; recording key information and one's own reaction; being passive and friendly during observation; and withdrawing after observation.

The data were analyzed by using the following generic data analysis procedure (Creswell, 2003): organize and prepare the data for analysis; read through to get a sense of the information; analyze using a coding process; use the coding process to generate a description of the setting as well as categories or themes; decide how the description and themes will be represented; and, make an interpretation of the data (p.191-195). The findings were verified by taking them to select informants for feedback and the comments were incorporated in the final write up.

Reliability & Validity

In order to enhance reliability, detailed field notes were obtained from the field. Interviews were recorded in a good quality tape and transcribed with care to include the trivial, but often crucial, pauses and ... (Creswell, 2007).

For validity, data were triangulated by using different sources such as teachers, students and parents and methods such as interview and class observations. Further, writing detailed and thick descriptions and member checking were also carried out.

Ethical consideration

This research had commenced after the Research Ethics Committee's approval, and all the field visits were carried out as per the permission from relevant authorities. The interviews and the class observations were conducted only after the concerned participants' consent, and their identities and research sites protected. The data are securely preserved with the researchers.

Findings and Discussions

The themes that emerged from the study are discussed under separate sub-headings.

Teaching differences between Male and Female Teachers

The participants, teachers, parents and students, were asked if there were any differences between male and teachers in their teaching. Most of them reported that there were differences in terms of classroom management, patience in teaching, use of teaching aids, and care of children, while a few remained neutral.

In terms of classroom management, both male and female teachers stated that male teachers were more effective in classroom management because the children were more scared of them. The boys, who are by nature more restless and playful, become more disciplined and task oriented in a male teacher's class. Reflecting this view, one female teacher (T R1) said, "The male [teacher] can easily gain students' attention, while the female [teacher] has to tell them many times. Perhaps it is because of the male gender's solid physique." This view connotes gender differences that can be influential in learning. In addition, a male teacher also expressed his view that he had no problem gaining students' attention, "Both boys and girls are attentive in my class." When students were asked the same question , students SR5, SR6, SR11, and SR12 said that there were teaching differences between male and female teachers, whom they refer to as 'sirs' and 'madams' respectively. Student SR1 confirmed the notion, "we are scared of sirs because they speak very loudly." Another male student SR5 added another reason why they were scared, "Sirs are more strict with boys; they beat us." The flip side of the male effect, which is 'children getting scared' for whatever reason,' is that it might limit learning. A male parent shares about his daughter's experience; his daughter told him that she gets so scared of 'Sirs' that she even forgets her answers when called upon to answer (PR1). A female parent (PR4) shared her view that her calm, soft-natured son became aggressive after being taught by a male teacher who often beat them.

The second difference was that more female teachers taught with interest, patience and care. Female teacher TR5 said the following:

> Gents teachers, now, gent teachers, they don't go much in detail like us. and when they teach also they don't care much about who all fully understood or who didn't understand fully. And in case of love and care also, gent teachers, they can't give much love and care. And they don't know much about particular child. They just teach whatever they have to teach and then they leave the class. Whereas in our case we try to find out what problem they have. We always try to listen to their problems. The gents teachers, most of the time they are, will be with their own tasks. And they just give time for teaching. They are not as caring as us. Even if they care they cannot see and reach out to the needs of every child.

Female student SR6 also thought the male teachers were not as interested to teach as the female teachers were: "sirs make us study for a short time and they tell us to study on our own. Sometimes they play with their mobiles. Madams do not do that…" Another factor that impacts the quality of students' learning is the teacher's preparation, such as, use of teaching aids. It not only indicates the teacher's level of thoroughness but also patience in teaching. According to a male teacher TR3, who served as a resource teacher for cluster schools, said there were differences. He noticed the following during his routine class observations:

> In the preparation also, sometimes, especially in the lower classes, that was in the lower classes, Pre Primary. So what we need is to do is, a lot of preparation is required for the younger kids, so that was difference, the difference was there. Male teacher they left some preparations, they just come up with a few teaching aids and all that but whereas lady teachers, female teachers most of them they are ready with almost all of the teaching aids in the classroom. And also the way they care for the class. Especially in the small classes. So female teachers they have concern whereas males, whether they fight, whether they do their activity in the class or not, they just bother sometime only. They are not just concerned like a lady, female.

Most students' responses reiterate the same notion. For example, a male student SR2 said, "Madams explains again and again. Sirs don't explain clearly, I don't understand." Students also express fear for male teachers. Students SR3, SR4, SR5, SR6, SR7, SR 9 and SR12 said that they were scared of 'sirs' because they beat them. They like 'madams' because they teach without beating. When asked whether 'madams' beat them at all, one student (SR 6) said, "Yes, only sometimes, madam beat, but beat slowly." Student SR4 stated that 'sirs' beat the boys more: "Sometimes when we don't listen at all, they beat. Boys are naughty so sirs beat the boys more." What student SR6 said also shows the male teacher's lack of patience in teaching: "If we go to ask for clarification, he would ask us why we weren't listening while he was teaching. We don't feel comfortable."

On the other hand, there were participants who remained neutral. For instance, teachers TR 6, TR7 and TR 8 said that all teachers taught the same using similar strategies. Teacher TR 6 also expressed his opinion that the teaching effectiveness depends on the individual character and potential as a teacher. He thought that as long as the teacher, whether male or female, was strict and used good teaching strategies, the children learned their lessons well. Similarly, female parent PR6 said that her children learned better from male teachers as they were scared of them, and this helped them take their work seriously. Parent PR8 resonated the students' view and said, "Students perform well when teachers are strict …irrespective of whether it is male or female teacher." This brings to light that 'being strict' is a criterion' used to judge how effective the teacher is. And being strict can mean, 'beating'. A teacher who beats is considered a strict teacher.

Effect of Male and Female Teachers on Boys and Girls

The teacher's gender has different effect on the boys and girls. A sudden change of atmosphere is noticed within the same class with the change of gender. The most noticeable in the class observations was that the male teachers were able to gain students' attention instantly and effortlessly. Perhaps their masculine physique and voice have a special effect on them. Interviews with the teachers triangulate this finding. Female teacher T8 said, "Unlike the female who are soft and tiny, the male teachers are physically solid so they can gain the learners' attention immediately." Female teacher (TR 7) thinks the male teachers' voice is powerful, too, in managing the class. The female teachers find it difficult to control the boys. Female teacher TR1 states, "Boys don't listen, so we end up using sticks on them. Telling them once is not enough." Another female teacher (TR 8) shares more, "Yes. The learners are happy because we are female, and slowly they know they can take advantage." Female teacher (TR 3) shared that the female teacher's soft voice became a disadvantage in teaching. She said:

> The female teachers have a soft voice, so it becomes difficult to convey the lesson. They raise their voice, shout, to make up. The voice then gets irritating. The teacher also becomes irritated and shouts a lot. This affects the teaching learning. (TR 3)

Both boys and girls were more alert and attentive in the male teachers' class as compared to the female teachers'. In the observations, the boys were found sitting with their back straight and they looked more orderly and disciplined in the male teachers' class whereas they looked relaxed and disorderly in the female teachers' (observation 1, 2, 3,4, 5, 6, 7, 8).

Another effect of teacher's gender is that the boys are more task oriented and disciplined in a male teacher's class, whereas, girls are relaxed. In an observation of a male teacher's class, the students were making presentations in homogenous gender groups. While presenting in front of the class, the boys stood straight in a professional manner whereas the girls swung their body from left to right. The rest of the groups showed the same pattern (observation 8). Interestingly, in a female teacher's class it reversed; the girls were found to observe proper etiquette whereas the boys seemed more disorderly and playful (Observation 3). Female teacher TR 6 said, "Girls are scared so they are more attentive in class [whereas] the boys are hyper active so they are always trying to talk and play." Another female teacher TR1 said, "The boys are scared of Sirs [male teacher] and girls are scared of the female teachers." So this could be because of the same-sex effect.

Academic Performance

When asked about students' academic performance, teachers said that generally girls perform better academically in the lower classes but boys take over in the higher classes. Teacher TR 6 said, ".in lower classes, may be in the primary level, girls do better than boys but when it comes to higher classes boys do better." TR 9, TR 3, TR 5, and TR4 agree with TR 6 that girls do better in the primary education. Upon asking why they thought the girls performed better in the lower classes, teachers said that it was because of their gender characteristics. For example, teacher TR 6 said, "Girls are scared so they are more attentive in class [whereas] the boys are hyper active so they are always trying to talk and play." Teacher TR4, TR5, TR6 girls are more task-oriented and sincere in their work. This is what female teacher TR5 said about the boys, "Girls listen to their teacher, but the boys they listen in the front but the minute teacher leaves them they forget." Female teacher TR 1 finds it difficult to teach the boys: "Boys don't listen, so we end up using sticks on them. Telling them once is not enough." The participant added that it could be because of the same-sex effect; the lower classes were mostly taught by female teachers. She said, "The boys are scared of Sirs and girls are scared of madams."

Responding to the question on why the girls perform poorly in the higher classes (high school and beyond), one female teacher (TR 3) explained as thus:

> May be as girls grow up grow up they become more shy and even if they have questions they remain silent. For example, in the higher classes when if some subjects like Biology, all those different body changes and all, a girl cannot ask as freely as a boy can do.

Another female teacher (TR5) reported that boys do better because they are more exploratory by nature, and these signs are evident when they are little. She stated:

> "They [boys] explore more, for example: Girls always stick on one thing, they don't try to explore much. For example, if there is a toy, boys try to open the toy, repair it and so on, where as girls, since they are girls they always take care of it, they don't try to explore it. So, I think girls' exploration skill is less.

Teachers TR2, TR5, and TR9 said that the boys are more intelligent than girls, but they do not do well in the lower classes since they are careless and more playful. However, they pick up as they get older.

Teacher Preference

The students were asked whether they liked to be taught by a male or female teacher if given a choice and to give their reasons, and the parents were also asked if they liked female or male teacher for their children. Most students (SR1, SR3, SR 4, SR 5, SR 6, SR 9, SR 10, SR 11, SR 12) and parents (PR3, PR4, PR5, PR7, PR12) preferred female teachers to male for three reasons.

Students preferred female teachers for their patience in teaching: explaining it over again when students did not understand. Female student (SR 6) said, "Female teachers explain everything well, in detail; but male teachers make us study only for a short time and they tell us to study on our own and they engage in other things, like sometimes they play with their mobiles."

Another reason was that students found the female teachers were less threatening. Most children grow up fearing the male gender because they are traditionally known to be disciplinarians. Parent PR 3 shares about her past, "When I was in the school, whenever male teacher was there I always had that idea that male.... sirs will beat and madams will not beat. So whenever there was a lady teacher I used to feel little bit free." Another male parent PR1 also said that his children always said, "Sirs will beat, madams will not beat." Student SR1 said, "we are scared of male teachers because they speak very loudly," and he fears that he will beat them." Male student SR5 said that male teachers were stricter with them and they beat them.

The third reason was that female teachers provided motherly care and affection to their students, and this was reflected in most of the students, teachers and parents' responses. They reasoned that the female teacher's nurturing nature makes them more suitable to teach in the primary classes (PR3, PR4, PR5, PR7, PR 12). Male parent PR3 stated, "They [female teachers] have motherly love. When it comes to parental care, male cannot perform as well as the female. Besides, men are a bit careless."Another male parent (PR 12) resonated the opinion, "When teachers have patience as well as affection toward children, children learn better." Student SR 3 said, "Madams are more kind to us." Student SR 6 added, "they [Madams] guide us with love and care. They would tell us to keep quiet and that it is time to study. They also give us advice how to behave while teaching and learning. They tell us nicely. "

However, three parents (PR6, PR8, PR 10) preferred male teachers. Female parent PR 6 said that children studied better when they were scared of the teacher: "they are scared of sirs because they beat; and children studied better when they are scared." Parent PR 6 further stated that her sons learned better from sirs as they were scared of them. Reflecting this view, a grade six male student (SR 4) said, "When they are strict, we can concentrate on our studies." Likewise, female student SR 2 prefers a mix of female and male teachers because "when madams explain again and again, we don't progress much; and also boys need to be controlled. They play and break doors and glasses." Female student SR 3 too said even if female teachers explained everything, she felt more comfortable to ask questions to male teachers. She said, "Female teachers are strict." Male student SR 4 preferred male teachers too:"When they are strict, we can concentrate on our studies." Then added to say that male teachers were softer to girls: "Girls joke with sirs and make them laugh. Sometimes when sirs are angry, the girls joke with them." Class observations show that both boys and girls were more relaxed in female teachers' classes but noticed more order in male teachers' classes (12 observations). Four parents (PR1, PR2, PR9, PR11) had no particular preference, for either male or female teacher.

Discussion

In this study some significant gender themes emerged that may have implications for the teaching learning of boys and girls in the classroom. Data indicate that there are general differences between the male and female teacher's way of teaching. These differences lead to different effects on the boys and girls in the classroom. This is in line with the studies conducted by Alghazo (2005) and Driessen (2007) in which the differences in the general characteristics of male and female teachers were found to impact students' learning.

While the female teachers were found to be more organized and interested in teaching as compared to the male counterparts, male teachers were found to be more effective in class control. Female teachers went into more detail and did not mind repeating over again, where as male teachers did not have the patience to do so.

The effect of the 'male aura' was significant. Male teachers were able to gain and keep the students' attention effortlessly. This resonates Wood's (2012) study which says that male teachers are dominating and commanding with students. If this male trait is used positively, teaching learning could be more effective. The boys become more disciplined and focused on their work in a male teacher's class. Observations have confirmed that boys and girls respond differently in a male teacher's class and differently in a female teacher's class.

On the academic performance, it is inferred that generally the girls performed better in the primary classes and the boys performed better in the higher classes. The data also show that there is a difference in the characteristics of male and female students: the girls are careful and task oriented whereas the boys are playful, careless and naughty. Further, the other difference is that boys behave well in the presence of a male teacher, and that the girls are better behaved in a female teacher's class. Perhaps girls do well in the lower classes not only because they are more task oriented but also because they are mostly taught by female teachers. Therefore, it is possible that there is the same-sex effect on students. This is in consistence with Dee's (2006) study finding which says "students are more engaged, behave more appropriately and perform at a higher level when taught by one who shares their gender."

Female teachers were preferred for primary children by both students and parents because they were more nurturing, patient and organized in their teaching. The male teachers were found to be strict and less patient with children, in addition to preparing less teaching aids.

Implication of the study

The topic explored in this study has not been investigated previously. So, it adds richly to knowledge generation in this area. The area investigated is relevant and will contribute to the development of literature in this field in Bhutan. Since many areas of concern have been raised through this small-scale research, there will be many researchers interested to conduct large scale research in these areas which in turn will positively impact the quality of education in Bhutan.

Not only will this study help policy makers to be more prudent in making informed decisions in the recruitment and deployment of teachers according to the need rather than doing it blindly, but will also make the teacher educators in the education colleges aware of gender effect on students' learning. In addition, the teacher trainees, particularly the male trainees, will be aware of the reasons for female

teacher preference in schools. This would provoke them to make more efforts and improve their style of teaching in future.

Finally, the study will make the teachers both male and female more cautious of the way they treat their boys and girls in the class. They will also be more sensitive to the learning needs of the boys and girls by understanding their differences.

Recommendation

In light of the study, two major recommendations are made:

Large-scale research studies related to teacher's gender and its implications on students' learning is highly recommended in order to inform policy and practices in education. Such research work will add to the body of knowledge pertaining to gender and teaching which at the moment is desperately scarce.

The concerned agencies and authorities should conduct professional development programmes on 'Gender sensitivity and teaching' wherein teachers' gender issues can be discussed and be sensitized. The programme would help teachers be more gender sensitive and cater to the needs of the students, male and female for better learning.

Conclusion

This study explored the role of teacher's gender on boys' and girls' learning in Paro schools. It was found that there were differences in the way male and female teachers taught their students and also that teacher's gender had different effects on boys and girls in the classroom. While the findings suggest that the issue of teacher's gender is more serious than it appears, thus, requires more investigation, it still points to the policy makers, teachers, principals and teacher training institutes for action. Both male and female teacher trainees and in-service teachers need to be aware of their gender impacts on the boys and girls in the classroom. If quality of education is a concern, the impact of teacher's gender on boys' and girls' learning is surely a concern for all stakeholders, policymakers, teachers and parents too,

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Using a cultural-historical approach to promote Gross National Happiness (GNH) in Bhutan: prospects for research and practice

NICK HOPWOOD, KEZANG SHERAB, BIJAY KUMAR RAI AND KINZANG LHENDUP

Abstract
This paper discusses how cultural-historical theory can be used to promote GNH in Bhutan. Cultural-historical approaches stem from the work of Lev Vygotsky into early childhood development. Although GNH and cultural-historical theory have different historical origins, there are valuable points of intersection that point to useful areas of research and highlight relevant issues in development practice. Key to this are Vygotskian ideas that learning and development arise through dialectic interactions between individuals and society, people and practice. The framework of GNH can be understood as a cultural tool that enables people to work on problems and issues that are important to Bhutan. From a Vygotskian point of view, when GNH mediates people's activity, it also has an effect back on those *people, thus addressing the individual and collective dimensions simultaneously*.

Introduction

This paper contributes to a scholarly conversation about how theories and ideas developed outside Bhutan can contribute to understanding GNH and its promotion. While some have focused on wider culture and media (e.g. McDonald, 2004), a key feature of this conversation concerns formal education, including work contrasting traditional monastic and modern education (Phuntsho, 2000), critical pedagogy (Young, 2012), teacher education and environmental sustainability (Rinchen, 2007), potential of teacher's assistants (Greenwood & Simpson, 2010), and transformative education of Paulo Freire (Bedford, 2011). Others consider research processes such as Fuzzy Cognitive Mapping (Devados, Antony & Dorji, 2009) documentary methods (Thinley, 2009), social psychology (Ward Schofield, 2012), or the importance of the nexus between research and teaching (Sherab & Dorji, 2015). This paper extends these conversations by examining the value of cultural-historical theory, a branch of psychology that has been used in education, organisational studies, and anthropology. In addition to helping understand formal education and schooling, this approach has implications for learning and development in families, communities, and other institutions.

Cultural-historical theory originates in the work of Lev Vygotsky, a Soviet psychologist who lived from 1896 to 1934. His focus was on how children develop higher psychological functions. Vygotskian ideas have been taken up in research about learning and development in adults, communities, organisations, and other systems, particularly since English translations of his work were published in the 1970s to 1990s (Vygotksy 1978, 1986, 1987, 1997a,b, 1998). Contemporary forms of this legacy include cultural-historical activity theory (CHAT), focusing on systemic change (e.g. Engeström, 1987, 2011), and cultural-historical theory, looking more at social interactions in activities and practices (eg. Edwards, 2016a,b). The latter is the focus for this paper.

Vygotskian theory was developed within a societal framework governed by Marxist thinking. This is, of course, radically different from the Bhutanese approach to governance and development enshrined in the idea of Gross National Happiness (GNH). However, there is much of relevance and

value to those concerned with increasing GNH that can be learned by engaging with contemporary cultural-historical thinking. We will demonstrate this by explaining key concepts and working through examples that show their connection with GNH: (i) the relationship between the individual and social, concepts of the zone of proximal development and social situation of development; (ii) mediation, and how the framework of GNH can function as a powerful cultural tool; and (iii) relationships between person, practice and agency. We conclude by stating a number of principles that arise out of bringing cultural-historical theory into dialogue with the framework of GNH, reflecting on practical implications, and outlining a research agenda.

Gross National Happiness or GNH is a distinctive feature of Bhutan's approach to development, recognised around the world as an alternative to Gross National Product (GNP) or Gross Domestic Product (GDP). While the latter focus on economic development, GNH seeks a balance between spiritual and material aspects, sensitive to Bhutan's Buddhist values as well as the need to improve people's welfare. This different and noble approach was first introduced by His Majesty the Fourth King Jigme Singye Wangchuck in 1972. GNH is articulated through a framework that identifies four pillars and nine domains. The pillars are: sustainable development, preservation and promotion of cultural values, conservation of the natural environment, and establishment of good governance. The domains are: psychological wellbeing, standard of living, good governance, health, education, community vitality, cultural diversity and resilience, balance in use of time, and ecological diversity and resilience. "GNH is a harmonious blend of economic and material prosperity with spiritual and emotional contentment and fulfillment" (CAPSD, 2005, p.55). GNH recognizes the importance of economic growth, but considers this as one of many features required to achieve holistic development. GNH charts a path where the material and spiritual are in balance, tapping into the pursuit of happiness as a strong, shared force. Since the 1970s GNH has remained important, most recently being at the heart of the tenth and eleventh Five Year Plans (GNHC, 2009, 2013). GNH has also gained significant international attention: for example, a 2011 United Nations Resolution (65/309) that confirmed the place of happiness on the global development agenda.

Relationship between individual and social

Vygotsky understood learning and development as occurring through dialectic interaction between an individual and his or her social environment (Vygotksy, 1978, 1997; Stetsenko & Arievitch 2004; Stetsenko, 2005; Edwards 2016a). Here, 'dialectic' means that the relationship is not one-way or linear, as if the social environment wholly determines an individual's trajectory. Nor does it simply mean that there are influences in both directions. Rather the process of learning and development itself arises out of constantly changing relations between individual and society. Edwards (2016a) explains that people usually enter practices that have already been configured by others, but they also contribute to those practices: people are shaped by practices, but also shape them. GNH is about happiness at both individual and broader social levels, viewing the two as mutually supportive: individual happiness through collective happiness, and collective happiness through social happiness. If we look analytically at either one, we are drawn inevitably to the other. This is evident in the four pillars and nine domains:

they clearly point to both individual and social dimensions, and relationships between them. Avoiding separate treatment of the individual and social is a hallmark of contemporary cultural-historical theory, but is not unique to the Vygotskian tradition. For example, Bandura's social cognitive theory (SCT) holds that "people do not live their lives in isolation; they work together to produce the results they desire" (Bandura, 1997, p. 7). Here, we explain how Vygotsky and his theoretical legacy offer distinctive insights into this broader area of shared interest, highlighting connections with SCT where they are most relevant.

Let us consider a child in school learning to read, who comes across a word they haven't seen before. From a cultural-historical perspective we are less interested in what this tells us about the child's existing vocabulary or reading ability (that is looking to yesterday). Instead we consider how the child might develop his or her reading from this point. We achieve this by examining what the child becomes able to do when working with the teacher, peers, and resources available in the classroom. This brings us to one of Vygotsky's key concepts: the *zone of proximal development* (zpd; Vygotksy 1978, 1997). The zpd refers to the gap between what persons can achieve by themselves (their actual level of development), and what they can achieve through problem solving in collaboration with others who can bring different expertise or experience to bear. This idea will be familiar to many teachers and educators as a way to understand how to determine an appropriate level for what is to be learned – just above what children can do by themselves.

However, often overlooked is the crucial point that in order to enter their zpd, people must engage in problem solving activity in which they use resources and / or work with others. What really matters is the *social situation of development* (Hedegaard 2012; Vygotsky 1998). This is not just a property of the teacher, classroom resources, or peers, but is potential, created by the learner by recognising demands and responding to them (Edwards, 2016a). Going back to the example of the child struggling to read an unfamiliar word, even with the best teacher, supportive peers, and relevant reading resources, a social situation of the development only arises if the child actively engages with the problem of figuring out this new word, with other people or tools. The child might ask the teacher or a peer for help, or look at a sheet that reminds her that 'c' can be both soft and hard when pronounced in English.

In terms of SCT, Bandura (1997) argues that human adaptation and change are rooted in social systems. Such a view mirrors both Vygotsky's view that we must look to the social if we are to understand how human lives develop. This connects particularly with the GNH domain 'community vitality'. A cultural-historical understanding adds something particular and distinctive: it emphasises how the properties or qualities of a social system do not alone determine individual or wider social development. Qualities such as community vitality, or pedagogic resources in a classroom, become 'active' only when people engage with them, establishing relations between the individual and social that constitute a social situation of development.

Thus, when we think in cultural-historical terms about how we might enable learning and development to promote GNH, we have to think about the social situations of development that arise through activities people engage with problems that matter to them, to their communities, and to Bhutan. Promoting GNH becomes a question of providing people with opportunities to create social situations of development and engage in activities that bring them into their zpd. But how does engaging in this kind of activity have a longer-term benefit for individuals and society?

As a person enters their zpd, learning takes place through changing the way they interpret features of the world and act in the world. Individual development is the result of such learning, and involves changing the relationship between a person and elements of particular practices (Dreier, 2006). Those practices could be literacy practices such as reading and writing, practices of studying science, religious practices, sporting practices, practices of supporting others in one's community, and so on. These newly developed relationships between people and practices contribute to broader national development and increasing GNH.

Mediation: GNH as a cultural tool

The idea of GNH is a unique achievement of Bhutan. It is a specific form of policy and an approach to national governance. It has associated measurement tools such as the GNH index, and indicators that have been used to track developmental progress over time. GNH is also a shared vision for the future, an articulation of both the direction and the journey that Bhutanese people, communities and institutions share. From a cultural-historical perspective, the very idea of GNH can be understood and further developed as a *cultural tool* that *mediates* how people engage in specific activities. These activities form part of practices, which in turn are shaped by and contribute to institutions such as schools, families, or communities. These practices are shaped by GNH and contribute to it.

What does it mean to suggest that the values and principles of GNH can be understood as cultural tools that mediate activity? First, let us address the cultural aspect. In Vygotskian terms, GNH is understood as embedded in a particular historical and social context. Its meaning is closely tied to that context. As Bhutanese people engage in activities, such as learning or solving problems in a local community, ideas associated with GNH are available to them as part of the culture in which those activities are embedded, and through which those activities arise.

The word 'tool' has specific meaning in cultural-historical theory. In an everyday sense, a tool is something that helps someone do something. That applies in cultural-historical theory, too, but in a particular way (Vygotksy, 1978; see, Hopwood 2015 for an example). Tools can be physical things (like a plough that helps someone till soil in a field or pencil used by a child to write). They can also be more abstract, taking the form of concepts or ideas. Vygotsky regarded language as a significant cultural tool. The individual-social dialectic is important here. When someone uses a tool to work on a problem, they are benefitting from what others have done before – inventing ploughs, developing language, and creating concepts. Their activity is always already social, reflecting a particular culture and its history. At the core of this is an idea that cognition is not a question of what sits in people's heads, but is spread out across practices, embedded in routines and artefacts associated with them (Lave, 1988). Cultural tools, such as language and ideas about development, are forms of knowledge deposited in resources that are available to us when we engage in practices (Lave, 1988; see also Edwards, forthcoming).

In developing GNH as an explicit framework with four pillars, His Majesty the Fourth King Jigme Singye Wangchuck gifted to the people of Bhutan a significant cultural tool. His Majesty the King Jigme Khesar Namgyel Wanghuck, and many in the Bhutanese Government (including Prime Minister Lyonchen Jigme Yoezer Thinley, Dasho Karma Ura and Dr Samdrup Chhetri) have taken these ideas forward in implementation through nine domains. They and others have continued to make GNH

accessible and active as a cultural tool that people of Bhutan can use in their everyday lives. But what does it mean for someone to 'use' the framework of GNH as a cultural tool?

The answer to this question requires us to understand the cultural-historical concept of *mediation* (Wertsch, 2007). When activity is mediated by a tool, the relationship between a person working on a problem (the subject) and the problem they are working on (the object) changes. Let us take a historical example first, based on a physical tool. A farmer wishes to till soil in a field in order to prepare it for planting rice. Existing hand-held tools are very labour intensive and limit the amount of land the farmer can prepare, and the kind of land that he or she is able to farm. However, a plough drawn by a yak or cow could act as a new mediating tool in this situation. The farmer's focus of attention changes to be directed at acquiring and using a plough, rather than tilling soil itself. So the farmer's relationship to tilling soil has changed from a focus on the problem, to a focus on the nature of the solution. The farmer did not invent the plough, but rather it was available to him or her as a cultural tool, developed through particular histories of farming practices.

The same can apply to the values and principles of GNH as a cultural tool. Consider a group of school teachers trying to improve children's literacy. They might focus on illiteracy, and a range of problems, perhaps students not attending school, lack of support from parents, challenges related to the implementation of effective teaching practices, and so on. They are focused on the problem. However, if they use GNH as a cultural tool to help them, the relationship between those teachers and the problem of literacy outcomes changes. Instead of focusing on literacy problems, the pillars and domains of GNH become foregrounded in their attention. Now when they work together, they explore a range of factors that might help address the problem, and ensure that their solution does not create other problems. The 'community vitality' domain might lead them to talk with parents about why schooling is important, and to understand why sometimes parents keep their children out of school. Through cultural diversity and resilience, they would consider the knowledge and wisdom available to them as a group. Following Lave's (1988) ideas, this would not simply be the sum of what is in people's heads, but rather knowledge and wisdom embedded in school practices, parenting practices, other aspects of community life, and the artefacts available to them. They would also bear in mind psychological welfare and balanced use of time, being careful to ensure children with difficulty reading and writing aren't stigmatised, but also protecting teaching staff from being overburdened and unable to contribute to their families and communities in other ways. When it mediates how people work together on problems, GNH can change people's focus from the nature of the problem to the nature of the solution. GNH provides both a vision of Bhutan's development, and a 'map' that outlines the way to get there.

A second key feature of mediation is reverse action. Vygotsky argued that when someone engages in activity mediated by cultural tools, it doesn't just change their relationship to that particular problem, it changes the *person*, too (Vygotksy, 1978, 1997). A social situation of development may be created for the teachers striving to improve children's literacy. Using GNH as a cultural tool will act back on them, helping them interpret relationships between schooling and their community differently, leading to new actions in the ways they relate to parents. In activity mediated by cultural tools, there are two benefits: work becomes more solution-focused rather than problem-focused, and those engaging in problem solving are changed through the process.

This provides the basis for understanding how GNH can inform what people do, and at the same time be expressed in Bhutanese people's actions. Vygotsky (1978, 1986, 1998) explained learning in terms of internalisation and externalisation (see also Edwards, 2016a). Again this relates to the individual-social dialectics explained above. GNH constitutes a publicly validated set of meanings in Bhutan, a set of principles that are available to individuals through wider Bhutanese culture, history and society. The group of teachers working to improve literacy first *internalise* relevant aspects of GNH. His Majesty offered a complementary view in his Convocation Address on 25th February 2015, stating "You cannot give what you do not have". These teachers would take in particular ideas and use them as tools to help realise their intentions. As they then take actions towards those intentions, GNH is *externalised*. This is GNH in living form, expressed through actions that address a particular problem, which in turn has a bearing on accomplishing GNH.

Sherab (2014) has shown the importance of role modelling in promoting GNH values and principles, focusing in particular on school teachers. This significance can be understood in terms of externalisation and internalisation. In their actions, teachers externalise particular cultural values and understandings, thereby making them available to students. Students can then internalise what has been modelled by their teachers, and over time, these values and principles may come to shape – and be externalised through - their own actions.

This connects back to the key idea that learning arises out of the dialectic relationship between people and society *when they are engaged in particular kinds of activities*. When GNH is used as a cultural tool, it can both shift people to a solution orientation, and promote reverse action, helping people learn and develop. This brings us to the third key idea, which concerns the relationship between person, practice and agency. Agency brings into focus questions of intentional action. These questions provoke distinctive responses when approached from a cultural-historical perspective.

Relationship between person, practice and agency

This section ties together ideas from the previous two, explaining the relationship between mediated activity, personal and national development. As explained above, individual development involves changing the relationship between a person and elements of particular practices (Dreier, 2006). It is a result of learning that arises when people create a social situation of development, entering their zpd by engaging in activity mediated by cultural tools, with the support of others. The dialectic approach suggests that our minds and actions are shaped by practices, but that we also shape practices through our actions. The concepts of internalisation and externalisation explain how this occurs. Considering this issue further reveals additional insights into the potential value of cultural-historical theory in understanding and promoting GNH.

Rather than seeing GNH simply as a policy that directs what people do, GNH values and principles can be understood as shaping and shaped by people and what they do. This aligns with GNH as something that reflects Bhutanese cultural values and belongs to all people in Bhutan, something that Bhutanese citizens benefit from and contribute to, and something where responsibility is shared between people, society and government. While we can consider the idea of GNH, including the four pillars and nine domains, as a cultural tool gifted to the Bhutanese people and developed by them, the use of this tool

effectively in mediated processes that facilitate development is not automatic. We must therefore consider questions of *agency*. In SCT, Bandura (1997) conceives of agency in terms of acts done intentionally, arguing that agency operates through networks of sociocultural influences, wherein people are both producers and products of social systems. This resonates with the dialectic approach in Vygotskian work. However, recent cultural-historical developments add valuable and distinctive conceptualisations of agency and help us link it explicitly to learning and development. Edwards (2016a) tells us that in the exercise of agency, practices are responsive and emergent rather than static, because fresh demands are recognised, new knowledge is brought into play, and values and motives are reconfigured.

Consider again the farmer in history who sees a plough as a solution to the problem of tilling soil. While the plough is available to him or her as a cultural tool, using it to solve the problem requires further work. The farmer needs to learn how to make or acquire a plough, how to use it, how to care for and train animals that pull it, and so no. He or she might also need to change the arrangement of fields to make ploughing possible. All these might involve the farmer seeking support from other people within the community or from other communities. In order for the plough to become viable as a solution, the farmer has to recognise the demands that arise in ploughing practices, and then respond to those demands. This recognition and response involves agency in purposeful activity. If the farmer is successful, then both individual and broader development might take place. Individual development has occurred when the farmer's relationship to tilling and other farming practices has changed. Perhaps the plough means the farmer can till more fields in less time, or at different times of the year; or perhaps the farmer joins with others in shared making, maintaining and use of the plough, so that farming practices take on a new collective quality. These might enable new land to be cultivated, enhance the security of crop yields, or enable diversification of crops – i.e. development beyond the individual farmer.

Recent developments in cultural-historical theory suggest that instead of focusing primarily on learners' needs, we should instead focus on the demands that they meet (Hedegaard, 2012; Hedegaard & Fleer, 2008). Edwards (forthcoming) links this to Lave's (1988) work on 'gap-closing'. Any particular situation in which people are working on a problem can be understood in terms of affordances (aspects that enable or facilitate) and demands (things that must be attended to). Closing the gap between these two is crucial. Such gap-closing processes bring people, resources and activities into particular relationships that might constitute a social situation of development in which people enter a zpd and learn. However, this is not guaranteed. What is learned depends on what is recognised as a demand (Edwards, 2016b; Hedegaard, 2012). If people work on a problem simply following paths or actions made obvious or easy by particular affordances, they may fail to meet the demands that a solution requires.

Let us explain this through the example of teachers working to improve children's literacy. They have clear needs – to improve scores on literacy tests, to teach a curriculum, and meet professional standards. Their situation also brings with it certain affordances – knowledge and skills of the teachers, facilities and resources in the school, educational resources provided by Government or accessed through the internet. However, unless the teachers recognise what the situation *demands*, these affordances may be irrelevant and the needs of teachers and children unmet. The GNH framework can potentially act as a powerful cultural tool when used by teachers to identify some of these demands; others could be identified through specialised professional knowledge relating to literacy and teaching practices. Making GNH explicit clarifies demands to address community vitality, cultural diversity and resilience, balanced

use of time, psychological wellbeing, and so on. These teachers can only bring each other into a social situation of development and learn, if such demands are recognised.

What might this learning involve? Teachers could share their expertise about literacy, or learn from other members of the community about what matters to them. As they use principles of GNH in working on the problem of literacy, through reverse action, their understanding of GNH and how to promote it also develops. This new understanding could then be externalised through subsequent teaching or community development activities, and then internalised by others involved in those activities. Expressed in theoretical terms, this learning involves increasingly informed use of mediating tools (Edwards, 2005). Such tool use underpins changes in the way people interpret the world, what demands they recognise, and the way the act in the world, the ways they respond to those demands.

If problems are to be transformed into social situations of development, mediated by powerful cultural tools, then agency is important. Agency is often conceived as something that people either have or do not have, an ability to make certain things happen. However, from a cultural-historical perspective, agency is understood differently. The focus is on individuals taking control over their actions, operating effectively in the world, and being able to influence the conditions that affect their development (Edwards 2007a,b, 2016a,b; Edwards & Apostolov 2007; Edwards & Mackenzie, 2005)). Put simply, it is the way people wilfully master their own lives (van Oers, 2015, cited in Edwards, forthcoming). Edwards draws on Charles Taylor (1985, 1991) to stress how agency and responsibility are intertwined, particularly when we consider agency in terms of striving for the common good, which is central to promoting GNH. In this view, rather than agency being something that people either have or do not have, it is seen to arise out of the dialectic relationship between people and practices. Stetsenko and Arievitch discuss socially and historically specific, culturally mediated processes in which "people not only constantly transform and create their environment; they also create and constantly transform their lives, consequently changing themselves in fundamental ways and, in the process, gaining self-knowledge" (2004, pp. 482-483). In other words, in undertaking agentic actions that contribute to a wider common good, individuals draw on culturally available resources, transforming themselves and their control over the circumstances of their development.

Conclusion

We begin our conclusion by stating a number of principles that reflect a cultural-historical approach to understanding GNH and how it might be increased.

1. That individual happiness and collective happiness cannot be promoted separately or in parallel. Rather GNH arises through dialectic relationships between individuals and society. The framework of GNH is a culturally available tool that people internalise when interpreting particular problems, and externalise through their actions in response to those problems.

2. Realising GNH is not about what Bhutanese people can already do, an aggregation of individual existing capabilities. Instead it is about what they become able to do when working together on problems and using cultural resources as mediating tools. Learning is thus central to increasing GNH. This learning is resourced by society, leads to individual development, and feeds back into wider wellbeing. Such learning is not confined to the curriculum taught in schools, but also

includes informal learning within families, among and between communities, in workplaces, health services, sporting institutions and so on.

3. That there may be opportunities for development that are missed, even when affordances and resources, including community vitality, are in place. The potential for development can best be realised when people engage with problems within a social situation of development, considering the possibilities for interpreting a problem and acting in response to it. Social situations of development cannot be created from the 'outside' but arise when people working on a problem engage in activity in a particular way.

4. Increasing GNH requires, at least in part, supporting people to develop agency that enables them to recognise and respond to the demands of practices that lead to development in one or more of the nine domains.

These principles offer useful pointers for the practical work of promoting GNH. They sit in between the general principles and domains of GNH and the specific, specialist knowledge of educators, community leaders, health professionals, and so on. We could shift our attention away from what Bhutanese people need in order to promote GNH and what their present situation offers in terms of affordances. Instead we would enable Bhutanese people to recognise and respond to demands they encounter in their lives, as individuals or communities. Vygotskian theory tells us that providing social support and relevant resources is not enough: people have to be able to transform these into social situations of development. Thus promoting GNH involves helping people develop particular kinds of agency, ensuring that people across Bhutanese society are able to participate in practices through which social situations of development arise, enabling them to enter their zpd. This requires us to appreciate the importance of learning to GNH, including outside formal educational institutions, and to recognise the many instances where learning might be both required and possible. Many challenging situations can become fruitful bases for learning, in families, communities, and workplaces, as well as in schools and colleges.

A cultural-historical approach can frame a research agenda that explores GNH in a distinctive way. This does not compete with or replace other approaches, but complements the core principles of GNH and provides a way to investigate familiar issues from a novel perspective. Research questions that arise through cultural-historical theory as applied to GNH might include:

1. How do people recognise and respond to demands in practices that promote GNH?
2. How might the GNH framework be used as a mediating cultural tool to assist with the recognition of and response to such demands?
3. What enables and hinders people to use principles and domains of GNH as cultural tools to mediate their activity in relations to problems that matter to them, to their communities, and to Bhutan?
4. What enables some people or communities to transform situations into social situations of development? What makes this difficult for others?

A cultural-historical perspective can explore how cultural practices promote GNH, and as such has potential to contribute to this cherished Bhutanese tradition. It can provide leaders, educators, and

researchers with a valuable resource to support initiatives that matter to them, and provide fresh insights into areas that have been a focus for some time.

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