ROYAL UNIVERSITY OF BHUTAN

Volume 2 Number 1 Spring 2013 ISSN 1321-4585

IN THIS ISSUE

bjrd Bhutan Journal of Research & Development

bjrd BHUTAN JOURNAL OF RESEARCH & DEVELOPMENT VOLUME 2 NUMBER 1 SPRING 2013

Institute for GNH Studies iGNHaS

ISSN 1321-4585

bjrd Bhutan Journal of Research & Development

BHUTAN JOURNAL *of* RESEARCH & DEVELOPMENT

Volume 2 Number 1 Spring 2013

BHUTAN JOURNAL OF RESEARCH & DEVELOPMENT

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Public Awareness of Environmental Policies in Bhutan

JAMYANG DOLKAR, SHERAB DORJI, TSHETRIM DORJI, KINLEY CHODEN, NIMA WANGMO, AND SAMIR S. PATEL

Abstract

Conservation of the natural environment is a national priority in Bhutan, and the government has developed several policies to help safeguard the environment, though success of the policies requires citizen participation and awareness. Numerous agencies have recognized the importance of spreading environmental awareness, but despite the dissemination of information through awareness campaigns and media, no follow up studies have been conducted to determine whether citizen awareness has indeed increased. This case study assessed the level of public awareness of key environmental policies via surveys of citizens throughout Western and Eastern Bhutan using questionnaires, as well as interviews of local leaders and key policy makers. The results indicate that self-rated public awareness of key environmental policies is moderate across sectors for the Forest and Waste Management acts, but low for the more recent Water Act. Awareness varies slightly for different acts depending on various demographic factors: location, sex, age, and educational level. Confidence in public compliance with the acts, or whether enough is being done to spread awareness, varies inversely with level of education. Preferred ways of receiving information differ by sectors. Therefore, techniques for spreading awareness can be tailored depending on the target sector, and dissemination of information through single means should be avoided. Print news media and internet show limited potential till date, while radio is more popular. The results should help inform policy makers such as the National Environment Commission and the GNH Commission, as well as non-governmental organizations on status of their efforts to promote public awareness of environmental policies.

Introduction

Environmental conservation has been a top priority in Bhutan since the start of development planning in the 1960s (reviewed in Phuntsho, 2011). Within Bhutan's guiding development philosophy of Gross National Happiness (GNH), one of the four major pillars is conservation of the environment (Ura, Alkire, Zangmo, & Wangdi, 2012). The Royal Government of Bhutan (RGoB) has developed several policies and regulations to help safeguard the environment and to equitably distribute the benefits of natural resources. The first law passed by the National Assembly was the Forest Act of 1969, which set the stage for state management and conservation of the nation's forests (Phuntsho, 2011; Royal Government of Bhutan, 2010). Since then, increasing numbers of stakeholders have participated in formulation of environmental policies and laws. Moreover, RGoB has committed to at least a dozen international environmental treaties/agreements, such as the UN Convention on Biological Diversity (National Biodiversity Centre, 2009), and the fundamental elements of these agreements have generally also been incorporated into Bhutanese law.

However, for conservation and sustainable development efforts to succeed, citizen participation and awareness are critical. It has been well recognized that effective environmental policy making and implementation rely not only on a framework based on sound science, but also heightened public awareness regarding environmental issues (Lee, 2010). In countries such as the USA, where pollution and environmental deterioration had already occurred, improvements in environmental conditions resulted not only from the actions of individuals and organizations but also with growing public awareness of critical environmental issues (Rockwood, Stewart, & Dietz, 2008).

In Bhutan, it is every citizen's duty to help protect the environment. The Constitution of Bhutan, Article 5.1, states that "Every Bhutanese is a trustee of the Kingdom's natural resources and environment for the benefit of the present and future generations and it is the fundamental duty of every citizen to contribute to the protection of the natural environment, conservation of the rich biodiversity of Bhutan and prevention of all forms of ecological degradation including noise, visual and physical pollution through the adoption and support of environment friendly practices and policies" (Constitution Drafting Committee, 2008). Hence, it is important that the citizens of Bhutan are aware of existing environmental policies and regulations.

Media and other NGOs have historically led the way in promoting public awareness on these issues. The mass media are influential for widening public awareness of environmental issues, and sustained media coverage can impact public concern about an issue (Sampei & Aoyagi-Usui, 2009). Government bodies have increasingly taken on more proactive roles (Rockwood, et al., 2008). In fact, in addition to being policy making and implementing body, Bhutan's National Environment Commission aims to "Promote environmental awareness amongst all levels of Bhutanese society, including dissemination of environmental policies, strategies, acts, rules, regulations and standards through print, audio visual and other appropriate means" (National Environment Commission, 2012a).

Nevertheless, the desire to promote better awareness does not necessarily mean it is happening successfully. For example, most public opinion research in the USA finds that the public is concerned about environmental problems and generally supportive of strong public policies, yet at the same time is not well informed on the issues (Kraft, 2011). The situation in Bhutan is probably similar: A 2004 Country Environmental Analysis conducted by the Asian Development bank concluded that despite NEC awareness workshops and trainings, environmental compliance and public awareness on environmental policy was generally low, finding the people have "low public awareness of their own rights and duties as well as their responsibility to obey laws, legal requirements and regulations" (Sewell, 2004). Since then, the NEC and several other organizations (World Wildlife Fund Bhutan, Royal Society for the Protection of Nature, United Nations Development Programme, Kuensel Corporation, Bhutan Scouts Association, various student groups, and even tourist groups) have launched awareness campaigns across the nation promoting environmental awareness. However, it is not clear how effective these campaigns have been in raising public awareness of environmental *policies,* as opposed to general environmental awareness, and no formal assessment of the level of environmental policy awareness has been conducted in recent years.

The level of awareness on environmental issues generally follows the same pattern as awareness on other matters, i.e., it is typically greater in more developed areas and correlates positively with level of education. For example, the level of Bangladeshi farmers' awareness regarding the negative effects of using Green Revolution technology was found to vary in correlation with their level of education and their location in more developed regions of the country (Rahman, 2010).

This study sought to assess the level of public awareness of key environmental policies in urban and rural populations in Bhutan, as well as possible correlating factors. We also sought to determine preferences of different target populations for various types of media for acquiring information. It is anticipated that the study findings will help governmental and non-governmental agencies fine tune their approaches for effectively disseminating information about and promoting awareness on environmental policies that may directly or indirectly affect the nation's citizens.

Materials and Methods

Environmental Legislation in Bhutan

For this study we analyzed awareness of three environmental laws in Bhutan: Forest Act, Waste Act, and Water Act.

The term "Forest Act" is used here to refer to the various laws regarding forests in Bhutan (Royal Government of Bhutan, 2010). The Forest Act of 1969 declared that all forests belong to the State, allowing for no private rights to any part of them. This guided the 1974 Forest Policy for scientific management of the country's forests that included provisions for conservation, afforestation, resource survey, utilization, and wildlife conservation. This was also the first mention of minimum 60% forest cover requirement. The Policy was replaced by the Forest and Nature Conservation Act of 1995, which further strengthened scientific approach to forest governance and management, including policies on soil conservation, protected areas, and protection of wildlife. It recognized traditional and cultural rights of local people to access and use of forest resources, allowing for private and community forestry. The most recent policy statement on forests is the National Forest Policy, 2010 (Royal Government of Bhutan, 2010).

The term "Waste Act" refers to the Waste Management and Prevention Act, 2009, which seeks to prevent and reduce amount of waste and promote reuse, recycle and management of waste in an environmentally sound manner. It implements the polluter-pays principle through the Waste Prevention and Management Regulation, 2012 (NEC, 2012).

The term "Water Act" refers to the Water Act, 2011. It ensures that water resources are protected, conserved and/or managed in an economically efficient, socially equitable and environmentally sustainable manner. All water resources are declared as State-owned trust, available at the individual level for meeting basic human needs (National Environment Commission, 2012b, 2012c).

Interviews

Apart from 858 respondents we also interviewed various Government and NGO officials who played a role in formulation of environmental policies, acts and regulations. Interviews were done face-to-face, by phone, or by e-mail between December 2011 and April 2012. We interviewed officials from National Environment Commission (NEC), Gross National Happiness Commission (GNHC), Royal Society for Protection of Nature (RSPN), Ministry of Agriculture and Forest (MOAF), Bhutan Trust Fund for Environmental Conservation (BTF), Gups (village/town heads), Environmental officers and other officials potentially responsible for helping in implementation of environmental laws / dissemination of information. We asked the roles each agency played and how they contributed for the formulation of policies and acts. We also asked about the methods each of them employed to disseminate the information and how each of these agencies evaluated the level of public awareness of policies and acts.

Surveys

The data for the present study was collected by conducting a face-to-face survey in Bhutan with participants from households and workplaces, between December 15, 2011 and February 15, 2012. Convenience sampling was employed to get the responses. Geographically, we divided Bhutan into

Western and Eastern regions, so the survey effectively represents a case study of these areas and cannot formally be declared a representative national study. The total sample size collected was N = 858 respondents of which 50% were male and 50% were female, 51% were from the Eastern part of Bhutan (total 438 from Lhuntse-5, Mongar-168, Trashigang-182, and Samdrup Jongkhar-83) while 49% were from the Western part (total 420 from Chukha-40, Gasa-29, Paro-75, Punakha-100, Thimphu-99, and Wangdue Phodrang-77). Urban respondents constituted 58% of the sample, while rural respondents constituted 42%. Since Bhutan is predominately rural (~70%)(Office of the Census Commissioner, 2005), our aggregate sample is not representative of the national population, so we disaggregated the data rural vs. urban in most cases, such that internal comparisons between the two samples are still valid. The rural vs. urban determination was made by surveyors by judging whether the respondents' daily routine included primary (rural) or non-primary (urban) activities more than half the time, along with guidance from the Ministry of Works and Human Settlements. Respondents were all 18 years and above.

We first asked the respondents their age and their level of education. We also asked them the facilities available to them (access to newspaper, TV, radio, roads). For the awareness survey, we started off by asking if they thought laws protecting the environment were important. We then asked them whether they aware of the existence of environmental laws and policies. If the respondents responded "Yes" we asked them to state one and continued with the interview. If they stated "No" then we jumped to the end of the interview and asked them if they thought enough was being done to spread awareness of existing policies and acts what ways they thought would be most helpful for disseminating the existence of such information.

For those respondents who said that they were aware of the existence of environmental acts we further asked them to grade themselves on their level of awareness of three acts (Forest Act, Waste Act, and Water Act). For each act, the respondents had to rate themselves on the familiarity scale marked 0 to 10, with 0 meaning "Not at all", 5 meaning "Somewhat", and 10 meaning "Very familiar". We also asked the respondents to grade as to how well they thought the public is complying and following the acts. They were asked to grade this on a familiarity scale of 0 to 10 (0 meaning "Not at all", 5 meaning "Somewhat", and 10 meaning "Very well"). At end of the survey we asked respondents if they think enough is being done to spread awareness of existing policies and acts. We also asked them to note/ choose, in their opinion, the most effective way of better spreading awareness of the environmental acts.

The data were analyzed using standard statistical methods in SPSS. Where significant differences between sectors are pointed out in the text, the level of significance was stronger than $p \leq 0.01$ except where specifically indicated otherwise. The effect size is given by "r" where appropriate.

Results and Discussion

The stakeholders involved in formulation and implementation of environmental policy

Based on our interviews, we verified the positions of a variety of key stakeholders in the environmental policy process. The National Environment Commission is the high-level autonomous agency of the Royal Government of Bhutan and is mandated to look after all issues related to environment in Bhutan (National Environment Commission, 2012a). NEC was formed in 1990 (National Environment Commission, 1998). Before NEC became the regulatory environment body, the Ministry of Forests and Agriculture

took care of environmental policies and laws. The long term objectives of NEC include formulation and implementation of policies, plan and actions for the sustainability of Bhutan's natural resources. The environmental policies are formulated based on the current, emerging and potential environmental issues that need guidance and directives (personal communication, NEC officials). GNHC is a body responsible for screening all official policies in Bhutan. All policies must be reviewed by the GNHC commission before endorsement by the Cabinet. All policies that will be sent to the Parliament have to follow the "protocol for policy formulation" (personal communication, Phuntsho Wangyel, GNHC).

Other stakeholders like RSPN, WWF, UN, BTF and a few other non-governmental organizations, apart from helping in formulation process, also fund and encourage research on environment. They, however, have no enforcement power. These agencies collaborate with the Ministry of Education and others to inform school environmental curricula, and to conduct workshops, campaigns and trainings to help raise awareness of environmental issues. For e.g, RSPN encouraged schools in Bhutan to come up with nature clubs, and developed modules for school as well as non-formal education that include environment components (personal communication, Dr. Lam Norbu, RSPN).

The modes of communication used for the dissemination of information on various environmental acts and policies are media, awareness campaigns, workshops and trainings. Local leaders are made aware of environmental policies through their own initiatives as well as during DYT (district-level governing body) and GYT (town-level governing body) meetings (personal communication, various Gups). The environmental officer of different Dzongkhags allocates funds to their respective constituencies to organize village gatherings and promote awareness. These gatherings are important since "most people cannot read so we depend on environmental awareness campaigns." (personal communication, environmental officer from an Eastern Dzongkhag).

At the village level, there is no specific organization or focal agency to monitor the compliance of all environmental policies, though there may be a regional forest office to monitor forestry in some communities. Mostly, the local government officials are the ones ensure that the villagers comply by these policies (personal communication, various Gups). According to one Gup, the rural population now seems to be more interested in learning about the existing environmental acts and policies than in the past. Specifically, the Gup noticed that the people of his gewog were more frequently coming forward with questions regarding environmental laws. The questions were mostly related to the penalties and fines if they fail to abide the laws and regulations (personal communication, Deothang Gup). However, in other villages the scenario is different. Most of the other gups interviewed pointed out that the villagers rarely had questions regarding environmental acts (personal communication, various Gups). The situation throughout the country therefore seems to be highly variable regarding citizen interest and awareness regarding the acts.

Public awareness of environmental laws

Despite the activities of NGOs, schools and other government bodies helping in the implementation of the environmental policies and laws, no study has been conducted to evaluate the public awareness of environmental policies in Bhutan. A reasonable assumption is that if people are more aware about the existing environmental policies and acts and why they exist, then environmental protection will be carried out in a more successful way. This study sought to assess the level of public awareness of key

environmental policies in urban vs. rural populations, between different demographic sectors such as by sex, education, age, and availability of facilities. We also sought to assess the level of awareness of older policies vs. newer environmental policies. Rather than serve as a representative national survey, our work can best be considered a case study of Western and Eastern dzongkhags (districts) in the country.

We were first interested in knowing what facilities our respondents had access to. Survey participants were asked if they regularly had access to newspapers, TV, radio, and roads (within 15 minutes walking distance). Most respondents were able to avail TV and radio and lived near roads, but the urban population had better access to newspaper and TV (Fig. 1). In fact, only 20% of rural respondents regularly accessed newspapers.

We next asked participants directly whether they felt laws to protect the environment were necessary. Not surprisingly, nearly everyone (97% of respondents), whether they were rural or urban, felt such laws were needed.

However, when asked directly (Yes/No) if they were aware that such laws exist in Bhutan, only 53% of our respondents said "Yes". Breaking this down by sector, we found a greater proportion of rural people stating that they were aware of such laws as compared to the proportion within the urban population (66% vs. 52%, respectively) (Fig. 2). This was also the case of Easterners vs. Westerners (62% vs. 53%, respectively). Perhaps this is not surprising because the Eastern population is more rural (and correlated as such in our sample). As indicated below, the greater overall level of rural awareness of the existence environmental laws was probably due to their familiarity with the Forest Act, as it directly impacts the livelihoods of many rural communities.

Our analysis also showed that Males were more likely to respond positively than Females (64% vs. 52%, respectively) (Fig. 2). This might be because many community leaders often disseminate information through community meetings, and generally just the head of the household attends (personal communication, various Gups). There were no significant differences for this yes/no awareness metric between different age groups or people of different educational backgrounds.

Amongst the subsample of respondents who had answered "Yes", they had heard about environmental laws, we asked what were their sources of that information, whether news media, friends or family, workplace or school, community meetings, or other sources. Many rural and urban respondents had heard about environmental laws from news media (61% and 66%, respectively) (Fig. 3). Some got information through town/community meetings (more so in the rural population – 47%, vs. 22% of urban respondents). This matches our interview data where we learned rural community leaders preferred face-to-face or audio/visual communication among their constituents. However, amongst friends and family, communications regarding environmental laws were more prevalent among urban than rural respondents (16% vs. 5%, respectively). Workplaces and schools were also a source of awareness for both rural and urban respondents (17% and 21%, respectively).

Those respondents who had answered "Yes", they had heard about environmental laws, were also asked directly to name one such law. Generally, people gave responses that were not necessarily the name of the act, but were indicative of some of the provisions covered by the acts, for example "a permit is required for cutting down trees". We categorized their responses according to whether the responses correctly mentioned either the Forest, Waste, or Water Acts directly, or mentioned key provisions thereof (Fig. 4). When we grouped the responses by which act they could be classified under, we found that most

people had some awareness of provisions of the Forest Act and Waste management act, but very few stated something related to the Water Act.

Most (53%) of the people from the rural sample identified the Forest Act as the first one they could name, whereas only 40% of the urban respondents did so (Fig. 4). This is as expected, as the people living in rural areas mostly rely on the forest for their income and there is often a presence of forestry officers in rural communities (personal communication, various Gups). Moreover, the community forestry programme in Bhutan targets mostly rural populations, and participation in this has been steadily increasing since 2000 (Temphel & Beukeboom, 2006).

Waste management is more of a problem in urban areas, and urbanites mostly identified the Waste Act (Fig. 4). Solid waste has been increasing in urban areas; in Thimphu, Memelakha landfill is over-capacity, and there has been an increase in industrial, medical, and e-waste (National Environment Commission Secretariat, 2008; Wangchuk, 2011).

Based on the results depicted in Figure 4, we can also discern the difference in awareness depending on how old the acts were. In one form or another, Bhutan has had Forest Acts for over 40 years, whereas the Waste Act was introduced in 2009 and the Water Act only six months before the survey was conducted. As expected, people have greater awareness of older acts (Fig. 4), but in the case of the Waste Act, though it was only 2.5 years old at the time of the study, it was enacted with provisions which mandated that awareness of the act should be heavily promoted. It seems as though this has resulted, in a short amount of time, in a level of awareness as high as the much older Forest Act.

To get at this more precisely, participants were asked to rate their level of familiarity with the acts on a scale of 0 (being no familiarity) to 10 (being high familiarity). The results were analyzed as distributions of the ratings given by the respondents (Fig. 5). For the Forest and Waste Acts, we observed a fairly normal distribution, with some skew towards the lower end. However, for the Water Act, we noted there was split in the distribution. Some portion of the responses was similar in distribution to the other two acts, but there seemed to be a large number of respondents that stated they had zero awareness of the Water Act, which made it a non-normal distribution. To look at the mean ratings, therefore, we excluded the zero responses (Fig. 5, right). From this, the mean ratings calculated along with pair-wise t-test comparisons among all three acts. Essentially, these distributions excluding the zero values are the sub-sample of our respondents that had some awareness of all three acts (which is 204, or 24% of our total sample). The analysis shows statistically significant but minor differences in familiarity between the three acts, with the Water Act having the lowest ratings, keeping in mind all those who had zero familiarity were excluded. If we had included them the mean would have been much lower. The findings that (1) when people claim some familiarity with the Water Act, it is at an average level, similar to their level of familiarity with the other two older acts, and (2) there are many people who have no familiarity with the Water Act, indicate that level of awareness of environmental laws may nearly reach its peak the first time people hear about such laws, and not increase substantially after that.

Breaking the total awareness data for each act down by sector, we found that for the Waste Act, there seemed to be greater familiarity in urban than rural populations ($p < 0.05$, $r = 0.16$) and those at higher educational levels ($p < 0.001$, $r = 0.15$). Familiarity with the Forest Act was greater among Easterners than Westerners ($p < 0.001$, $r = 0.39$). Finally, familiarity with the Water Act correlated positively with age ($p < 0.001$, $r = 0.21$). We found that there was no correlation between self-rated familiarity with the different acts and gender.

If we combine the total familiarity self-ratings for all three acts and see how this varies with different factors, we find that overall there is a significant correlation with age ($p < 0.001$, $r = 0.22$), that there is greater familiarity in rural respondents ($p < 0.001$, $r = 0.19$), but no further correlation with level of education, gender, or geographical location.

We next asked survey participants how well they thought the acts were actually being followed (in other words, their opinions on public compliance with the acts), on a scale of 0 (not at all) to 10 (very well). The responses were analyzed as distributions along with the means and pair-wise t-tests (Fig. 6). Respondents felt that the Forest Act was being followed at a somewhat moderate level, followed by the Waste Act, whereas they felt there was probably least compliance with the Water Act.

Again, breaking the total data down by sector, for all acts we found that there was positive correlation with age, meaning that older respondents tended to feel there was greater public compliance with the laws whereas younger people may have been more skeptical (data not shown). For all acts, Easterners and those with less education felt there was greater compliance with the laws than Westerners and those with greater education (data not shown). Rural respondents felt there was greater compliance with the Forest Act than urban respondents ($p < 0.05$, $r = 0.11$).

Public opinion on enhancing awareness of environmental policies

Regardless of whether survey participants responded "Yes" to having knowledge that environmental acts existed in Bhutan, all participants were asked whether they thought enough is being done to spread awareness about environmental acts (Yes/No). No difference between rural and urban populations was found here: On average, less than half of respondents stated "Yes" (enough was been done to spread awareness), but the other half was either "Not sure" or stated "No" (Fig. 7). There were no significant differences between Males/Females or Easterners/Westerners, or any correlation with age, but interestingly, those with higher educational backgrounds were more likely to think "No" (not enough was being done to spread awareness) or were "Not sure", than those with no education or just primary education, who tended to respond "Yes" by much greater margins.

Next, thinking about what might be the best way to spread information about environmental acts, we asked people directly what they felt the single best way would be, in their opinion, when asked to pick only one option (possible choices were newspaper, TV, radio, internet, community centers/ notice boards, awareness campaigns, or other). Notable findings were observed when the results were segregated rural vs. urban, by level of education, and by age (Fig. 8A). People from both rural and urban sectors favored TV and awareness campaigns – slightly more among the urban population, though rural respondents had a more clear preference for radio than the urban respondents. Very few seemed to think that newspapers or internet were the single *best* ways of spreading awareness.

By the level of education, those with *some* schooling (any schooling, primary or higher) strongly favored TV and awareness campaigns, whereas those with no schooling at all were more evenly split between TV, awareness campaigns and radio, with a significant fraction also favoring community centers (Fig. 8B).

By age, those few individuals who favored newspapers or internet were the younger populations, as depicted in the box plots represent age distributions of respondents favoring particular options (Fig. 8C). Radio has the greatest spread and longest top whisker here, indicating some preference for radio by people of all ages, including the oldest crowd.

Conclusions

The results of this study suggest that self-rated public awareness of key environmental policies is moderate across sectors for the Forest and Waste Acts, but low for the more recent Water Act. The awareness is greater for older acts, but may peak within 2-3 years. Although the Forest Act has been around for decades, people did not claim to have very strong familiarity with it. Therefore, awareness levels may reach their maximum possible within just a few years. However, perhaps awareness of the Waste Act will continue to rise and overtake awareness of the Forest Act because of its intensive publicizing. Mass media was bought into Bhutan much later than most of the rest of the world. With the introduction of radio in 1973, newspapers, television in 1999 and internet in the 2000s, more avenues have become available for the dissemination of information to the general public.

One reason why the Waste Act is as well-known as the Forest Act, even though the Forest act is much older, could be because of the media attention that Waste issues get in Bhutan. We conducted a preliminary analysis through archives of the nation's oldest and widest reaching newspaper, Kuensel. Indeed, Waste- and Forest-related environmental coverage was roughly equivalent, and generally more prevalent than Water-related coverage (data not shown). Intriguingly, some of the media analysis indicated a recurring pattern for certain environmental issues, indicating that, while the media was disseminating information relevant to the issues, problems still persisted. For example, coverage of the plastic ban in Bhutan showed a cyclical pattern of articles about policies to toughen the ban followed periodically by coverage or analysis about how the ban has been ineffective.

Awareness varies slightly for different acts depending on various demographic factors: location, sex, age, educational level. For the Forest Act, there is greater familiarity in Eastern Bhutan. For the Waste Act, there is greater familiarity among the urban populations as compared to rural populations, and familiarity increases with higher educational level. For the Water Act, there was found to be a positive correlation with age. The total self-rated familiarity for all three Acts shows a significant correlation with age, and is greater in rural than urban populations. Together, the data should inform what target sectors could best benefit from added attention from those seeking to raise awareness about the Acts.

Confidence in public compliance with the acts, or whether enough is being done to spread awareness, varies inversely with level of education. It seems that the more formal education people have been through, the more likely they are to be skeptical about compliance with environmental laws. We found that the preferred ways of receiving information differed by sectors, so the techniques for spreading awareness can and should be tailored depending on the target sector. However, generally speaking, dissemination of information through single means should be avoided. People do not seem to be favoring print news media or internet much, yet (as the single best option); instead they tend to prefer audio/visual modes of media, with TV and radio showing the broadest reach across sectors. Direct communication is also an effective means: awareness campaigns and community-based methods (meetings, community centers) are still popular.

Our findings matched well with previous analyses of the media situation in Bhutan, with a 2008 study showing that while newspaper was the least popular medium, radio was the most popular, and actually increasing in its reach (Department of Information and Media, 2008). In fact, the largest broadcaster, Bhutan Broadcasting Service, launched an additional fully national language (Dzongkha)

channel in February, 2013. A recent media baseline study also confirmed the wide reach of radio, but highlighted that there was still an urban-centric bias in the issues covered (Bhutan Media Foundation, 2012). The implication is that radio is a medium with some as-yet untapped potential to enhance environmental awareness throughout all sectors of society.

This study has certain limitations, most importantly that using an opinion survey does not guarantee accurate assessment of respondents' actual true knowledge of the issues and laws – this might require a test or quiz of some kind to determine properly. Next, it should be kept in mind that we cannot use these findings as predictors of people's real-life behaviors – even those with great knowledge of environmental laws might still be likely to violate them. We therefore recommend further studies focusing on environmental *knowledge* and responsible environmental *behavior* (actual compliance with the laws). Then, these two variables, knowledge and behavior, can be correlated with demographic factors such as location, sex, age as well as what facilities those people have access to. This should help in further determining the most effective ways of disseminating information in order to achieve greater compliance with environmental acts.

Acknowledgements

This work was funded by the Royal University of Bhutan's Annual University Research Grant (RUB/DRER/AURG/2011/1296). We appreciate the input from various community leaders and agency officials from Royal Society for the Protection of Nature, National Environment Commission, Bhutan Trust Fund for Environment Conservation, Gross National Happiness Commission, and Forestry Division of Ministry of Agriculture and Forests.

Figures

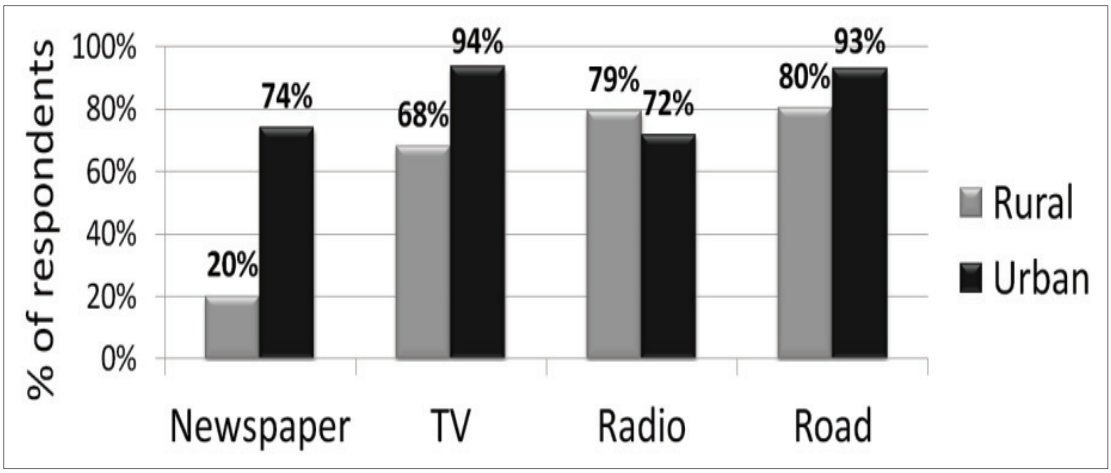


Figure 1. Access to facilities. Survey participants were asked to indicate all facilities they had access to on a regular basis. Road access was defined as availability of a motorable road within 15 minutes walking distance. Responses from Rural and Urban sectors were segregated as indicated. Bars represent the percent of respondents, from either sector, that had access to the indicated facility.

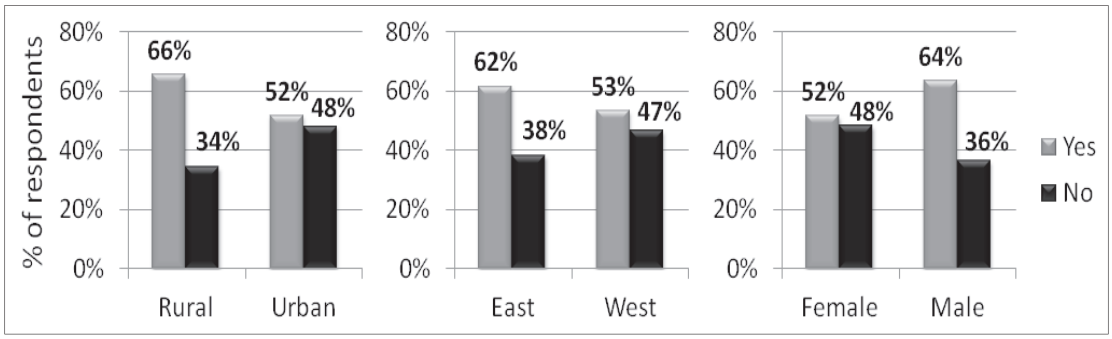


Figure 2. Awareness that environmental acts (laws) exist in Bhutan. Survey participants were asked whether or not they were aware that environmental acts existed in Bhutan. The responses were segregated by sector as indicated.

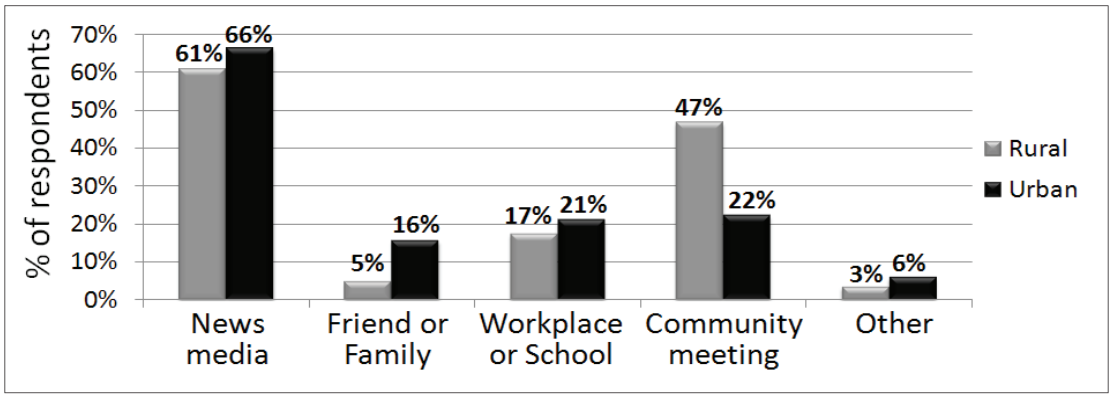


Figure 3. Sources of awareness about environmental acts. Survey participants were asked to indicate all sources they regularly received information from regarding environmental acts. Responses from Rural and Urban sectors were segregated as indicated. Bars represent the percent of respondents, from either sector, that had regularly received information from the indicated sources.

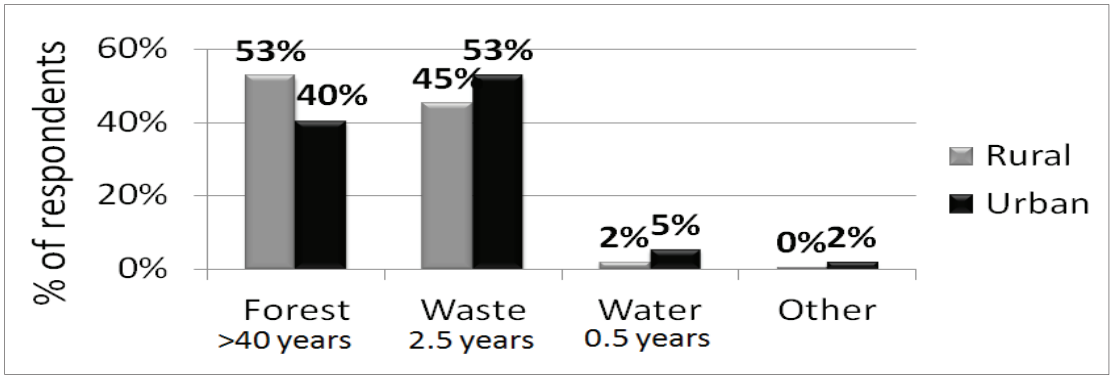


Figure 4. Awareness of different environmental acts. If survey participants indicated they did know environmental acts existed in Bhutan, they were asked to name one. The responses were categorized according to which Act they most clearly represented. The number of years indicated below each Act represents approximately how long that Act had been in implementation at the time of the survey. Responses from Rural and Urban sectors were segregated as indicated. All four bars within either sector total to 100%.

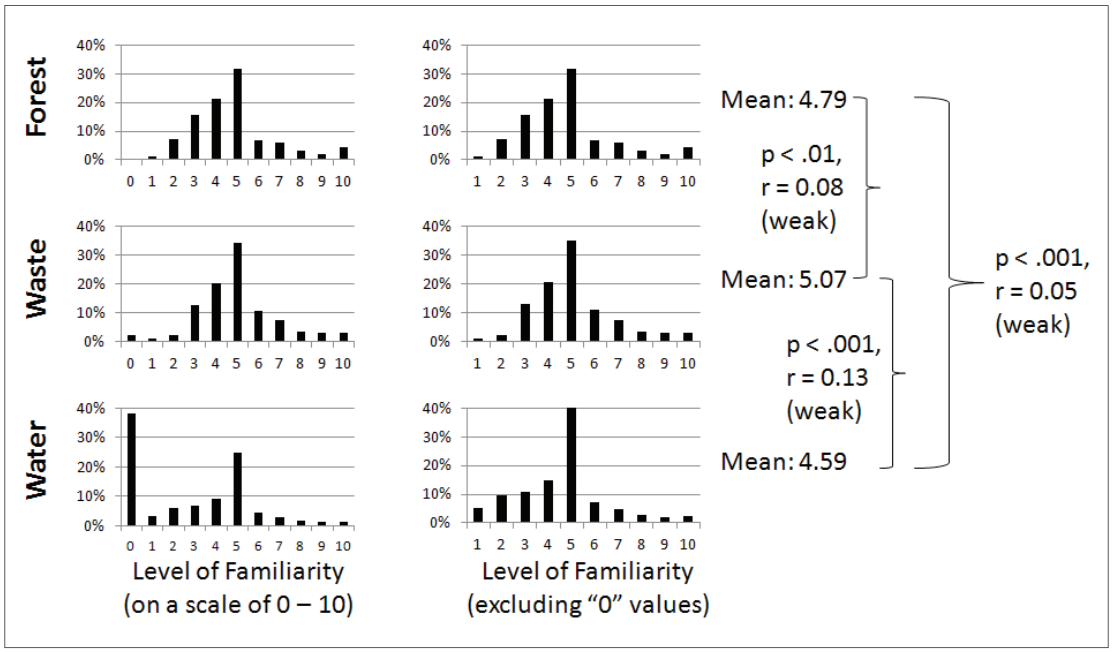


Figure 5. Level of familiarity with the Forest, Waste, and Water Acts. Survey participants who indicated they knew environmental acts existed in Bhutan were asked to rate their familiarity with each of the three Acts indicated on a scale of 0 (none) to 10 (very high). The graphs show the distribution of the responses. Because of the numerous "0" responses for the Water Act, these were excluded from the calculation of mean ratings, as shown on the graphs on the right. The p values indicate the statistical significance from paired t-test comparisons, while the r is the effect size.

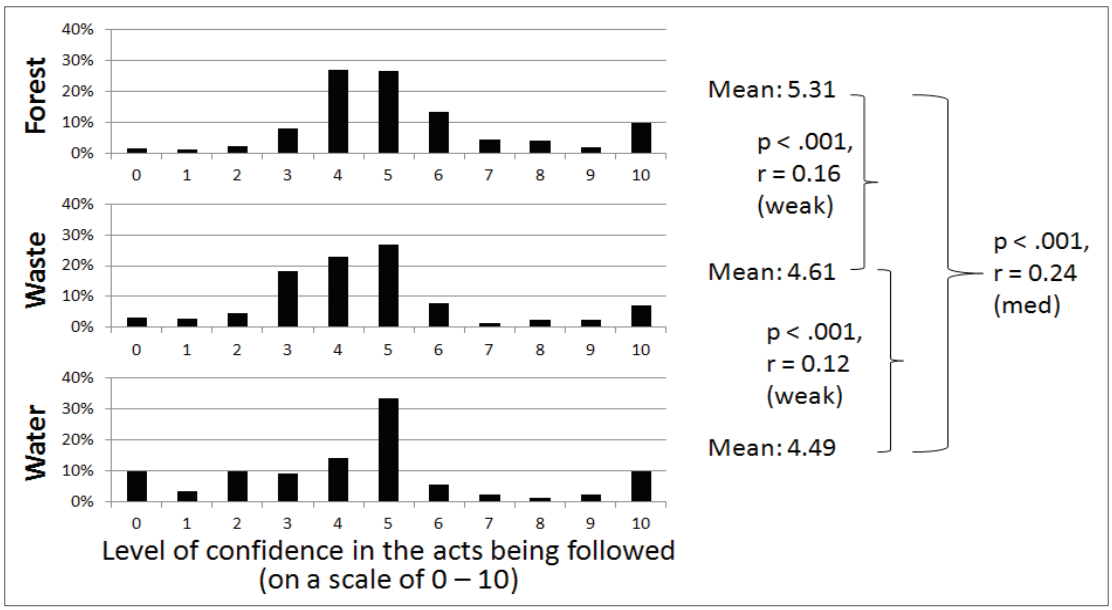


Figure 6. How well do people think the Forest, Waste, and Water Acts are being followed? Survey participants who indicated they knew environmental acts existed in Bhutan were asked to rate how well they thought each of the three indicated Acts were being followed by the citizenry, on a scale of 0 (not at all) to 10 (very well). The graphs show the distribution of the responses. Mean ratings are given on the right. The p values indicate the statistical significance from paired t-test comparisons, while the r is the effect size.

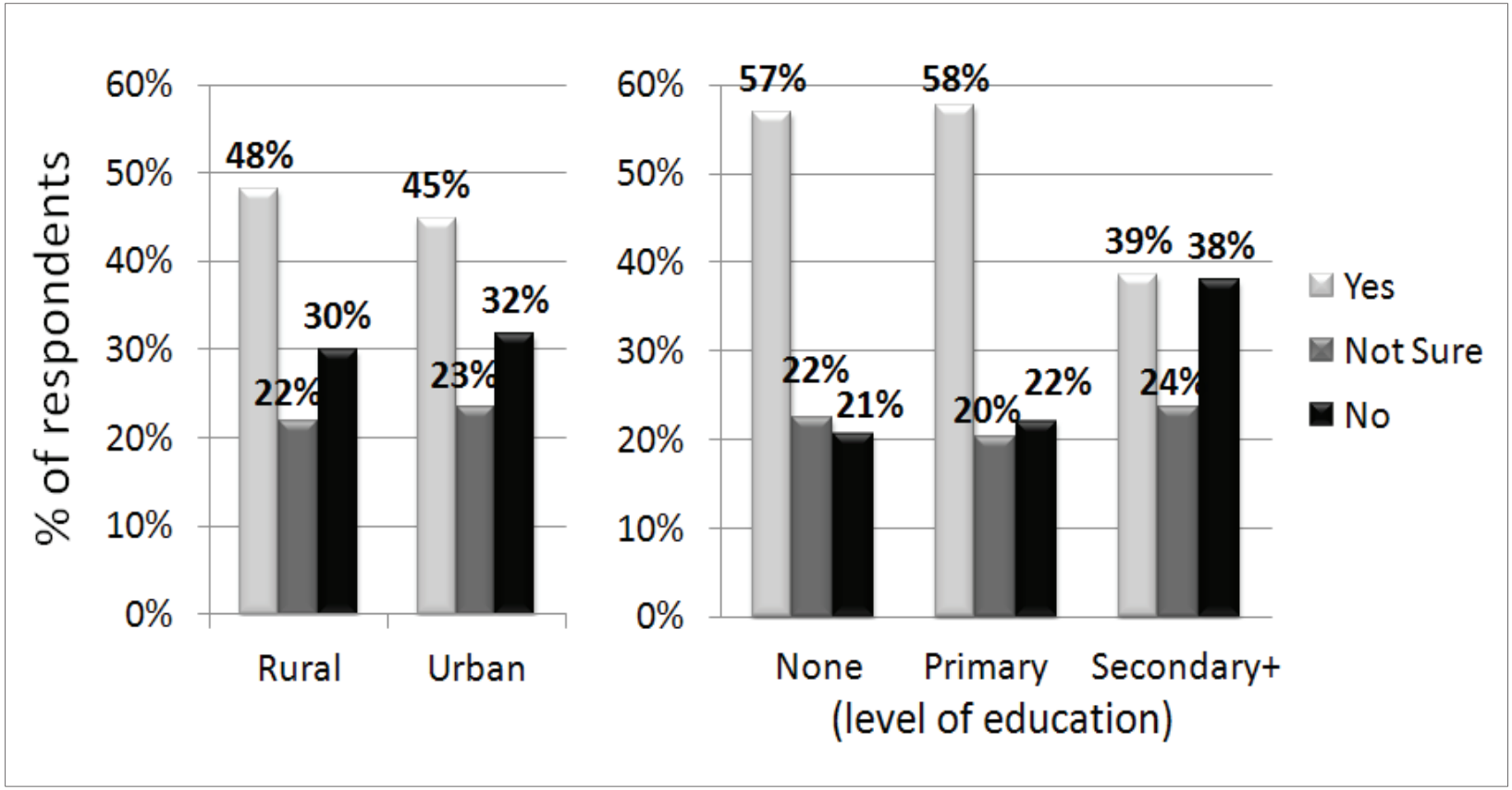
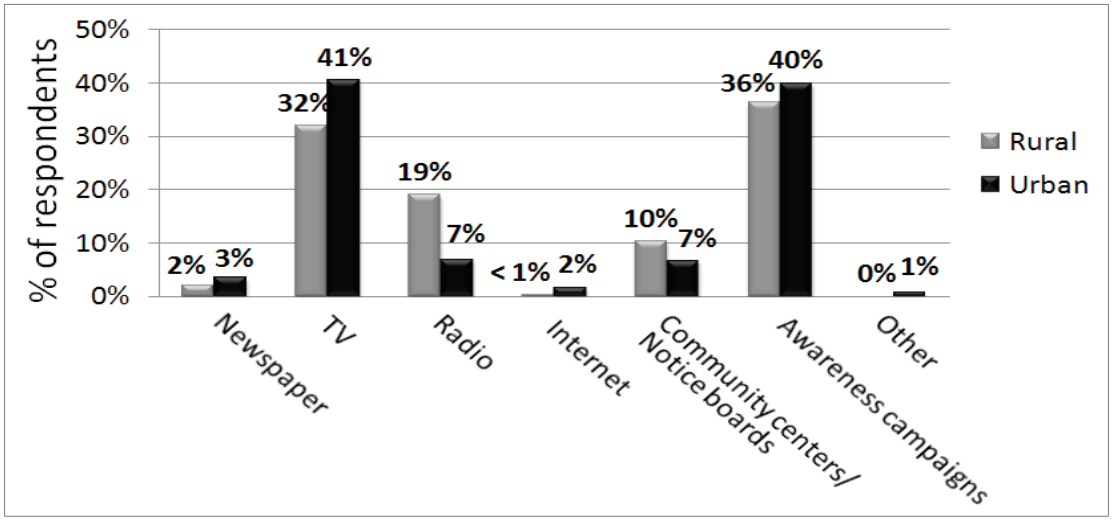


Figure 7. Do people believe that enough is being done to spread awareness about environmental acts? All survey participants were asked whether they thought enough was being done to spread awareness of environmental acts. Responses were segregated by sectors as indicated. Primary educational achievement was defined as having completed any range between formal pre-primary classes and class six, and also included non-formal education or primary monastic education. The three bars within either sector total to 100%.

A



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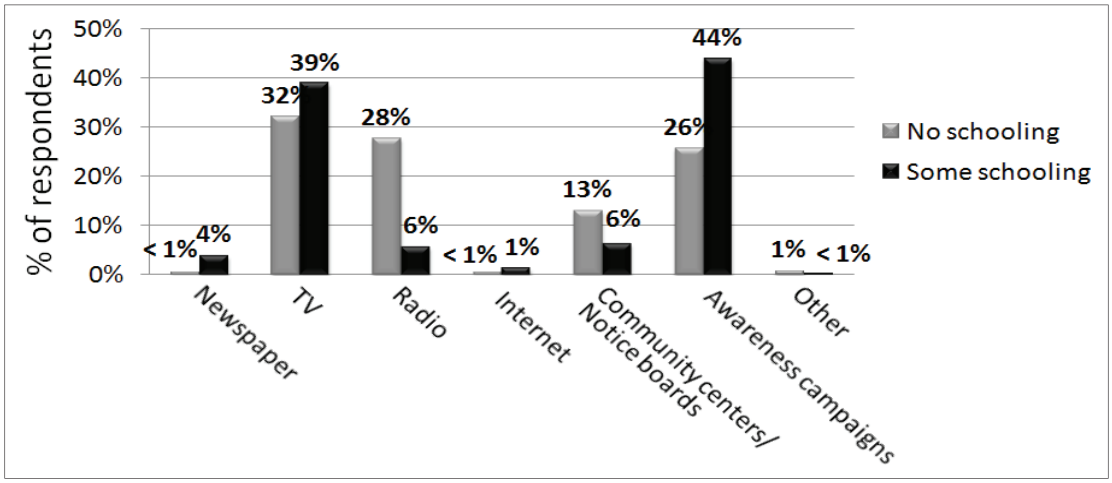

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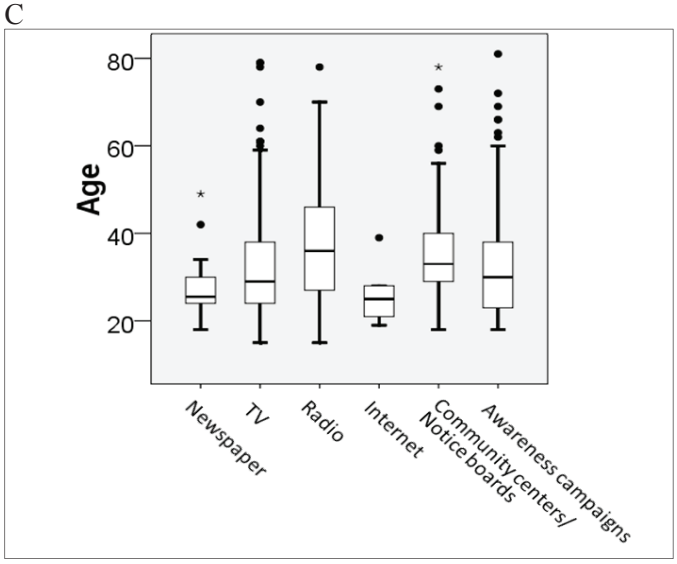

Figure 8. What modes of spreading awareness do people feel are the most effective? Survey participants were asked to indicate the one mode of communication they thought was the most effective way of better spreading awareness about environmental acts. Results were analyzed by rural vs. urban sectors (A), by whether or not respondents had any schooling (B), or by age (C). In the box-and-whiskers plot in (C), the box represents the central 50% of values, from lower to upper quartiles, with the median indicated within by a horizontal line. Outlier values that are more than 1.5x beyond the interquartile range are indicated by dots, while outlier values that are more than 3x beyond the interquartile range are indicated by asterisks.

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Bhutan's Aquaticbiodiversity: A Call for Action

RYAN THONI

Abstract

The fish fauna of Bhutan is scantly known and currently vulnerable. Aninventory of aquatic biodiversity is urgently needed as rivers are changing due to increasing demand for hydroelectricity and unpredictable climate phenomena. While hydroelectricity is a renewable resource that reduces fossil-fuel consumption, it too has environmental consequences. Dams will be built on every major river in Bhutan by 2030. Aside from dams, the landscape is remarkably pristine. Bhutan is a sanctuary to many endangered taxa. Though small in size, Bhutan hosts disproportionately high levels of biodiversity. Due to tremendous altitudinal gradient, there is great habitat and ecosystem diversity. Bhutan's environmental policies and cultural philosophies, coupled with a low population density dramatically decrease the odds of having imperiled watersheds. Despite these facts, little is known about the diversity of fishes. Only 49 species are recognized internationally. None are endemic, while eight are introduced. In Nepal, there are >230 species with 15 endemics. It is extremely important to understand the natural resources and biodiversity at stake in what may be the last stronghold for many imperiled Himalayan taxa. The first step in gaining this understanding is to establish an inventory of the biodiversity, emphasizing the regions of Bhutan under immediate threat.

Introduction

In 1822 Francis Buchanan-Hamilton conducted an extensive survey of the ichthyofauna of the Indian subcontinent. Although it is difficult to conclude exact localities of his expeditions, and it is unlikely that he ever reached Bhutan, his work was the first to describe the ichthyofauna of the Ganges-Brahmaputra River system. Many of the fish species he described are known to be, or expected to be, found in Bhutan. There is also some speculation that John McClellend may have described some fishes from Bhutan in 1839 (Gurung, 2012). Nevertheless it was more than 120years after the work of these men before a scientist actually dropped a net within Bhutanese waters. In 1976 a small initiative funded by the United Nations Food and Agriculture Organization (UNFAO), concerned less with biodiversity than with aquaculture and economics, explored Bhutan's fish diversity in search of commercially viable species. This survey recognized 49 fish species in Bhutan including 8 introduced species (Dubey 1978). Whereas in nearby Nepal, there are currently more than 230 fish species recognized and as many as 15 endemic fish species (Shrestha 2008).Also notable from Dubey (1978) is that no endemic species were described. This was the only scientific endeavor to document to an international audience the diversity of fishes definitively within Bhutan.

The challenging geography of the region is certainly part of the cause of the above shortcomings. From a topographical standpoint, Bhutan is by far the most mountainous and inaccessible country in the world, with less than 10% of its land at a slope below fivedegrees (9.98% by area; ArcGIS Version 9.0). When compared toNepal, the next most mountainous country in the world (as calculated by total flat land area [<5.0degrees slope]/total area), whoseterrain still allows for some 37% flat land (ArcGIS Version 9.0),Bhutan stands alone as a geographical nightmare to the ground-level navigator. The southern and

northern borders of Bhutan are more or less marked by the southern and northern flanks of the Himalayan Range. Among this rugged section of the Himalayas is the 7,570 m Gangkhar Puensum, the tallest mountain in the world to never have been summited by humans; a true testament to the remoteness and inaccessibility of the Bhutanese wilderness.

As a result of this highly mountainous terrain, there are dozens of isolated watersheds and many geographically remote lakes and ponds, a crucial component for adaptation and speciation. Most of the water in Bhutan drains the following main rivers, the Amo Chhu, Wang Chhu, Puntatshang Chhu, Mangde Chhu, Chhamkhar Chhu, Kuri Chhu and Dangme Chhu rivers. Of these rivers the latter 4 run into the Manas river in southern Bhutan, which then feeds into the Brahmaputra in the state of Assam, India, while the other three flow directly into the Brahmaputra. Bhutan forms the headwater region for the Ganges-Brahmaputra river system, one of the most diverse aquatic systems in the world rivaled only by the Amazon in terms of fish diversity.

Based on the known terrestrialbiodiversity in Bhutan, the better-studied fish fauna of Nepal, and personal interviews with Bhutanese fishermen, in conjunction with the aforementioned geographic diversity, the aquatic ecosystems of Bhutan are predicted to be immensely diverse. Both tropical and even anadromous fishes such as Bengal Eels (*Anguila bengelenses*) and some shads (Order Clupiformes) are common in the low elevations, while cold-water fish species such as the native snow trout (*Schitzothorax* sp.), or Asla, and introduced salmonids, particularly brown trout (*Salmo trutta*) thrive at higher elevations. In the high altitude northern swath of Bhutan from Gasa to Trashiyangtse, oligotrophic glacial cirques and wetlands number in the hundreds to perhaps over 1,000. Although many of these lakes may be devoid of fishes due to the extreme cold, lack of primary productivity, or some geographic barrier, several may support unique communities of cold-water fishes such as members of Balitoridae and *Schizothorax.* Unfortunately, according to interviews with local villagers, these fishes are increasingly scarce now in the lakes and wetlands in which brown trout have been introduced; in some areas brown trout are the only species that the current generation of fishermen recognize (Kaila Choenzem, personal communication May 10, 2012).

Aside from its geophysical potential to maintain high biodiversity, Bhutan captivates the attention of biodiversity specialists because of its progressive environmental policies and the strong adherence to Buddhist philosophies of the preservation of nature. There is a governmental measure of growth and success in Bhutan known as Gross National Happiness, which eloquently ties together human development and environmental conservation. The Bhutanese people value pristine environments and understand that a healthy ecosystem with minimal disturbance results in a healthier, happier populace. These governmental policies and the cultural respect for the environment inherent to the Buddhist philosophy, coupled with a relatively low human population density (19 individuals/km^2; World Bank 2010), dramatically increases the likelihood of having minimally-impacted watersheds. As a result, Bhutan is a model country for investigations of unaffected Himalayan ecology.

The goals of this manuscript are twofold. Most importantly, it is to stress the urgency for updated knowledge regarding the taxonomic and biogeographic information of the fishes of Bhutan, as well as documentation and descriptions of new species of fish that most certainly exist within Bhutan. Second, it is to cultivate enthusiasm and bolster pride in the Bhutanese people for their environmental stewardship by extending these mindsets to include the aquatic ecosystems of the country.

Why we need to act now to document fish biodiversity

Relative to the rest of the world, and more so compared to neighboring countries, the ecosystems of Bhutan are extremely well preserved. The Royal Government of Bhutan's National Forestry Policy, first drafted in 1974, with revisions in 1979 and 1991, specifies that a minimum of 60 percent of the country will always remain forested and protected (Forest and Nature Conservation Rules 2006). A recent census of the countries landscape revealed that they are above their goal, currently at 72.5 % forest cover (BAC, 2009). Furthermore, the government has taken great lengths in providing a connecting corridor of protected areas to reduce habitat fragmentation and isolation in order to maintain genetic diversity, avoid population bottlenecks, and provide adequate space for seasonal migrations of terrestrial and avian animals. These protected areas are managed and enforced by forest rangers and other officials. All forestry operations are carried out in sustainable practices that reduce soil impaction, fossil fuel usage, and sedimentation and siltation of rivers. There is also a ban on most forms of commercial fishing, with some exceptions existing where cultural heritage is preserved (Lyonpo Gyamtsho, Personal communication, May 14, 2012). The country is a net carbon sink, sequestering more carbon in its forests than it burns in fossil fuels (BAC, 2009).

Yet, despite the scrupulous attention to environmental stewardship, economic development and population growth are increasingly taking a toll on the environment. There are roughly four threats to the aquatic environment of Bhutan: dam building, climate change,invasive species, and to a lesser extent, overharvesting.

Hydroelectric dams pose the largest threat to the aquatic ecosystems of Bhutan. The principal export from Bhutan is hydroelectricity. Due to complicated trade contracts with foreign investors for hydroelectricity production, there is increasing pressure to build more dams in Bhutanese rivers. There are six large hydroelectricity-producing dams and numerous smaller dams generating close to 1,500 MW inBhutan, with staggering plans on tripling its hydroelectric output within the next 20 years to more than 4,385 MW (Table 1; BAC 2009). Upon the completion of the proposed dams and those already under construction, every major river in Bhutan will be impounded.

The effects of dams on freshwater ecosystems are well studied (Baxter 1977; Holden 1979; Jenson 1987; Bain et al. 1988; Poff et al. 1997; Fukushima et al. 2007; Reid et al 2008). The negative effects are both physical and biological. Dams strongly disrupt the physical and chemical environment of a river by altering flow and temperature regimes, water chemistry (dissolved oxygen, pH and conductivity) and channel geomorphology. Dams impede natural sediment dispersal and result in sediment-starved and scoured channels below (Ligon et al 1995). Effects on aquatic organisms include limited or impeded dispersal for reproduction, feeding and finding refuge, altered food availability, and changes in the physical and chemical environments that dramatically change the composition of fish species in aquatic communities (Bain et al. 1988; Watters 1996; Poff et al. 1997; McLaughlin et al. 2006). Due to altered habitat parameters, areas both above and below dams host and act as a source of non-native species to nearby unimpounded areas (Kanno and Vokoun 2010; Rypel 2011; Thoni et al. in press).

Dam builders in Bhutan have attempted to include accommodations for fish passage and reduced geomorphologic impact. Many of the existing, and proposed dams are run-of-the-river dams that are designed, as their name implies, to generate power using the natural flow regime (Government

of Bhutan, 2008). Such dams are controversial however, as to whether or not they are an environmentally sound alternative. Run-of-the-river dams may more closely provide natural rates of flow, however, they still act as physical barriers to organismal dispersal and the movement of nutrients and sediments (Tenzin 2006). Additionally, some dams were constructed with fish ladders to allow fish to migrate around the dam. This is also a questionable solution as fish ladders were originally designed for trout and salmon along the west coast of the United States. It is uncertain and even doubtful that native fishes, such as catfishes, loaches, or minnows are able to effectively navigate these structures, and even more doubtful for high-head dams. Further, because these fish passages were designed for trout and salmon, it is likely that they will only aid in the dispersal of the non-native, and problematic, brown trout.

Table 1 A table derived from the Bhutan Observer listing current dam projects underway in Bhutan, their expected energy output, cost, and dates of completion.

Project Name	Installed Capacity (MW)	Energy Gen. (MWh)	Hard Cost (Millions)	Start Date	Comp. Date
Punatshangchu-I	1200	5670.78	66,000	2008	2016
Punatshangchu-II	1020	4357.36	54,000	2010	2017
Mangdechu	720	2923.70	32,259	2010	2018
Sankosh	2560	6267.00	97,628	2012	2019
Amochu	540	1835.00	35,129	2012	2020
Kurigongchu	2640	10055.59	207,508	2014	2023
Chamkharchu-I	770	3252.92	47,760	2012	2021
Bunakha	180	1669.27	24,926	2012	2020
Wangchu	570	2526.38	40,027	2012	2020
Kholongchu	600	2592.83	31,436	2012	2020

Source: Derived from Bhutan Observer December 28, 2012.

Flow and temperature regimes, and therefore stream geomorphology and water chemistry are also altered by climate change. As the earth'saverage temperature rises, glacial reserves are predicted to recede. Due to the extreme complexity of localized climate responses associated with the broad-scale increase in global temperature, there is an increasing degree of unpredictability as well. Despite the unpredictability, some changes that are expected, and in some cases are already taking place, include devastating glacial lake outburst floods (GLOFs), increased drought conditions during dry season, and increased flooding during monsoon season.

GLOFs are extremely harmful to human populations as well as the riverine ecosystems in which they occur. They occur when a glacier that is impounding large amounts of water high in the mountains recedes to a breaking point, at which point the impounded water is released in a catastrophic burst flowing rapidly downstream destroying virtually everything in its path including buildings, trees, crops, and likely scouring the river banks clean of nearly all fish present. As more GLOF's occur without mitigation, more aquatic biodiversity will be lost, potentially including the extinction of aquatic species that have never been discovered.

In addition to GLOF's, increased extremes in flow rates associated with more frequent droughts and unpredictable monsoon rains also threaten aquatic organisms. Many migratory fishes rely on seasonal pulses of water that are typically associated with other seasonal aspects such as temperature and solar

radiation for spawning purposes. If these pulses do not occur, or occur at abnormal times and/or more polarized magnitudes, then successful migrations and spawning seasons are jeopardized.

One of the only major threats currently affecting aquatic biodiversity of the high altitude Himalayan water bodies is the introduction of the non-native predatory Brown trout (*Salmo trutta*). Brown trout are voracious generalists that can tolerate all flow rates and water temperatures that occur in Bhutan. They have been encountered by this author at elevations as high as 4,000 meters in the upper Bumthang district and as low as 120 meters in the Royal Manas National Park (Personal communication Dorji, May 2012). Our preliminary field expeditions revealed that diversity and abundance of sympatric fishes decreased with the presence of brown trout.

Brown trout may have reached Bhutanese waters as early as the 1930's via migration of fish introduced by British anglers living in India seeking a familiar game species (Gurung 2012). However, beginning in 1940,small-scale stocking operations began to take place within Bhutan (Tashi 2013). Anecdotal evidence by Bhutanese villagers from the Bumthang Valley describes a robust stocking operation in the early 1970s by the King,who found brown trout to be a beautiful fish (Kyla Choenzem, personal communication May 10, 2012). The event was described as aerial stocking using helicopters and baskets (Kyla Choenzem, personal communication May 10, 2012).

Adding to the threat of brown trout invasion, a small ecotourism niche has recently developed around the angling of brown trout. It is strongly urged by this author that action be taken to transition sport fishing towards the targeting of manageable native game fish such as masheer (*Neolissochilus*and *Tor*), snow trout (*Schizothorax*) and gounch catfish (*Bagarius bagarius*) before it becomes a fixed tourist attraction. By doing so, protection and management of native fishes will becomea fundamental part of local economies and the need and desire for further spreading of brown trout will come to a halt.

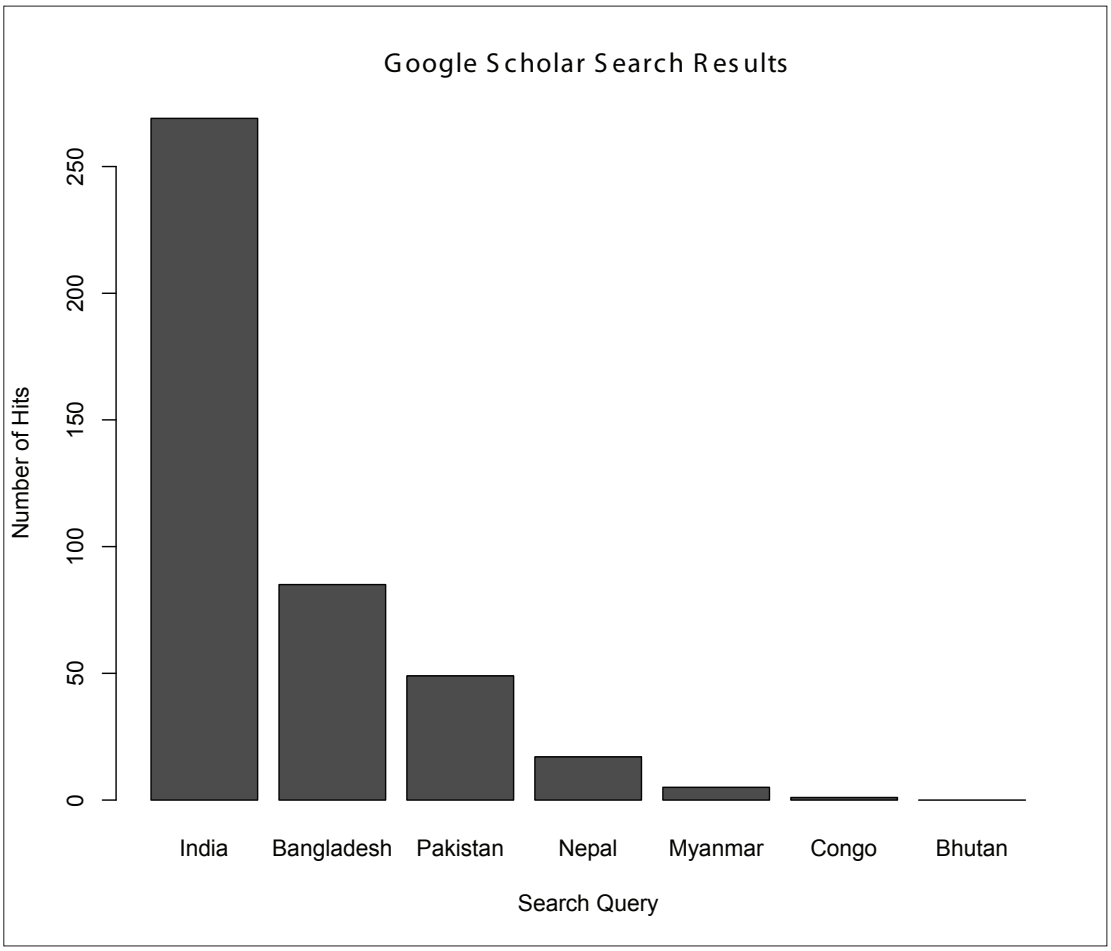
Although poaching is a problem in virtually every country, and it is of particular importance in terrestrial management in Bhutan due to its populations of large cats and other mammals (Zangmo 2012), illegal fishing and overharvesting are not major problems in Bhutan. Human population density is low, resulting in limited exploitation of any one resource. Further, the Buddhist belief that killing or disturbing living organisms is unethical and may bring bad Karma prevents as much as 75% of the population from the unnecessary killing of any animal. Unfortunately, the threat of overexploitation and poaching is cultivated outside Bhutanese domain. With a population of over 1 billion people, India faces major issues of overexploitation and exhaustion of their natural resources, alas, much of these problems spill over the Bhutanese border by way of depleted fish stocks during downstream migration, border-crossing for illegal fishing activities, and increasing demand for Bhutanese-produced hydroelectricity.

The above factors will all play a significant role in the shaping of Bhutan's aquatic ecosystems and fish assemblages in the future. It is a matter of critical importance to inventory and begin to understand the current aquatic biodiversity and status of fish stocks in order to project how changes in the environment will affect aquatic ecosystems. This will provide the government, as well as the private sector, with the necessary information as to what habitats are critical to maintaining fish diversity and deserving of continued protection.

Why has no action been taken yet?

This is a rather important question to answer, as similar inventories are being carried out around the world including inventories in less developed countries (Fig 1). These inventories are taking place so that the ongoing, rapid development of growing economies does not result in the loss of biodiversity and natural resources. The Biodiversity Action Plans (BAC's) from the last 11 years have all acknowledged that there is an issue of a scarcity of information regarding aquatic organisms (BAC 2002, BAC 2009). Scientists from within the country have also stressed the importance of such studies and have even laid out guidelines and methods to conduct them (Tenzin 2006, Gurung 2012).

Figure 1 *Graph displaying the number of articles containing the words "Fish and [Country]" within the title, since 2009 (India: 269, Bangladesh: 85, Pakistan: 49, Nepal: 17, Myanmar/Burma: 5, Democratic Republic of the Congo [Which held the 2nd lowest human development score in 2012]: 1, Bhutan: 0). Ex. title: "Badis juergenschmidti–a new species of the Indo-Burmese fish family Badidae (Teleostei: Perciformes) from Myanmar" (Schindler and Linke 2010).*



So, why has no action been taken yet? Bhutan offers a unique set of challenges for contemporary-style taxonomic inventories, and systematic investigations of the relationships of biodiversity. Religious beliefs and ethical boundaries, limited infrastructure, lack of expertise, the previously-mentioned

problematic geography, and political history all play a role in the lack of progress towards aquatic biodiversity assessment in Bhutan.

It is standard protocol and practice in taxonomic inventory studies of fishes, as with most other organisms, to collect, cure, and examine specimens. This method does not appear to observe the Buddhist philosophy that living things should not be unnecessarily killed. Specimen collections in ichthyology labs are often very robust and sometimes redundant due to lack of collaborations on both a local and international scale.

In addition to cultural and religious boundaries, some historical and political issues have led to the lack of international collaboration in assessing the fish diversity in Bhutan. There has been a long history of scholarly research conducted in developing nations by foreign institutions in which the institution gathers scientific data and materials and the developing country isthen abandoned, left without any lasting or sustainable outcomes. This outdated "slash and burn" approach to international research must be avoided in order for Bhutanese scientific and academic institutions to develop into sustainable entities.

It is therefore a matter of great importance that capacity building and the upholding of Bhutanese cultural values are incorporated into any international scientific endeavor in Bhutan. Capacity building can be achieved through institutional collaborations, with a focus on technical trainings, development workshops and educational implementations.Although, a lack of technical expertise and limited access to proper equipment currently hinders biodiversity assessments in Bhutan, collaborations with institutions that can provide the initial equipment and capacity building strategies to ensure the long term sustainability of internal scientific and academic institutions can alleviate the problem.

Any scientific investigator who wishes to work within the country must carefully respect cultural and religious values in Bhutan. Likewise, the people of Bhutan, who are concerned about the lives of aquatic organisms, should be aware that the current lack of baseline information of their fishes is resulting in losses exponentially greater than a few scientific specimens. Museum specimens can, and have been, used in court cases to protect populations and even entire watersheds from unsustainable practices that threaten to kill fish on a scale far greater than that of scientific collections. Nevertheless, if an aquatic biodiversity inventory is to be carried out in Bhutan, it must rely heavily on non-lethal and non-harmful sampling methods. The use of streamside photography (Following methods laid out by Thoni (2012) at the Ugyen Wangchuck Institute for Conservation and Environment Aquatic Biodiversity Assessment Workshop in May 2012)and DNA analysis from fin clips, which is comparable to clipping ones fingernails, are examples of how we can achieve this. At the same time, a bare minimum number of voucher specimens, as justified by the number of lives they will save over their long-term curation, must be kept in accordance with the International Code of Zoological Nomenclature (www.ICZN.org).

It is a matter of paramount importance to understand the natural resources and biodiversity at stake in what may be the last bastion for many rare Himalayan taxa. With Bhutan emerging as a model nation for sustainable development, now more than ever we need to show that we are committed to obtaining a robust understanding of the aquatic resources and biodiversity in Bhutan. The first step in gaining such understanding is by establishinga baseline inventory of the diversity of fishes, particularly in those regions of Bhutan under immediate threat.

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Tobacco Use by Bhutanese College Students

JANET WARD SCHOFIELD

Abstract

This paper reports the results of a survey of 846 Bhutanese college students regarding their tobacco and illegal drug use. It also provides data useful in developing prevention and cessation programs. For example, the finding that over 50% of the students who use tobacco or illegal drugs adopted these behaviors before entering higher secondary school and that about 25% started using these substances in or before class 8 suggests that prevention programs need to start when students are quite young. This paper also discusses the implications of this study for assessing efforts designed to prevent the use of tobacco and illegal drugs or to help current users cease their use. Specifically, it makes a suggestion regarding the nature of the performance indicators that can be used to assess the success of campaigns designed to reduce substance abuse as well as other interventions designed to promote the development of healthy and productive youth in Bhutan.

Introduction

This paper reports the results of a survey of 846 students at Royal Thimphu College (RTC) regarding their tobacco use. The survey was conducted as one of the initial activities in a year-long campaign at the college, organized around the theme "Living Free: Without Tobacco and Drugs." This effort was designed to reduce tobacco and illegal drug use among students, as both of these unhealthy behaviors are the focus of considerable societal concern (Centers for Disease Control, 2012; Ministry of Health, 2008). The survey was designed to gather baseline data on the prevalence of tobacco use in order to allow accurate assessment of the impact of this campaign. It also explored students' attitudes and behaviors in these areas in order to lay the basis for an effective campaign by providing information such as how long students who use tobacco have been doing so, whether these individuals would be interested in a cessation program, what concerns students about tobacco use, how students feel about others smoking, etc.

The survey also included a smaller number of questions (5) about the prevalence of illegal drug use and attitudes towards such use, the results of which are also presented in this paper. Although the college recognized the potentially very serious consequences of drug use, the survey focused primarily on tobacco use for two reasons. First, it was considered to be a much more widespread behavior. Second, it was possible to gather objective and dependable measures of the reduction of smoking to complement the survey data, whereas such measures of changes in drug use were not readily available.

As the *Guidelines for the 11th Five Year Plan* (Gross National Happiness Commission, Royal Government of Bhutan, 2012) suggest by listing key performance indicators for each of the key result areas, it is crucial to devise ways to effectively determine the progress made toward the goals of institutional programs and policies. Background work conducted in preparation for the assessment of the success of the RTC campaign produced some thoughts that may be useful in achieving this goal. So, in addition to presenting the results of the survey and their implications for prevention and cessation activities, this paper also provides a suggestion regarding the nature of performance indicators that can be used to effectively assess the success of government or of other institution's policies and programs designed to achieve outcomes such as reducing smoking and illegal drug use among youth.

Background

Bhutan has a long history of discouraging tobacco use. Indeed, Bhutan's very first legal code barred tobacco use in government offices and religious buildings (Givel, 2009) and as early as the mid-18th century efforts were being made to control the import of tobacco and to discourage its use (Aris, 1986). In addition, currently, the country is "unique in its tobacco control efforts" in that not only is the sale of tobacco banned, so is its "cultivation, harvest, manufacture, supply and distribution" (Royal Government of Bhutan, 2010, p. 3). Perhaps not surprisingly then, public attitudes toward smoking are generally quite negative (ICT Project, 2011).

In spite of very long-term and strong governmental efforts to discourage tobacco use, it still occurs within Bhutan. Indeed, there is great concern about the possibility of a rising incidence of tobacco use among youth (Ministry of Health, 2008), although comparison of the results of surveys conducted in 2006 and 2009 does not show an increase in youth tobacco use in that very short time period (Royal Government of Bhutan, 2010). The Global Youth Tobacco Survey (GYTS) conducted in Bhutanese schools in classes 6 through 8 found that 18% of the male students and 4% of the females smoking cigarettes (Global Youth Tobacco Survey, 2009; Royal Government of Bhutan, 2010). Almost 40% of 13-15 year old smokers buy their cigarettes in a store, which is illegal (Phuntsho, Rahman, Warren, Jones, Asma & Lee, 2006). Another study found daily tobacco use in 5% of Bhutanese males in classes 7-8, 8% of males in classes 9-10 and 13% of males in classes 11-12 (Panda, Wangdi, Mukherjee, Chowdhury, Wangi, & Pahari, n.d.), with use by females in all these classes less than 1%. The same study found that occasional tobacco use was considerably higher, reaching 31% for males and 10% for females in classes 11-12. Male students' occasional use of cannabis and solvents was roughly half as common as tobacco use in each of these school levels. Female occasional use of these substances in all school classes from 7-12 was roughly 1-3%.

Surveys of adult tobacco use in Bhutan suggest somewhat lower rates of smoking than studies conducted of students' use. For example, the *Tobacco Atlas* published by the American Cancer Society and World Lung Association estimates smoking rates in Bhutan as about 9% for adult males, 5% for adult females and 12% for youth between 13 and 15 years of age, with males in this age group being about three times as likely to smoke cigarettes as their female peers (Eriksen, Mackay & Ross, 2012). The ICT Project (2011), conducted in four dzongkhags (Bumthang, Chukha, Thimphu and Trashigang), concluded that about 5% of those in the 18-24 year age group smoke. Another survey of adults conducted in Thimphu as part of the STEPwise Approach to Surveillance (STEPS) project concluded that the overall prevalence of smoking was quite low (6.8%), although the youngest group surveyed (24-34 years of age) was by far the most likely to smoke, with about 11% of them reporting this behavior (Ministry of Health, 2009). Interestingly, this study found that relatively young adult tobacco users (18-24) were markedly *more* likely to smoke that those in older age groups (45% v. 10%-24%) and much *less* likely than older tobacco users to use smokeless tobacco (48% v. 71%-90% for older cohorts). These figures suggest that tobacco preferences may be different in different age cohorts with smoking being more popular among the youngest group. The ITC report also suggests complex relationships between education and tobacco use. For example, although the rates of reported tobacco use are essentially the same for those with no education and

those with a class 11 or greater education (8.2% v. 8.3%), the latter group is almost 8 to 9 times more likely to smoke cigarettes than the former group (67% v. 8%), which is much more likely to use smokeless tobacco (87% v. 33%).

The studies cited in the previous paragraphs provide very useful information regarding the prevalence of tobacco use in various subgroups within Bhutan. However, they provide only modest amounts of information regarding why individuals might choose to start using tobacco or illegal drugs, the concerns that individuals have about the use of such substances, and their attitudes toward them. For example, the GYTS (2009) found that almost 60% of 13-15 year olds believe that boys who smoke have more friends than those who do not, and that around 18% of respondents felt that those who smoke look more attractive. In addition, the ICT Project (2011) explored reasons that lead smokers to consider quitting. Yet, much information relevant to prevention and cessation efforts was not gathered, in spite of the fact that nearly 8 out of 10 young smokers surveyed in the 2009 GYTS reported wishing to quit (Royal Government of Bhutan, 2010) and that recent reports recommend strengthening smoking prevention and/or cessation programs in the country (Royal Government of Bhutan, 2010; ICT Project, 2011).

Understanding existing tobacco-related attitudes and behaviors is vital in planning effective prevention and cessation programs. This is especially the case in a situation of a small developing country like Bhutan, because cultural issues can impact the effectiveness of prevention and cessation programs developed and tested elsewhere (Nichter, 2003). Furthermore, it seems important to gather information about the tobacco-related behavior and attitudes of various subgroups within Bhutan, because previous studies strongly suggest that factors such as age, sex, and education impact tobacco use in Bhutan (ITC Project, 2011; Ministry of Health, 2009; Royal Government of Bhutan, 2010). Such differences are likely to have implications for prevention and cessation efforts. Finally, in a country like Bhutan which has historically emphasized harmony and community, it seems especially useful to understand not only the attitudes of those who use tobacco but also the attitudes of those who do not, as there is evidence that social norms can be used to minimize the occurrence of undesirable behaviors (Haines, Barker & Rice, 2003; Hancock & Henry, 2003; Hanson, n.d.; Zang, Cowling & Tang, 2010) which suggests the possibility of reinforcing individually-oriented prevention and cessation efforts with normative approaches.

Survey Administration

A 25-item survey was administered in early September 2012 to all 846 RTC students attending the class in which their cohort (programme and year group) was given the questionnaire. The faculty member leading each class read instructions that emphasized the importance of honest and accurate answers and the anonymity of students' responses. Procedures, such as having the students put their completed anonymous surveys in an opaque envelope that was publically sealed when all surveys from their class had been inserted in it, were also used to encourage frankness.

All questions on the survey were closed ended. However, students had the opportunity to explain what they meant when selecting the "other" option on a number of the multiple choice questions.

Respondents

Given that 924 students were enrolled in the college during the semester in which the survey was administered and that all 846 students attending classes the day the survey was administered completed it, the response rate was 92%. Reflecting the fact that the college has somewhat more female than male students, 53% of respondents were female and 47% were male. Sixty-one percent of respondents were resident students and 39% lived off campus, again reflecting the college enrollment statistics. Because surveys were administered to all groups of students, the percent of respondents in each academic programme was quite similar to the percent enrolled in each programme at the college.

However, the number of respondents to any given question was sometimes fewer than the full sample of 846, because some students left some questions blank. Furthermore, some questions applied only to a subset of individuals, which also substantially reduced the number of respondents to those specific questions. For example, for obvious reasons, only those using tobacco answered questions about when they started this behavior, why they started it, etc.

Of course, the fact that the sample was limited to RTC students means that the study cannot be generalized to all Bhutanese college students or to that age cohort of Bhutanese more generally. However, it is worth noting that RTC enrolls students from all 20 dzongkhags and from a wide variety of backgrounds.

Prevalence and Reasons for Tobacco Use

Sixty-eight percent of the respondents, 54% of the males and 80% of the females, report "never" using tobacco at this point in their lives. In contrast, 14% of the students, 20**%** of the males and 9% of the females, report using tobacco every day. The remaining 19%, including the 7% reporting use a couple of times a month, the 4% reporting use about once a week, and the 8% reporting use a couple of times a week, use tobacco occasionally but not daily.[1]

The 255 students who reported using tobacco at least occasionally were asked **why** they started. They were provided with 5 answer options, including "Other," and were instructed to "Tick all that apply". The options presented were based on existing research regarding why individuals start smoking supplemented importantly by the results of informal interviews with students regarding their observations about why Bhutanese adolescents start using tobacco.

The two most commonly chosen responses were "I was bored" (36%) and "My friends encouraged me" (35%). A relatively small proportion of respondents selected the additional options provided, which indicated that the habit was "picked up from family members" (2%) or that the student started using tobacco for a "cool" image (6%). Approximately 20% of the respondents to this question selected "Other" and many of these provided an explanation of what that other cause was. By far the most common "Other" cause mentioned was curiosity. Peer pressure, family problems and stress were also mentioned occasionally. Male and female responses to this question were not significantly different from each other (Chi Square=3.53, df=4, n.s.).

Prevalence and Reasons for Illegal Drug Use

Approximately 88% of RTC students report "never" using illegal drugs at this point in their lives, with 81% of the males and 94% of the females selecting this response. The next most common response, selected by about 6% of the students (10% of the males and 3% of the females) was that they used such drugs "a couple of time a month." From 1-3% of the students selected other options indicating more frequent drug use (1% "once a week," 3% "a couple of times a week," and 2% "daily").

The 67 students who reported at least occasional illegal drug use were instructed to answer a question about **why** they started using drugs. They were provided with 6 answer options including "Other" and asked to "Tick all that apply." As with tobacco use, the most common responses were "I was bored" (37%) and "My friends encouraged me" (33%). Another 18% ticked "I was sad." Concerns about image (4%) or desire to imitate family members (0%) were selected infrequently if at all. There was a clear male/female difference in reported reasons for initiating drug use, with females being much more likely to mention being bored than males (63% v. 29%), (Chi Square=5.7, df=1, $p. \leq .05$) and much less likely to mention being sad (6% v. 22%), (Chi Square=9.48, df=1, $p. \leq .01$).

Interest in Cessation Programs

Of those 255 students who reported that they currently use tobacco, even if only very occasionally, roughly half (52%) indicated that they would enroll in a "How to Stop Smoking" group if there were one available on campus. The other 48% indicated no interest in such a group. Females were slightly, but not statistically significantly, more likely to express interest in a smoking cessation program than males (56%-50%), (Chi Square = .53, df=1, n.s.). The percentage of illegal drug users reporting an interest in a drug cessation program was also 52%.

When Substance Use Started

Of considerable pertinence to possible prevention and cessation programs is that fact that the large majority of RTC students who use tobacco have been doing so for quite a few years. The most common time for starting was in classes 11-12 (36%). However, 26% of those who use tobacco started during class 9 or 10 and another 24% started in class 8 or earlier. Nine percent started during their first semester at RTC and roughly 10% of the senior students (the 2nd, 3rd and 4th year students only) who use tobacco reported having started at RTC after their first semester.

The small percentage of RTC students who reported using illegal drugs in this survey presented an almost identical pattern. Specifically, the most common time for those who used drugs to have started this was in classes 11-12 (41%). Another 23% of illegal drug users started in classes 9-10 and an additional 23% started in class 8 or before. Thus, only 14% of the students using illegal drugs started during college.

Concerns about Substance Use

All respondents were provided with 9 possible answer options for a question regarding what concerned them *the most* about tobacco use by themselves or other students. Almost half of the respondents (45%) mentioned "health issues," a response notably more frequent among females (51%) than males (38%), (Chi Square=13.18, df=1, p. ≤ .01)[2]. The other most common answers, each selected by 12-13% of all respondents, were "social consequences," "religious concerns" and "nothing much," meaning that the respondent had few concerns about tobacco use. Infrequently selected options included "legal consequences" (6%), "smell" (6%), "cost" (3%), and "negative impact on attractiveness" (2%), suggesting that fear of punishment under to Tobacco Control Act is not acting as a deterrent for many students. Generally speaking, male and female responses were not strikingly different, although males were more than twice as likely to say that "nothing much" concerned them about tobacco use (19% v. 9%) as females, a statistically significant difference (Chi Square=17.31, df=1, p. ≤.01).

The responses of students who use tobacco and those who do not to the question regarding what concerned them about such use were quite different. For example, roughly a quarter of the former group (27%) indicated that "nothing much" concerned them about tobacco use, compared to only 7% of the latter group, a statistically significant difference (Chi Square= 52.01, df=1, p. ≤.01). Compared to non-users, students who use tobacco were also significantly **less** likely to express concern about health (34% v. 50%), (Chi Square=52.50, df=1, p. ≤.01) and religious issues (7% v. 14%), (Chi Square=4.68, df=1, p. ≤ .05). In contrast, tobacco users were proportionally much **more** likely than non-users to express concerns about the possible legal consequences of tobacco use (10% v. 4%), (Chi Square=11.48, df=1, p. ≤01) and its cost (6% v. 2%), (Chi Square=8.17, df=1, p. ≤ .01).

All respondents were also presented with a similar question asking what concerned them *the most* about illegal drug use. The answer options were the same as those provided for the question about tobacco, except that "impact on attractiveness" and "smell" was omitted. As with tobacco, by far the most commonly selected response was health issues (52%), an answer significantly more frequent among females (61%) than among males (40%), (Chi Square=109.80, df=1, p. ≤ .001). In contrast, compared to females, males were both more likely to say that "nothing much" concerned them about drug use (13% v. 5%), (Chi Square=13.96, df=1, p. ≤ .001) and to mention concern about its social (21% v. 13%), (Chi Square=7.60, df=1, p. ≤ .01) and legal consequences (14% v. 8%), (Chi Square=4.76, df=1, p. ≤ .05).

Student Attitudes Regarding Smoking

All respondents were presented with 8 questions regarding their attitudes about smoking by other RTC students as well as about formal and informal norms on campus regarding smoking. There were 5 response options for each of these questions: Strongly Agree (5), Agree (4), Neither Agree nor Disagree (3), Disagree (2), and Strongly Disagree (1). Students' responses are discussed next by general topic.

Five questions explored students' attitudes toward smoking on campus, an activity which is clearly against college rules as well as being illegal under the Tobacco Control Act. Generally speaking, such attitudes were negative.

Table 1 Students' Attitudes Towards Smoking

Statement	% Strongly Agree	% Agree	% Neither Agree Nor Disagree	% Disagree	% Strongly Disagree
I wish there was less smoking on campus	58	14	17	4	7
I like it when other RTC students smoke in hostel rooms	5	4	15	15	62
I like it when other RTC students smoke in hostel toilets	6	7	18	14	56
I like it when other RTC students smoke in academic block toilets	5	5	15	13	62
I like it when other RTC students smoke on campus outside of buildings	13	16	19	12	40

Specifically, as can be seen in Table 1, a total of 72% of respondents either strongly agreed (58%) or agreed (14%) with the statement, " I wish there was less smoking on campus " compared to a total of only 11% who either strongly disagreed (7%) or disagreed (4%) with this statement.

Attitudes toward smoking in particular areas of campus were also typically negative. Specifically, over 70% of the respondents reported strong disagreement or disagreement with each statement indicating that they liked students smoking in various campus facilities and over 50% reported disagreement or strong disagreement with a statement saying they liked it when students smoke outdoors.

Without exception, as a group, students who do not use tobacco were significantly more negative in their responses to the questions just discussed than were tobacco users. For example, the average response by the former group to the statement saying that they wished there was less smoking on campus was 4.5 out of 5, indicating that they quite strongly wished there were less smoking. In contrast, the average response for tobacco users to this statement was 3.2, just about at the neutral point on the response continuum, a statistically significant difference ($t=15.53$, $df=770$, $p.\leq 001$).

Three additional questions were asked regarding attempts to reduce smoking among RTC students. As can be seen in Table 2, 70% of the respondents strongly agreed or agreed with a statement saying that they wished the college would more strictly enforce rules against smoking. In contrast, fewer than 15% disagreed (8%) or strongly disagreed (6%) with this statement.

TABLE 2 Attitudes and Behavior Relating to Smoking Reduction Strategies

Statement	% Strongly Agree	% Agree	% Neither Agree Nor Disagree	% Disagree	% Strongly Disagree
I wish RTC would implement rules against smoking more strictly	55	15	17	8	6
I feel comfortable asking RTC students not to smoke…	17	18	25	19	21
I have actually asked another RTC student not to smoke…	13	16	22	25	24

Students who did not use tobacco were more in favor of stricter enforcement of college rules against smoking than were tobacco users. Specifically, the average response of the former group to a statement endorsing stricter enforcement of rules was 4.5, showing quite strong agreement with it, but the latter's average response was significantly different, being just at the neutral point on the response

scale 3.0 (t=19.34, df=781, p.≤.001). Interestingly this finding suggests that a substantial number of even those who use tobacco express neutral or occasionally somewhat negative attitudes toward smoking on campus.

Although the students generally reported that they want the college to enforce rules against smoking more strictly, they themselves were typically not likely to take action to reduce others' smoking on campus. Specifically, fewer than 30% have asked another student not to smoke. Perhaps one reason why the number of students who *have asked* another not to smoke is a lot less than those who *wish* others would not smoke is the social awkwardness of making such a request, suggesting that many students see this behavior as counter-normative.

Implications For Smoking & Drug Prevention And Cessation Programs

Bhutan's Tobacco Control Act charges the Tobacco Control Board with the responsibility of promoting access to effective educational programs regarding the dangers of tobacco use. Perhaps the most important practical implication of this study's findings is that any such efforts to prevent smoking and illegal drug use need to begin very early in an individual's life. Approximately 50% of the college students in this study who use tobacco or illegal drugs began such behavior before class 11-12, including about one-quarter of them who began using these substances at a very young age, in or before class 8. Since tobacco and many illegal drugs are physically addictive and quitting is notoriously difficult (West & Shiffman, 2007), it seems crucial to implement effective prevention programs well before students reach higher secondary school.

The current National Youth Policy (Department of Youth and Sports, 2010) suggests that youth (defined as those aged 13-24 years) should be educated through school and other sources on health issues. But the Global Youth Tobacco Study (2009) of Bhutanese students in classes 6 through 8 found that just about one half of those students had been taught about the effects of tobacco use in school during the past year. Of course, the curriculum must serve many purposes and time is clearly limited. However, the effects of tobacco and drug use are serious enough for individuals and for society that enhancement of education efforts regarding these substances for children as well as for youth is important. Educational efforts are especially vital in light of the ITC Project's (2011. p. 23) finding that "knowledge of the specific harms of smoking and of second-hand smoke among tobacco users in Bhutan is low…the lowest or close to the lowest among all ITC countries." Another fact highlighting the importance of early and enhanced prevention efforts is that the only 20% of the large number of students in classes 7-12 in 14 dzongkhags participating in National Baseline Assessment of Drugs and Controlled Substances reported that the dangers of drug and alcohol use were well-covered in their school curriculum or extra-curricular activities (Panda et al., n.d.). Roughly 50% of students in that same study thought these topics were only covered "to some extent" and about 30% reported that they were not covered at all.

The current study not only emphasizes the importance of targeting children before grade 8 with programs regarding the dangers of tobacco and illegal drug use; it has implications for the design of effective education and cessation programs. Specifically, this study suggests that different segments of the population may find different reasons for not using tobacco or illegal drugs differentially compelling. For example, when asked what concerned them *the most* about tobacco use, students in this study did not

mention religious concerns very often. However, religious concerns were the most frequently endorsed reason when the ITC Project (2011) asked adult smokers to indicate the various factors that "very much" or "somewhat" led them to think about quitting. Although health concerns were prominently mentioned in both studies, the current study suggests that tobacco users may discount such concerns compared to non-users. Thus, it seems important to understand that different groups of individuals may have somewhat different concerns regarding tobacco and drug use in order to design prevention and cessation efforts that are maximally effective.

A possible indirect approach to preventing tobacco and illegal drug use is suggested by this study's finding that over one-third of those who use these substances reported starting such habits due to boredom. This finding suggests the importance of providing engaging and constructive activities for youth from at least middle childhood on. Organized sports are certainly one excellent possibility, but it is important to consider other activities as well. Although such efforts require resources, they may be as or more effective than just raising awareness about the ill effects of tobacco or drug use because they address an underlying cause of vulnerability to use of such substances.

Another supplement to awareness activities suggested by this study are campaigns to actively develop social norms discouraging tobacco and illegal drug use among youth. Specifically, over two-thirds of students in this study did not like smoking on campus. Yet, most had not taken the relatively simple action of asking others not to smoke, even though the campus is a smoke free area by law and posted signs remind all of this. There is evidence from other countries that campaigns designed to shape social norms can reduce tobacco use (Haines, Barker & Rice, 2003; Hancock & Henry, 2003). This approach seems potentially useful in Bhutan because such a large proportion of the population disapproves of smoking (ITC Project, 2011). RTC undertook such an approach in a modest way, by putting up signs reminding students that they are free to ask others not to smoke. A more concerted campaign could also focus on developing social norms favoring such behavior in additional ways, such as highlighting the fact that asking someone not to smoke is asking them to act in a way that is healthy for them as well as for others. Other important implication of this study is that cessation services are urgently needed, both because of the substantial amount of tobacco use documented here and because of the expressed desire to quit on the part of the majority of tobacco users in this study, as in earlier studies (ICT Project, 2011; Global Youth Tobacco Survey, 2009). This is especially crucial in light of the passage of the Tobacco Control Act, which prohibits smoking in many places as well as the in-country purchase of tobacco and which provides strong penalties for violation of its provisions. Although the prevalence of illegal drug use appears to be much less than the prevalence of tobacco use (Panda, Chowdhury, Dendup & Pahari, 2009), the potentially very serious consequences of such behavior make well-designed and implemented drug cessation programs vital as well.

One serious issue that needs to be addressed through research is how to mobilize those who say they want to quit to actually take advantage of cessation programmes that are developed. For example, although a majority of the tobacco users in this study said they were interested in a cessation programme, only a very few students enrolled in one that was offered on campus. This may well reflect that fact that many smokers believe they will be unable to quit even with help, as evidenced that the finding that two-thirds of smokers in the ITC Project (2011) study reported feeling it would be hard for them to quit.

Yet another possible implication of this study is that the prevalence of tobacco use in Bhutan may be increasing over time. The rate found in this survey for at least occasional tobacco use among college students, about 30%, is higher than some earlier studies of youth suggest. However, exact comparisons and firm conclusions regarding this issue are impossible to make because the population surveyed in this study differs in a number of ways from populations on which earlier estimates were based. Differences range from the specific age groups and populations for which estimates are available to the exact phrasing of the relevant questions. The ICT Project (2011) study, conducted in 4 dzongkhags including Thimphu where RTC is located, suggests that only 8% of the population with a class 11 or greater education uses tobacco as do only about 9% of those aged 18-24 years. The STEPS study concluded that about 11% of those in Thimphu in the 24-35 year age group smoke. (It did not include in its sample those below 24 years of age like the vast majority of the students surveyed here). The Global Youth Tobacco Survey (2009) suggests that roughly 20% of Bhutanese youth in the 6th through 8th grades (typically aged 13-15 years) use tobacco. Finally, the National Baseline Assessment of Drug and Controlled Substance Use in Bhutan concluded that 13% of the males in grades 11-12 use tobacco on a daily basis. Estimates for female students were below 1% for all classes included in that study (Panda et al, n.d.). In contrast, 20% of the males in this study and 9% of the females reported the daily use of tobacco.

It is possible that the generally higher rate of reported tobacco use in this study compared to earlier ones reflects factors such as age, education, question wording, or socio-economic differences between the samples surveyed rather the time trends. However, even if tobacco use is not increasing, the relatively high use rate documented here highlights the urgency of acting on existing recommendations regarding tobacco prevention and cessation programs. Action is all the more important given that a government report asserts that "There are no adequate facilities for tobacco cessation in Bhutan" (Royal Government of Bhutan, 2010, p. 9).

Although it is widely believed that drug use is increasing in Bhutan, especially in Thimphu, good data on this issue is not available (United Nations Office of Drug Control, 2009). Thus, this paper does not venture an opinion on whether the rate of drug use documented here implies an increase over time because dependable figures on illegal drug use in Bhutan from previous studies are very scarce. Indeed, there are no official estimates of drug use for Bhutan as a nation (United Nations Office of Drug Control, 2009). A large study of substance use in 14 dzongkhags concluded that 1% or fewer of students in grades 11-12 engage in daily cannabis use with a similar percentage reporting daily solvent use (Panda et al., n.d.), figures relatively similar to the 2% of RTC students who report daily use of *any and all* illegal drugs. Similarly, a study of students in classes 11-12 in Phuentsholing found that .5% of students report using cannabis daily, while .4% report using illegal pharmaceuticals daily and .2% report sniffing daily (Panda et al., 2009). Depending on whether the same students are using all these substances or not, the estimated rate of use of these three drugs would range from .5 to 1.1%. Even though the proportion of students using illegal drugs both in these studies and at RTC is very low, this behavior has such serious consequences that efforts to prevent it and to help those already using such drugs to cease doing so are crucial, since each young person addicted to drugs is not only a likely burden on his or her family and the health system but may also be unlikely to realize his or her full potential to contribute to the broader society.

One final implication of this study concerns the nature of the performance indicators used to assess the key interventions proposed in the *Guidelines for the Preparation of the 11th Five Year Plan* (Gross National Happiness Commission, 2012) as well as the results of other efforts to address youth issues. Those guidelines, which propose a study to recommend programs to address the problems of vulnerable youth, suggest that such programs be judged by indicators such as the *number* of youth friendly services developed and the *number* of community based programs developed to address youth issues (Gross National Happiness Commission, 2012, p. 50). In contrast, a crucial element of the *Living Free: Without Tobacco and Drugs* campaign at RTC was an assessment at the end of its first three months of its actual *behavioral outcomes*, rather than a count of the activities implemented or an assessment of changes in awareness. Specifically, it asked whether objective evidence suggested a reduction in on-campus smoking and concluded that it did (Schofield & Pradhan, 2012).

Of course, a focus on the extent to which programs achieve their intended purpose is much more effortful and costly than a focus on the number of programs instituted or on whether awareness has been raised. Further, if programs have long term goals and a problem is urgent, it may not be wise to wait until one can fully assess goal attainment before starting to implement the program broadly. However, especially in cases like tobacco/drug use cessation, where achieving intended outcomes is difficult, finding a way to estimate the efficacy and cost effectiveness of a planned approach to a problem seems well worth considering (Schofield, 2012). The expenditure and delay related to such an approach may well be repaid many times over if such efforts increase the effectiveness of programs or prevent the implementation of ineffective although well-intentioned activities.

Many of the key performance indicators proposed in the *Guidelines for the Preparation of the 11th Five Year Plan* do already incorporate a focus on quality or effectiveness. However, the effectiveness of programs aimed at assisting the healthy and positive development of Bhutanese youth is such an important issue that consideration of whether some of the key performance indicators relating to youth programs should focus on *outcomes* rather than on *the number* of programs implemented seems worthwhile.

Notes

1. Occasionally percentages do not add to precisely 100% due to rounding.
2. Although percentages are reported in the text for ease of understanding, all Chi Square tests were conducted on the actual number of individuals in the groups compared as is appropriate for this test, rather than on percentages.

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Higher Education and Employment: Challenges in Bhutan

ISTVAN HERNADI, ALKA RATHORE, RINCHEN DORJI AND DAWALA

Abstract

Rapid expansion of education in Bhutan can lead to a discrepancy between the output of graduates in different specializations and the capacity of the Labour Market to absorb them, leading to unemployment and under-employment of certain graduates. By surveying college students of various specializations, employees and employers we attempt to identify the attitudes, motivation and the changing needs of the employment market in order to identify inconsistencies between education and the labor market. Our research objectives are to: extend the studies of graduate unemployment to the situation in Bhutan and compare it with other developing and developed nations; to determine the attitudes and motivations of college students toward higher education and employment; and to determine the changing relationship between education, employment and the labor market and how employability is possible in the new 'knowledge-driven' economy. Analyzing the data allows us to look at ways in which emphasis may be shifted in the higher education system away from simple participation rates towards a more diversified education to meet future workforce needs and skills. Our study looks at best practices in this area and how other countries cope with this issue.

Key words: employment, higher education, young adults, college students, job market, job skills, training, unemployment, counseling, graduate aspirations, graduate employability.

Introduction

Rapid expansion of higher education in many developing and developed countries had resulted in unemployment problems among the educated youth. At first countries increased their gross enrollment ratio in tertiary institutions in order to expand their economy, as part of a push to achieve a highly educated workforce. Higher education was the domain of the wealthy at one point, when access to Universities was limited and the cost was prohibitive. However, all this changed by the 1950's in most of the industrialized nations of Europe, North America and Australia.

As nations shifted from agriculture dominated economy, most jobs in business, finance and industry required a degree from a University or a diploma from a vocational school. Thus it was necessary to expand the tertiary education system, to admit more students in both government and private institutions. Students realized that a degree or diploma led to better jobs and higher salaries. This led to large numbers of graduates entering the job market with high expectations. Eventually unemployment and under-employment issues arose, especially during recessionary times (Bai, 2006). It is important to balance the job expectations of college graduates with the capacity of the labour market, the required skills and employer expectations. Youth unemployment has become a global problem; this rate has continually increased, especially among first-time job seekers (ILO, 2013).

An evaluation of the social causes of unemployment requires analysis in terms of labor force and labor force participation rates as determined by industrial restructuring and the supply and demand of human capital. Governmental and Non-Governmental strategies are employed in most countries to improve human capital development among college graduates that face unemployment.

Using our survey data, we attempt to identify the attitudes, motivation and the changing needs of the employment market in order to identify inconsistencies between education and the labour market. In this study we examine the question of the changing relationship between education, employment and the labour market, what are best practices here and elsewhere and how employability is possible in the new 'knowledge-driven' economy.

Literature Review

In 1973 Martin Trow defined Mass Higher Education, as when over 15% of the age grades have access to higher education (Trow, 1973). Transition from elite to Mass Higher Education took place in developed nations during the middle of the 20th century. This goal was also recognized by the central government of China and they aimed to reach it in a 10 year plan instituted in 2000. This goal was actually reached by 2002, (Bai, 2006) and exceeded by 2004. In 1900 only 500,000 people were enrolled in tertiary education worldwide. Currently this number is at nearly 130 million students worldwide, an average of 20% enrollment, foreshadowing the possibility of universal higher education (Maslen, 2012).

A review of participation rates in OECD countries reveals an average 50% participation rates in Higher Education, with some Eastern European countries (Poland, Slovakia) reaching as high as 60% rate in the 18-25 age group. Such a high rate also implies that these nations have an overall 50% of the population 25-65 age group with Higher Education and a literacy rate of nearly 100%. Another interesting finding in these surveys is that in 21 of the OECD countries women outnumber the men in numbers graduated from tertiary educational institutions (OECD, 2011).

This leads us to several observations:

1. College education increases the value of human capital and leads to productivity gains, private entrepreneurship and economic development. Tertiary education serves as an indicator of the capacity at which countries produce advanced knowledge. Countries with high graduation rates at tertiary level are also those most likely to be developing or maintaining a highly skilled labour force (McKinsey Global Institute, 2012).

2. Tertiary education of 3-5 years delays the entry of the 18-25 age group into the job market, hence temporarily reduces the pressure on job seekers (OECD, 2011).

3. The large percentage of young women enrolled in Universities also reduces the birth rate in developed countries, further reducing pressures on the future job market, as the population growth is stabilized at a lower rate (UNESCO, 2004).

4. When a large numbers of graduates enter the job market with high expectations, it can lead to temporary unemployment issues, especially during a recession. In the United States the unemployment rate for college graduates younger than 25 jumped to an average of 9 percent between April 2009 and March 2010, compared with a 5.4 percent average in 2007. That rate

doesn't account for graduates who are employed part-time or at jobs beneath their skill levels (Quillen, 2010).

5. It has been shown that Higher Education does lead to better jobs and higher earnings in the long run. "On average, college graduates do very well in terms of employment and earnings relative to others in the labor force" (Shelley, 1996). This is a large factor motivating young people to enroll in tertiary education, and is especially true in underdeveloped nations or those formerly under communist rule where people had little chance of improving their status without higher education.

Countries such as China, India, Poland or Russia are not always able to absorb the highly skilled and educated into their own job market; however, they are now able to export this talent to the global job market. Some developed countries face a shortage of certain skilled workers and find it more economical to import such skills from outside. This export of human capital has become another important source of income contributing to an increased wealth for developing nations (McKinsey Global Institute, 2012).

Demand and supply of labor over the next 2 decades will have a huge impact on the global economy. Based on current trends, there will be large gaps in the labor supply needed to drive the new knowledge-based economies, while workers with limited skills will be in surplus (McKinsey Global Institute, 2012). The global labor market of 3.5 billion workers is projected to have a potential shortage of over 38 million college-educated people in 2020, according to the study by McKinsey Global Institute. Avoiding these imbalances (in both developing and advanced economies) will require an unprecedented commitment to education and training.

Implication of these findings for Bhutan

These findings are highly relevant to the Kingdom of Bhutan where the Higher Education participation rate for 2011 was estimated to be just lower than 15%. This is lower than the lowest rates (40% in OECD) found in developed countries and also below the 20% rate for China or approximate 20% rate for Turkey and Mexico (OECD, 2011) and 18% rate for India (Goswami, 2012). However, the rise in Gross Enrollment Ratio in India does not necessarily mean an increase in education quality or the supply of skilled personnel, academics and policy-makers have warned. While the Gross Enrollment Ratio of Singapore is just 23%, it is one of the most advanced economies in the world (Mishra, 2012). South Korea, Canada and Japan are the top three countries with the largest share of adults ages 25 to 34 holding college degrees (OECD, 2011). Statistics show that only approximately 3.5% of the working population in Bhutan is college educated (Pelden, 2012a) and (NSB, 2011).

This disparity in Bhutan, coupled with the large percentage of illiteracy rate (over 200 thousand people, or 25% of the population, mainly in agriculture) leads us to conclude that Higher Education has a long way to go towards developing a strong and well-educated nation. Quality Higher Education is a goal stated by the Honorable Minister of Education in an address at Gaeddu College of Business Studies in May 2012. His Excellency stressed the importance of education, not just for employability ("Universities are not just degree factories, producing employable graduates"), but for the sake of knowledge, as well as life and business skills. The continuing importance of Higher Education has also been stated by His Majesty the 5th Druk Gyalpo and the Royal Government of Bhutan in the current 5 Year Plan.

Best practices for business skills development can be found in various developed countries, where the supply of tertiary graduates is abundant, but there is a need to develop business skills relevant to the marketplace. For example the Government of Canada issued a directive in 2011: "The future prosperity of each region depends on ensuring that people have the skills and opportunities to contribute, innovate and succeed. The Canadian government is committed to expanding opportunities for entrepreneurs so they can add to or improve their business skills, enhance their abilities, and prosper in today's changing economy." The Government supported nearly 450 business skills projects in 2011 in each region of the country (ACOA, 2011).

Methodology

The study sought to examine these research questions:

1) What skills Bhutanese college graduates have or lack and how they relate to their jobs and to employer expectations?

2) What are the attitudes and motivations of college students and graduates in Bhutan toward higher education and employment?

3) Examine the various factors that contribute to graduate unemployment, and what solutions can be offered.

We used convenience, or opportunity sampling, to survey 414 students (last year of their program) from tertiary institutes in Bhutan to participate in our study (the sampling was done to include close to 15% of the students in final year classes in each area of study). We also surveyed 207 employees throughout Bhutan who are recent graduates (2009-2011) from colleges and vocational schools in the nation. Our questionnaire had 16 items and took less than 5 minutes to complete. We asked respondents about their college background, motivation for higher education, the quality of education received, job search methods, salary expectations, most important factors in their jobs and industry of employment.

Finally, we asked 23 employers to fill out a survey on hiring practices, employee skills and educated workforce needs. Secondary data relating to population demographics, comparative data with other nations and workforce statistics were collected from Statistics Yearbooks, published papers and government websites such as Ministry of Labour and Human Resources and Royal Civil Service Commission.

Data was coded and entered into SPPS for analysis. SPSS software was used for descriptive statistics and summary graphs. The summary tables obtained were compared with similar surveys conducted in China, Philippines and with European data.

Limitations of this study include a number of factors. Some 4000 Bhutanese students enrolled in colleges abroad were excluded from this study, as it would be nearly impossible to locate most of them for a survey. We have no idea about the fields of study these students pursue abroad. We sampled only final year students in Bhutan, but it was not a true random sample, although we attempted a stratified approach while sampling the various colleges. We had difficulties contacting recent graduates, thus our sample includes too few in the education field and too many in engineering. To overcome some of these limitations, we chose several randomized samples in SPSS to arrive at our results and examined the significance of the summary statistics. Randomized subsamples did not significantly impact the results and the conclusions shown are still valid.

Results

The data on final year students include approximately 63% males and 37% females with a mean age of 24, obtained proportionately from all Royal University of Bhutan colleges, Royal Thimphu College and Jigme Namgyel Polytechnic institute.

According to the survey responses, the students studied in the general fields of study shown below:

18% Finance and Accounting, Economics
17% Education
21% Science, IT and Engineering
10% Vocational diplomas
10% Health/Nursing
10% Languages, Art

Smaller numbers are enrolled in Geography, Agriculture, Human Resources, Marketing and Tourism. The distribution of students by field of study is quite similar to that found in a study of countries such as the Philippines (Johanson, 1999). RUB enrollment data for 2010 (RUB, 2011) indicates male enrollment in colleges in Bhutan to be almost 63% of the total, same as the percentage in our sample.

Academic performance of these students fell into the 60-80% average mark at least 86% of the time. Do students feel well prepared for employment? Respondents tended to find college infrastructure facilities (libraries, IT, etc) inadequate 15-18% of the time, while only 10-15% found them excellent, depending on their field of study. In our study, we found that 32-44% of graduates find field trips and entrepreneurship training inadequate, and 21% found counseling inadequate. Soft skills, course content and instructional methods were judged to be good to excellent by (>90%) graduates. Students and graduates in our study were quite clear on the fact that they wanted to use their skills and talents in their jobs, while salaries are of importance but location of employment was mostly unimportant.

Tables 1 and 2 summarize the respondents' perception on preparation for the job market by colleges: (1 = inadequate, 2 = adequate, 3= very good, 4 = excellent).

Table 1 Quality of college preparation for the job market

	Content	Instructional method	Soft skills	Infrastructure
Mean(Std. Dev)	2.76 (.75)	2.55 (.72)	2.46 (.75)	2.42 (.92)

Table 2 Quality of college preparation for the job market

	Counseling	Internship	Entrepreneurship	Field trips
Mean(Std.Dev)	2.16 (.83)	2.12 (.95)	1.99 (.8)	1.83 (.92)

Students were asked about their salary expectations. About 53% of them expect their first job to pay under Nu. 15,000/month (see Table 3). Our survey of employers reports a starting salary range of up to Nu. 20,000/month. And graduates who are employed report salaries of higher than Nu. 15,000/month 70% of the time. These findings, along with responses on the importance of various factors in a job indicate that salaries expected by college students are not of the highest importance.

Table 3 Salary Expectations vs. Actual salaries

Salaries in Nu. 1000's	Students Expected range	Actual earnings by Employees
0-10	12%	4%
10-15	41%	25%
15-20	32%	41%
20-25	10%	14%
>25	5%	16%

We found the highest salaries in Engineering (ranging above Nu. 20,000 / month) and middle range salaries in Finance/Accounting (in the Nu. 15,000 / month range). Our samples were quite small in some fields, thus we cannot draw significant conclusions about those salaries.

Over 95% of graduates find working conditions, training, security and advancement most important factors in their jobs; while location of workplace was found to be less important by graduates (see Tables 4 and 5). Employees and college students also valued: research, international work, helping others, entrepreneurship and good colleagues at work; scoring between 2.2 and 2.5 in importance with standard deviations of around 0.5, still ranking in the middle range among the factors studied.

Table 4 Most important factors in a job (1 = not important, 2 = important, 3= very important)

	Training opportunity	Career advancement	Secure future	Use my talents
Mean (StdDev)	2.71 (.49)	2.70 (.48)	2.69 (.52)	2.57 (.55)

Table 5 Least important factors according to responses

	Salary	Travel opportunities	Vacation time	Location near home
Mean (Std. Dev)	2.22 (.63)	2.19 (.65)	2.04 (.64)	1.61 (.7)

We asked final year students about their motivation for pursuing tertiary education. Percentages for Bhutanese students in 2012 are compared with a study for Chinese students in 2003. See the results in Table 6.

Table 6. Comparison of motivation for tertiary studies between students in Bhutan and China

Motivations	Numbers	% for Bhutanese students in 2012	% for Chinese students in 2003
For better job opportunities	238	58.9%	56.28%
For self improvement	122	30.2%	30.69%
Just following trends	11	2.7%	2.23%
For research interests	20	5.0%	8%
Others influence	13	3.2%	2.74%

Expected and actual job search: we found that 82% of students expect to find a job within 6 months. Among those who are currently employed 76% reported a job search time of 6 months or less. Another 16% took 6 – 12 months to find a job. The remaining 8% found a job after more than 1 year.

It is difficult to estimate the unemployment rate among new college graduates, as secondary data has no specific numbers for 24-29 age group with degrees. Data from the USA shows an average of 9% unemployment for this group in recent years and unemployment rates for the college educated youth were 10-16% in China in 2004. Considering media reports in Bhutan, of over 2600 people looking for positions in 2012, with only 2200 job and training opportunities available (**Choden**, 2012); we might have 400 unemployed graduates at this point or about 15%. But with rapid development of Hydro projects and other new businesses, as well as opportunities abroad, it should not be too difficult to absorb those 400 people into the workforce.

According to MOLHR (2012), demand for workers at hydroelectric power projects will be at least 4958 skilled Engineers, Admin / Finance/Accounts and other employees. The demand will peak by 2016. It may be difficult to meet this demand at current rates of graduation from within Bhutan.

Table 7 does not show any obvious disparities between areas of study (RUB, 2011) and the current job market. These percentages are approximate, as it is difficult to interpret and place some of the job vacancies announced by MOLHR (2012) into the correct category. It implies that graduates with general degrees or any of the specializations can be absorbed by employers in Bhutan and India. There are also training opportunities to start self-employment, in addition to the areas shown above.

Table 7 Areas of study versus job vacancies

Field of study	2012 College graduates (approx.)	Our study (616 valid responses)	Jobs+training vacancies
Business/Finance/Accounts	**20%**	25%	20%
Education	24%	17%	20%
Engineering / IT	16%	15%	22%
General / Arts / Media	20%	15%	22%
Agriculture	4%	7%	3%
Health / Nursing	4%	8%	2%
Vocational diplomas	12%	7%	11%

Discussion

A draft of a study by the Education Ministry in Bhutan shows that the perception of a government job and self-employment has not changed among the youth, both in and out of school, with over 87 percent of them preferring government employment (Pelden, 2012b). Self-employment and entrepreneurship are not seen by most youth as secure ways to advance their future. It was found that social and cultural factors discourage youth to opt for self-employment, mainly because government employment is seen to have higher social status (Pelden, 2012b).

1. *Skills of Bhutanese college graduates, related to their jobs and to employer expectations*

   Our responses confirm the findings by the Labour Market Guide; Bhutanese employers place a high importance on soft skills, such as: Positive work ethics, good attitude, desire to learn and be trained and consistent hard work (MOLHR, 2012). Tertiary institutes must strive to educate students in these vital areas.

We found that the participants in our study felt that the colleges in Bhutan prepared them for the job market, with responses clustering between adequate and good in quality, as summarized in Tables 1 and 2. Soft skills, course content and instructional methods of colleges were judged to be generally good by students and recent graduates.

New employees find working conditions, training, security and advancement most important factors in their jobs; while location of workplace and salary expectations were considered to be least important by all those we surveyed.

2. Attitudes and motivations toward higher education and employment

The numbers in Table 6 indicate that better job opportunities are the most important factor for higher education. A survey of over 10,000 students in China in 2003 showed a remarkably similar result with close to 59% of the students who are enrolled in colleges hoping to obtain better jobs (Bai, 2006). Only 5% report an interest in research as a primary motivating factor for continued education.

Our results relating to the importance placed on job security and career goals confirm the findings of the Ministry of Education. Most college students still hope to find employment in a secure position with the Royal Government of Bhutan. Many respondents felt that field trips, internship opportunities, counseling and entrepreneurship training were less than adequate during their college studies.

3. Factors that contribute to graduate unemployment

In this study, the respondents replied with their perception of several reasons responsible for unemployment: Inadequate experience (30%), no jobs in their field (21%), low salaries (12%) and qualifications not good enough (9%) or other reasons such as family situation.

At the UNESCO Conference in Bangkok in 2006, participants identified several issues related to graduate unemployment (UNESCO, 2007).

a. Mismatch of qualifications with employers' needs
b. Lack of supply and demand information on labour market
c. Lack of proper career guidance and information
d. Lack of exposure of students to the real world of work
e. Lack of soft skills
f. Economic issues

The Conference participants recommended some key steps to deal with these issues.

a. Conduct needs assessment of employers and businesses. Provide opportunities for teachers and trainers to be familiar with knowledge and skills needed by the industries. Review and revise curricula to match needs, incorporating competency-based core subjects and soft skills.

b. Convince stakeholders to give due attention to up-to-date labour market information. Develop common criteria for collecting of information.

c. Provide relevant information to target groups. Share information through various channels and establish web-based career guidance portals. Encourage governments and employers to plan events to develop career awareness. Develop strategies to coordinate cooperation between governmental agencies, industries and educational institutions Provide training for career counselors.

d. Facilitate exposure of students to the workplace through mentoring, counseling. Organize campaigns and forums to increase students' awareness and exposure.

e. Develop more extra-curricular activities and encourage students' participation while enrolled as students or trainees. Strengthen linkages between academia and industry. Create internships at the workplace. Encourage and facilitate student mobility and exchange across borders

In addition to the above recommendations, government sponsored training programs and the use of tax incentives are widely used strategies implemented in most countries to improve the employability of educated youth.

China is currently making a US$250 billion-a-year investment in what economists call human capital (Bradsher, 2013). Many of the new generation of Chinese are now taking advantage of a national effort to produce college graduates in numbers the world has never seen before. Just as the United States helped build a middle class in the1950s to help educate millions of veterans, the Chinese government is using large subsidies to educate tens of millions of young people as they move from farms to cities. Countries like China are now moving up the development curve by fostering a broadly educated public, one that more closely resembles the multifaceted labor forces of the United States and Europe. In order to benefit the economy, an educational system is required that encourages world-class creativity and innovation that modern economies require to help generate enough quality jobs.

In Bhutan an Entrepreneurship Promotion Program has been initiated by the Entrepreneurship Promotion Division under the Department of Employment. A Comprehensive Entrepreneurship Course focuses on offering courses for aspiring youths who would like to venture into the business world. This program currently offers 50 vacancies per quarter for its 40 day training program, followed by eligibility for a loan of up to Nu. 1 Million to start a new business venture (MOLHR, 2012). Vocational diplomas are also being granted in large numbers recently and these graduates should be able to fill the many projected vacancies in the rapidly expanding construction and power generation industries.

MOLHR Labour Market Survey also includes some job opportunities abroad.

- 15 teachers are selected to teach in Thailand
- 450 general degree graduates are being interviewed for a variety of employment in India

This is an encouraging step in the right direction, giving college graduates an opportunity to work abroad, get international exposure, travel and increase their skills and training opportunities this way.

Conclusion

In summary, we found that students are motivated to enroll in tertiary education in order to obtain better and more secure employment. We feel that interest in research and new business ventures is still quite low and should be encouraged by educators and governments in order to improve the future job market and to be more competitive globally. While graduates found suitable jobs with relative ease in the past, current trends imply more difficulties in the future. Rapid increase in the number of graduates and a scarcity of RCSC vacancies will result in more unemployment. We need to pay attention to possible skills gaps, suitable training programs and the need for experienced workers on hydroelectric projects to lessen the need for imported skills. Furthermore, we feel that a continued improvement in the quality of higher education in Bhutan is very important to allow our graduates to compete successfully in a global marketplace.

We also found a gender gap in Bhutan, as males outnumber females in colleges. In 21 OECD countries women outnumber men in University enrollment numbers. In Bhutan, schools and teachers must encourage more girls to enroll in colleges to reduce a bias towards males.

Many of the development priorities of this century include: alternative energy, energy efficiency and environmental protection, biotechnology, advanced information technologies, high-end equipment manufacturing and new energy vehicles. Education should strive to place an emphasis on these areas.

Planning is the Key: it is becoming increasingly important that students understand the necessity of careful career planning when making decisions about college. Those who familiarize themselves with the kind of jobs open to college graduates, projections of growth in occupations employing graduates, and the relative ease or difficulty of entry into various occupations are less likely to be taken by surprise during their post graduation job search (Shelley, 1996).

In modern societies, the links are powerful between education and all aspects of life. Some key areas are: the security of its citizens; standard of living; equality of opportunity. There are a growing number of positions going unfilled for lack of qualified candidates. Employers in North America are reporting labour and skills shortages in numerous fields, including engineering, health professions, high technology and many of the highly skilled trades. “While the pursuit of knowledge is a worthy goal, employability is the primary motivation for many people undertaking post-secondary studies. A highly educated population is also a matter of great national interest. As the majority of occupations today require higher skill levels, the ability to meet labour-market demands is critical to a country’s competitiveness and economic performance. Knowledge is now the currency of the global economy, making a skilled and adaptable workforce a vital component of a productive and prosperous country” (Canadian Council on Learning, 2007).

Various rates of regional economic growth have contributed to imbalances between supply and demand in human resources. The push for a knowledge-based society has seen an increase in the number of tertiary educational institutions and university graduates. Globalization has further opened the door to opportunities and challenges for trade and labour market. There is still a great reliance on imported skills in Bhutan. As we gradually increase the well-educated, skilled local labour force, then these positions in the labour market will be filled increasingly by qualified nationals.

Some of the indicators of the well-being of developed nations include: Literacy levels; Mathematics, Science and Technology graduates; Research and Development personnel; and adult participation in lifelong learning. These indicators and especially technology related education directly support the research required in a globally competitive, knowledge-based economy. Bhutan's ability to produce these technical graduates is not as strong as in other nations. Higher education and re-training priorities need to be aligned with the nation's needs for sufficient numbers of teachers, professors, researchers, entrepreneurs and technical people to meet the needs of power generation projects and new industrial development in the decades to come

A commitment to quality education is essential in Bhutan not only in order to serve the needs of the nation, but to also compete in the global marketplace with skills that can be easily exported to the advanced economies of the world. In conclusion, we see a bright future for our educated youth, as we prepare for the next 100 years of modern education, with an emphasis on quality Higher Education in Bhutan.

Acknowledgements

We acknowledge the generous support by the Royal University of Bhutan Annual University Research Grant for 2012. We also thank the Deans of each of the Colleges of the Royal University of Bhutan for their help and co-operation during our data collection. We would also like to thank the Human Resources Officers of the various corporations who allowed us to collect data and supplied us with valuable information on their workforce size and skills requirements.

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Implementation of Teaching Skills and Strategies in Schools: A Study of Graduates of a Teacher Education Program

CHOEDA AND KINLEY

Abstract

'Teaching Skills' and 'Teaching Strategies' are two core professional courses offered at the two colleges of education in Bhutan to develop the pedagogical knowledge and skills of student teachers. However, a tracer study (in press) done by Samtse College of Education [SCE] revealed teacher graduates' (1) confusion over the two concepts, 'teaching skill' and 'teaching strategy' and (2) the lack of confidence in integrating the two in their daily teaching activities. Therefore, this study was carried out to find out the graduates' understanding of the concepts and implementation of 'Teaching Skills' and 'Teaching Strategies' in the classroom. Further, it was aimed to find lapses, inappropriateness and irrelevancies in the two professional courses in which pedagogical concepts and skills were taught. Data on the use of teaching skills and strategies in Bhutanese schools were gathered through survey questionnaire, interviews and participant observation. Teacher graduates, both male and female who had work experience of three years and above and who taught in Middle Secondary and Higher Secondary Schools, participated in the study. Samples were drawn from different parts of the country covering seventeen Dzongkhags (districts). The study revealed adequate understanding of the concepts of professional courses. However, teachers were found to grappled with many additional responsibilities which affected their teaching plans and efforts to integrate skills and strategies into their teaching.

Key words: Teaching skills, Teaching strategies, Microteaching

Introduction

Samtse College of Education (SCE) has grown from an institute with modest facilities and with only 41 student teachers in 1968 (the year of its establishment) to its present stature with over one thousand students who study a number of educational courses. The core areas of professional training that is provided since its inception has always been the enhancement of pedagogical skills and strategies. To develop these knowledge domains and skills, the college offers specific modules, 'Teaching Skills' and 'Teaching Strategies', in professional subjects as well as in methodologies related to the teaching specialties. In addition, all the student teachers need to undergo intensive practice in microteaching in the college followed by teaching practice in the schools. During microteaching, which is a form of "instructional training where small groups of peers observe ... each other's teaching" (Teaching Support Service, n.d, para 1) student teachers get opportunities to provide feedback for improvement of their 'instructional abilities'. Additionally, during field teaching practice (done in the schools) which is six months for Bachelor of Education [B.Ed] students and six weeks for Post Graduate Diploma in Education [PGDE] students, student teachers are required to apply their knowledge of teaching theories, their pedagogic skills and strategies in classroom situations teaching with guidance from mentor teachers in their practicum school as well as visiting lecturers from the college. They are also required to do deep reflection on their experiences of teaching daily lessons.

Despite the above efforts, a general sense of dissatisfaction is evident amongst education officials, school principals and senior school teachers regarding the performance of teacher graduates once they

are employed. A recent tracer study notes that "on the whole, the graduates are a bit confused in the two modules (teaching strategies and teaching skills) and failed to integrate them in their teaching" (Tshering, Jose, Gyeltshen & Gyeltshen, in press, p.31). Hence, this study was conducted with the aim to:

- address the implementation of teaching strategies and skills in the classroom by the teacher graduates.
- discover gaps in the delivery and modality of the professional modules offered at Samtse College of Education.

With this aim in view, the study was designed to answer the research question, "What are the factors that affect the practice of teaching skills and strategies in schools?"

Literature Review

Concept of 'teaching skill' and 'teaching strategy'

Afflerbach, Pearson and Paris (1995, p.364) state that the terms "skills" and "strategies" are used inconsistently. Sometimes they are "used as synonyms, and sometimes they are used to describe complementary relations (e.g. strategy support skills)." However, skills and strategies are two different concepts which often go together. According to Harris and Hodges (as cited in Afflerbach et al. 1995, p.365), a "skill" is defined as, "an acquired ability to perform well; proficiency" and "strategy" is "a systematic plan consciously adapted". Teaching skills are a group or combination of a variety of 'teaching acts' used to 'facilitate students learning' (Nursing Education, n.d). On the other hand, teaching strategies concern concepts, principles and procedural-steps of a number of teaching methods, which could be applied in the teaching of varied subjects. According to Strasser, teaching strategy is a "plan for a lesson which included structure, desired learner behaviour in terms of goals of instruction, an outline of tactics necessary to implement the strategy" (cited in Anil, n.d). Skills would help implement or execute in an efficient or effective manner of the segment of a lesson. Hence, strategy requires skill for its implementation process. Marks (cited in Hallam & Ireson, 1999, p. 84) observes that "there is no clear dividing line between pedagogical knowledge for particular subjects and more general teaching strategies. Sometimes teachers, in planning their teaching, draw on knowledge of general teaching skills and apply them to the topic." Therefore skills and strategies can be used together to support each other.

Challenges in using 'teaching skills' and 'teaching strategies'

A key finding from the tracer study mentioned above was the difficulty in implementing teaching skills and strategies owing to large class size. Further, it was also mentioned the heavy workload of teachers hindered their ability to plan and integrate skills and strategies in their teaching approaches. Hallam and Ireson (1999) observe that teachers face varieties of constraints such as class size, classroom environment, facilities, length of lesson, and mixed ability.

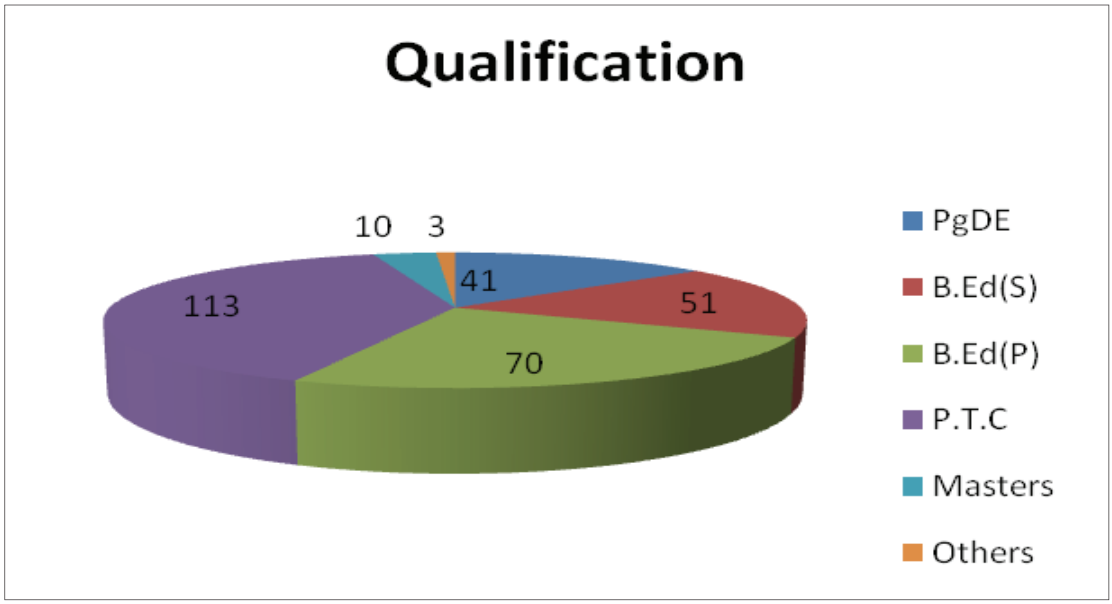
The tracer study also highlighted the difficulties faced by graduates in making use of the strategies and skills in their teaching. Graduates made a general comment that "some of the teaching strategies and skills were challenging." However, they did not specify which particular skills or strategies

were challenging to them. Some of the graduates were also of the opinion that "teaching strategies were time-consuming and they affected syllabus completion." The opinion of the graduates implied that they were not efficient in using skills and strategies. Perhaps as Hallam and Ireson (1999, p. 83) said, "skills require considerable practice". They need adequate practice.

Methodology

Since graduate teachers were spread across the country, a cross sectional design was required. Structured questionnaires were used with a stratified sample of teachers spread across different regions. The data generated can be generalized (Cresswell, 2007). The random samples drawn from different strata of qualification will represent the larger population (see the pie chart below). Qualitative information was also required in order to delve into and refine teachers' views of their use of skills and strategies. Semi-structured interviews and participant observation were also used. The data thus ensured triangulation and making an authentic result more likely although the methodology was largely quantitative.

Figure 1 Different strata of qualification



Research Sample

The sample for this study comprised B.Ed (Primary and Secondary) and Postgraduate Diploma in Education (PGDE) graduates of Samtse College of Education, and some teachers with Masters qualification and currently teaching in various schools in the Bhutan. Out of 670 survey questionnaire sent to over 67 schools 288 were returned. Out of 288 who participated across the nation in the survey, 151 were male teachers and 137 were female. The sampling technique was based on the idea of purposefulness (Merriam, 1998). The age of the teachers ranged from 26 years to 35. Most of the respondents were between the age of 31 and 35 years.

Research Tools

Three tools were used to authenticate the validity of the data. Quantitative data were collected through survey questionnaires, while the qualitative data were gathered through semi-structured interviews. The research participants' lived experiences of classroom practice in relation to the use of teaching skills and strategies in the schools were captured through participant observation.

Data analysis

Quantitative data were analysed using the Statistical Package for Social Sciences (SPSS) program. The themes that emerged from the interviews and classroom observations were identified and analysed thematically to establish multiple perspectives on the practice of teaching skills and strategies.

Data Presentation and Analysis

Demographic detail

Teacher graduates of Samtse College who were twenty six years of age and older, currently working in schools in seventeen Dzongkhags, participated in the survey. Many of the respondents were between the age of thirty one and thirty five years (27.4%). Teachers teaching in middle secondary schools and higher secondary schools were especially focussed in the data collection although teachers with Masters and PTC qualification also participated. The percentage of male and female participation in the study was almost equal with 52.4% and 47.6% respectively.

Teaching load

Regarding the teaching load, 13.2 % of the teachers had more than 25 hours of teaching assigned per week. Only 0.7 % of the teachers interviewed were found to have teaching hours of less than five hours. Besides teaching, 48.5 % of the teachers were found to be shouldering three to four different administrative responsibilities. The tracer study also noted heavy workload of teacher in the school.

Knowledge of 'teaching skill' and 'teaching strategy'

About 58% of the teachers surveyed said that they had adequate knowledge of teaching skill and strategy. Only 4.9% of them said that they didn't have adequate knowledge (see Table 1 below). It appears that the concept of skill and strategy is well perceived by teacher graduates. The interviews also revealed similar findings. It appeared that the concept of skill and strategy was well perceived by teacher graduates.

Table 1 Knowledge of 'teaching skill' and 'teaching strategy'

I have adequate knowledge of teaching skill and strategy			
		Frequency	**Percent**
Valid	Disagree	14	4.9
	Neutral	67	23.3
	Agree	167	58.0
	Strongly Agree	40	13.9
	Total	288	100.0

Application of 'teaching skills and 'teaching strategies'

In terms of applying skills and strategies 61.1% of the respondents agreed that they could use them confidently in their lessons. This could mean that teachers have adequate understanding of the concepts. Teachers also appreciated the way micro lessons were conducted at the training college, which helped them to gain practical experience of using skills and strategies. The survey also revealed that 54.2% of the teachers even looked for new skills and strategies to make their teaching more effective. Thus it is indicated that skills and strategies are widely used by teachers.

Observation of 'teaching skills' and 'teaching strategies' in practice in schools

To understand the use of teaching skills and strategies in the schools, a total of seven schools located in southern and western parts of the country were visited and classroom lessons observed. A total of twelve teachers, both male and female, were observed when they were practising various skills and strategies in their teaching. The teaching skills observed were: teaching of 'concepts' and 'generalization' and teaching of 'values' and 'attitudes'. The teaching strategies observed as they were practiced by the teachers were 'inductive' and 'deductive' approaches, 'inquiry learning', 'questioning' and the 'lecture method'.

It was observed that teachers used quite a number of skills and strategies in the classroom practice, often unconsciously. For instance, in one class a teacher used skills like concept and generalization, interaction variation, and questioning. In the same lesson, the teacher also used strategies such as lecture, deductive and inductive inquiry, and enquiry learning methods. However, when they were asked to name the strategies that they used, they were not able to do so. It shows that teachers did use teaching strategies in their classroom lessons although they were not always able to assign pedagogical attributes to these practices. It is evident teachers used many of the teaching strategies that they had learnt in their teacher training curricula.

Integration of 'teaching skill' and 'teaching strategy'

About 24.7% of the teacher participants said that they had enough time to integrate teaching skills and teaching strategies into their lesson plans, while close to 37.2 % of them said that they had no adequate time to integrate teaching skills and teaching strategies into their lesson plans.

Time

While about 44.8% of the teachers reported that they required more time to be able to make effective use of teaching skills and teaching strategies in their classroom lessons, about 8.3% of the respondents said that they did not require extra time to do so. Also, while 35.4% teachers who strongly agreed that they spent a lot of time to develop effective lesson plans by incorporating teaching skills and teaching strategies, about 4.2% of the respondents indicated that the time factor did not matter to them.

Curriculum

About 55.6% of the teachers agreed with the proposition that they feel comfortable applying teaching skills in the present curriculum, which implied the relevance of teaching skills and teaching strategies in the school curricula. Conversely, about 106 of the 288 respondents who completed the questionnaire strongly agreed to the statement that 'The content of the syllabus is too vast to apply teaching skills and teaching strategies'.

College tutors' competency

About 51.7% and 50% of the teachers agreed to the proposition that tutors in the training college were competent to teach 'teaching skills' and 'teaching strategies' respectively, while about 6.3% of them said they were not competent enough to do so. It was also found that lecturers motivated student teachers to apply skills and strategies. While 44.4% of the teachers agreed that the tutors in the college applied teaching skills in their classroom lessons, about 56% of the respondents reported that the college tutors did not exemplify the use of teaching skills.

Interpretation and Discussion

The two most important tools in teaching learning activity are the use of teaching skills and teaching strategies. Teaching skills provide skills applicable in all teaching-learning situations to effectively deliver the concepts to be taught, while teaching strategies are methods used to teach the concepts, principles and procedural steps in a variety of subject discipline.

Concept of 'teaching skills' and 'teaching strategies'

About 58% of the teacher participants agreed that they had adequate knowledge of teaching skills. It indicates that the teachers had undergone their training adequately and learnt the concept well in the colleges. They must have had access to resources where they could learn on their own too. Nearly 75% of the teacher participants defined teaching skills as techniques or methods to teach concepts, principles or procedures in an academic discipline. One participant said, "teaching skill is a method to deliver content knowledge to the students." A teacher from a middle secondary school explained teaching skill as, "a technique that a teacher applies to make the lesson more clear and understandable." Another one said, "teaching skill is a way or an approach to teach content in a meaningful way."

However, 4.9% of the participants said they did not have adequate knowledge of the concept. One of them said, "teaching skill is one of the ways to make students get clear methods like teaching strategy". This statement shows that one is confused with skill and strategy. Another one said, "skill is something that we can teach with such procedures while teaching." Yet another teacher said, "teaching skill is imparting knowledge."

Two of the respondents said that 'teaching skill' and 'teaching strategy' were two aspects of pedagogy that could be applied simultaneously. One of them said, "I don't find any difference between skill and strategy." Marks (cited in Hallam & Ireson, 1999) says, "there is no clear dividing line between pedagogical knowledge for particular subjects and more general teaching strategies. Sometimes teachers, in planning their teaching, draw on knowledge of general teaching skills and apply them to the topic." (p. 84). Therefore skills and strategies complement each other.

Some of the respondents also stated different views regarding teaching strategy. A respondent said that teaching strategy is a method used to implement a skill. Another one said, "it is how to go about making the skill more powerful." The third respondent described strategy as "a method or procedure of lesson presentation". These statements reflect the respondents' generally held view that teaching strategy and teaching skill are two sides of the same coin, one complementing the other. One of them said that teaching strategy is a broader form of skill. However, only two respondents had a similar view that teaching strategy is a plan of action. According to one of them, "it is a plan of how to teach a lesson".

'Teaching strategy' in particular is a combination of instructional methods, learning activities, and materials that actively engage students. Teaching skill is a specific part of teaching strategy. Teaching skill is like the branches of a tree while teaching strategy is the tree. Holding a similar view, one of the teachers said, "Different skills put together make strategy." Another respondent said, "Strategy is a broader concept and skills are incorporated in it." Further, a teacher remarked, "strategy rules the skill."

Application of 'teaching skills' and 'teaching strategies'

The respondents generally said that they used teaching skills and teaching strategies in their lessons to facilitate effective learning in the students. About 54.2% of the respondents often looked for new skills and strategies to make student learning effective. This group of teachers showed evidence of experience and trying out new ways of teaching and learning. Yet 2.8% of the respondents said they did not try out new classroom skills and strategies. These respondents showed some evidence of being content that the skills and strategies they knew were adequate for them and that they did not need to take risk.

About 75 percent of the participants said that they had applied skills and strategies in their teaching. The senior teachers in the school said they role modeled the application of a variety of skills and strategies in the lessons they taught. Close to 38.5% of the participants reported that their senior colleagues were the driving force behind their use of skills. About 45.1% said that their senior colleagues guided them in the application of strategies in the classroom. While 3.8% of the respondents said they did not see senior teachers using 'teaching skills, 2.1% said the same with regard to teaching strategies. Also 33.3 % of the participants said that the senior teachers organized school based in-service programmes

[SBIPs] for teaching skills and strategies. These suggest that senior teachers' use of teaching strategies and skills in their lessons, their ability to model best practice, and their professional development support to juniour teachers were an important factor in the implementation of skills and strategies.

Challenges of implementing teaching skill and teaching strategy

With regard to the implementation of 'teaching skills' and 'teaching strategies', a teacher said that "large class size and congested space were posing great difficulty in organizing classroom activities through use of teaching strategies." Dealing with students with diverse backgrounds and abilities was another factor that was mentioned as a hindrance to the application of either skill or strategy in the class. The other factors mentioned were large class size, time constraint and inadequate resources. Hallam and Ireson (1999) also found that teachers faced a variety of constraints such as class size, classroom environment, facilities, length of lesson, and mixed ability.

The respondents also mentioned the need for extra time and effort for implementing skills and strategies. About 35.4% of the respondents strongly agreed that they spent a lot of their personal time making effective lesson plans that incorporate skills and strategies. This is generally true because some teachers are engaged the whole day teaching more than five periods. They do not get adequate free time in the school for planning. On the other hand, 4.2% strongly disagreed with the same. A teacher said, "if one has clear concept of skill and strategy, one does not require extra time to use them in the lesson plans". Hence there are teachers who manage adequate time to incorporate skills and strategies into their lesson plans.

Competency of teachers in using 'teaching skills' and 'teaching strategies'

Data from the interviews showed that all the participants were not competent to use teaching skill and teaching strategy in their classroom although they had the knowledge and ideas to do so. The responses indicate that the problem is related to lack of practice. Teachers can enhance the use of skills and strategies through constant practice. The skills and strategies that are learned in the colleges have to be put into constant practice by teachers. Hallam and Ireson (1999, p. 76) are of the view that "High levels of expertise are acquired through the acquisition of extensive knowledge and much practice of relevant skills. During the practice the skills become automated." The idea of practice as an essential aspect of effective pedagogy is also stressed by, Panayiotis, Leonidas, and Bert (2011, p.14). They maintain that "Teachers' training and professional development are considered essential mechanisms for deepening teachers' content knowledge and developing their teaching practices in order to teach to high standards." The study further revealed that teachers learned from each other through mutual sharing of ideas. About 163 respondents (56.6%) indicated that they shared the knowledge of teaching skill and teaching strategy with their colleagues. The sharing of knowledge on skills and strategies indicate that teachers are learning from each other to improve their classroom teaching. This is a positive indication that teachers help each other for their professional growth.

Tshering, Rinchen, Jose, Gyeltshen (in press) also highlight the difficulties faced by graduates in applying strategies and skills in their teaching. Graduates expressed their views that some of the teaching strategies and skills were challenging. However, they did not specify which skill and strategy they considered difficult. Most of the graduates were of the opinion that teaching strategies were time-

consuming and that they affected their ability to complete the syllabus. These views imply that the teachers' ability is one factor upon which the application of teaching strategies depended. It also implied that the teachers themselves were not efficient in using skills and strategies. Perhaps they needed more practice. Hallam and Ireson (1999) said, "While training can prepare teachers for many aspects of classroom management, to develop expert skills requires considerable practice" (p. 83).

Integration of 'teaching skill' with 'teaching strategy'

About 37.2% of the teachers said that they had no adequate time to incorporate skills into strategies. A teacher said, "We are able to use both skills and strategies in our teaching learning process. We integrate both like basic questioning with advance questioning, activity based with giving instruction, presentation with use of language and questioning." Conversely, 24.7% of the respondents said that they got enough time to integrate skills. A teacher even said, "Since I joined the school I have been using only teaching skills and I had no touch with strategy." The teacher further added that "the syllabus is vast and using strategies takes long time to finish the syllabus." Another teacher said, "although skills and strategies are very much inherent in all sorts of teaching, one rarely uses strategies as the curriculum is syllabus driven. The use of strategy takes a lot of time." However, in reality a teacher is found to be using quite a number of strategies and skills together in a class although he or she may not naming these or is not always conscious of using them in their lesson. In one of the classroom observations, a teacher was found to be using a range of strategies and skills. In another classroom, a teacher used skills like concept and generalization, interaction variation and questioning. In the same lesson, the teacher also used strategies such as lecture, deductive or inductive reasoning and enquiry learning methods. It was evident that integration of teaching strategy and teaching skill was done without conscious planning. This situation also occurs due to lack of exposure and experience in integrating skill and strategy. A teacher mentioned that integration of skills and strategies was not something that was taught during their training in the college.

Microteaching

All teacher respondents said that the microteaching experience they acquired as part of their training was very useful. Some of the respondents also suggested that lecturers in the teacher training colleges should demonstrate the skill and strategy they teach instead of simply presenting and explaining the concept. Teachers also indicated that they did not get adequate practice of microteaching lessons since they had to learn all the skills within a semester (which favoured one time practice for each skill). Reflecting on the current situation of teaching practice, one respondent said, "... the trainees were taught various skills and strategies over the period of three years and they had the opportunity to improve, unlike the current practice of once in four years."

Conclusion

The teacher participants showed adequate understanding of the concepts of teaching skill and teaching strategy. The study showed evidence of wide application of teaching skills and teaching strategies in the schools. It showed evidence of senior teachers helping new teachers by modeling best practice

in the application of teaching skills and teaching strategies. They motivated their fellow teachers in implementing classroom skills and strategies in the teaching-learning process. Collaborative learning amongst the teachers was also evident in the schools. The teacher participants attributed students' effective learning to the effective use of skills and strategies.

The study also revealed a number of challenges faced by teachers when applying skills and strategies in their classroom lessons. Teachers were overburdened with teaching load and other additional responsibilities. This indicates that some schools face shortage of teachers and so many teachers have to teach more than the normal teaching load. Teachers were found to shoulder three to four other responsibilities besides their already heavy teaching loads. This indicates that teachers are burdened with extra responsibilities. This directly affects their ability to plan and teach well since a good portion of their time is taken away by the extra responsibilities that they have to shoulder.

Regarding the modality of the delivery of professional courses in the college, the participants expressed their satisfaction. Though microteaching has been found to be very useful, the participants generally said that the college lecturers must model best practice in their application of teaching skills and strategies instead of merely making presentations using slides.

Acknowledgement

The research team would like to thank the following individuals for supporting the study: Mr. Sonam Rinchen, former Dean of Research and Industrial Linkages, Samtse College of Education (SCE), for assisting the team in developing data collection tools; Professor Tom Maxwell, University of New England, NSW, Australia, for going through the draft article and providing critical feedback; Dr Singye Namgyel, former Director of Sherubtse College, for reading the manuscript and providing critical comments on the draft; Mr. Gopi Chettri, Senior Lecturer, SCE, for providing useful information on the college; Mr. T.V. Thomas, Lecturer, and Mr. Rinzin Namgyel, Lecturer, SCE, for assisting the team with data collection and punching the quantitative data.

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Education for youth with disabilities in Bhutan: Past, present, and future

MATTHEW J. SCHUELKA

Abstract

Bhutan has a young 'modern education' system that still is working to provide quality education for all of its students. One student group in particular, youth with disabilities, are just beginning to be included in the general education system. This article details the place of youth with disabilities in Bhutanese society before the introduction of mass education, how the educational system is handling students with disabilities today, and some future policies and practices that Bhutan is undertaking. Through this exploration, inherent cultural inclusiveness among Bhutanese youth are observed, as well as progressive inclusive education policies. Issues such as a lack of teacher training in special education and an out-dated pedagogy are also discussed as potential road blocks to high quality education for youth with disabilities in Bhutan.

Introduction

'Modern education' in Bhutan is just over fifty years old, which is relatively new compared to mass education systems like Germany, France, and the United States that have been around in some form since at least the 19th century (Ramirez & Boli, 1987). The *act* of education in Bhutan has been around for thousands of years – if we are to take the anthropological view that 'education' is recognized in "all societies as providing some kind of training and some set of criteria by which members can be identified as more, or less, knowledgeable" (Levinson & Holland, 1996, p. 2). From this perspective, education is an act of inculcating cultural values, societal norms, religion, and ways of living. Bhutan also has a long and deep tradition of monastic education that far-precedes its secular formal system, and has formalized certain knowledges on Buddhism including reading, writing, rituals, and ways of thinking about the world (Denman & Namgyel, 2008).

A dramatic shift occurred in Bhutanese conceptualizations on education, and education's impact on society, when universal education became the norm. As Phuntsho (2000) identifies, "The advent of modern education brought heterogeneity to the otherwise largely homogenous Bhutanese educational system" (p. 98). Previously, formal education was entirely the domain of the monastic shools, whereas students were selected based on their academic merit or religious potential. This is the homogeneity to which Phuntsho refers in the quotation above. Today, the 'modern education' system provides free education from pre-primary to Class 10, and the dilemma becomes one of how to educate such a heterogenous group of learners.

This paper will focus on the presence of one particular group of students – those labeled as having a disability – on the overall education system in Bhutan and in the changes of the conceptualization of education brought about by their inclusion in schools. In exploring this issue, I will first explain where youth with disabilities have been located in the past and the evolution of their participation in schools. Next, I will describe the present situation for youth with disabilities in Bhutanese schools and then conclude with a discussion on the future issues and dilemmas that surround their educational participation.

The content of this article is drawn from a year-long ethnographic study of youth with disabilities in Bhutan. The methodology for this study is entirely anthropological in nature, and thus many findings through interviews and observations are informal. The findings are entirely my own interpretation and the possibility of error or misreading a situation is certainly present. For the sake of validity, all attempts have been made to do a 'Constant Validity Check' (Bernard, 2011) in order to account for dissonance and alternative explanations in the findings.

The pre-mass education era: Whither the disability without the school?

As was mentioned in the introduction to this article, up until the 1960s the formal education system in Bhutan was entirely monastic. Some children – those of wealthier families and *penlops* [district rulers] – did receive formal education in the form of private tutors from Tibet or in the Jesuit boarding schools in India, although this was quite rare (Phuntsho, 2000). Because of its location in monasticism and the elite, formal education had little impact on the lives of the average Bhutanese. The diverse and unique languages of Bhutan were almost entirely oral, and written language – the Tibetan religious script of chökey – was only used by those in the religious body and district administration.

While monastic education has been traced in Bhutan back to at least the 8th century CE (Chhoeda, 2007), a formalized monastic educational system was established in 1622 by Zhabdrung Ngawang Namgyal in Thimphu (Dorji, 2008). It should be noted that both boys and girls received monastic education, although the nunneries were fewer in number (Chhoeda, 2007). Enrollment in the monastic educational system was generally less restrictive than other similar systems throughout Buddhist-influenced South Asia. Chhoeda (2007) notes that "Bhutan is one of the few countries in South Asia that has historically always been largely egalitarian and not divided by a system of castes or classes" (p. 56).

For those youth that were selected or sent to a monastery, they received an education that initiated a life-long pursuit of learning and reflection. Pedagogy in the monasteries consisted primarily of memorization, repetition, exposition, and debate (Phuntsho, 2000). The curriculum consisted of Buddhist texts and poetry, many of which were passed down orally instead of written. The monastic educational system was one of students and apprentices, with a strict hierarchy based on age and academic skill (Dorji, 2008). Because a Buddhist monk or nun approached learning as a life-long pursuit, education was approached in a deliberate and careful manner that involved humility and respect for the learned elderly masters who imparted their wisdom slowly over many years to their apprentices. Dorji (2008) notes that in this 'traditional' system, change is minimal and this monastic tradition has been in place for at least a thousand years in Bhutan.

Because monasteries could more or less choose their pupils, youth with learning disabilities did not go to monastic schools. However, physical disabilities such as vision or hearing impairment did not preclude youth from a monastic life, although it is unclear historically how many of these youth entered monastic education. Because of the physical labor necessary to lead a Bhutanese agrarian lifestyle, the valuation placed on an individual that struggled with learning, memorization, and knowledge synthesis was deemphasized in deference to their ability to build, cultivate, and sustain cultural traditions. In other words, the value placed upon a community member was based on *work and domestic tasks* and not on *learning*. This has been found in other places around the world that feature communities and cultures centered around agriculture (Groce, 1985; Hanks & Hanks, 1948; Schuelka, *in press*).

Those with mild learning or physical disabilities were included members of the community, but those persons with severe intellectual and developmental disabilities were marginalized and excluded. A common practice then, and still present today, is to isolate a child with a severe developmental disability – such as Down Syndrome or Cerebral Palsy – by locking them in a household room or shed. The justification of such a practice was described as an act of protection for the youth with a disability to prevent them from injuring themselves or others. The absence of stimulation no doubt led the disability to present itself in a severe or extreme way, thus reinforcing the imprisonment.

The Buddhist aspect of culture in Bhutan highlights some unique conceptualizations of disability in Bhutanese society. The primary explanation of the presence of disability in Bhutanese society has to do with the concept of *karma*, a belief that sentient beings are reincarnated into forms based upon deeds – both good and bad – from past lives in an endless cycle [*samsāra*] until one reaches *nirvāna*. Because karma is viewed generally as a cause-and-effect cycle, there is a mistrust and fear of those with severe developmental disabilities in Himalayan Buddhism because it is believed that they have done something terrible in a previous life to deserve their 'fate' in the current one (Schuelka, 2012). However, as King (2009) identifies, there is an inherent dilemma in Buddhism whereas there is a fear of those with disabilities as inflicted by 'bad karma,' but at the same time Buddhism calls its practitioners to be compassionate towards others in this lifetime. There is also a complicated mixture of communitarianism and individualism in Buddhism that also plays out in its religious conceptualization of disability in that there is pressure to conform to societal norms, but it is ultimately the individual that reaches enlightenment (Schuelka, 2012).

With this in mind, it is important to pause here to emphasize that disability is a constructed concept – one that is 'made' by culture and society through its definitions of *normality* and *deviance* (Ingstad & Whyte, 1995; Snyder & Mitchell, 2006; Stiker, 1999). In the case of Bhutan, learning disabilities were not really 'disabling' in that the vast majority of the population were knowledgeable in areas other than reading, writing, and recitation. Those individuals that are visually or hearing impaired were considered 'disabled' in the less-than-whole sense, but not necessarily in the societal sense if they were able to contribute to the agrarian work of the community or even those that were actually able to enter the monastic order. Because persons with development disabilities were, and still are, relatively rare in the general population, these persons were considered culturally 'abnormal' and, through karmic beliefs and low expectations, marginalized.

With the coming of modern schooling for all children in Bhutan, the natural heterogeneity of the youth population entered together into one space and were expected to learn the same things. Many scholars (e.g. McDermott, 1993; McDermott & Varenne, 1995; Mehan, 1993) have argued that it is the institution of *school* that culturally disables youth. By creating a space of homogeneity imposed on heterogeneous children of diverse abilities, those that fall behind the curriculum become 'disabled,' set apart from those students that academically excel and, thus, society learns to value community members based upon 'schooled knowledge' and the ability the learn.

That modern schooling leads and contributes to social stratification is nothing new – especially to sociologists and anthropologists (Levinson & Holland, 1996) – but its entrance into Bhutanese society in the last half of the twentieth century has gone far to alter the societal landscape. When schools were first initiated in the early 1960s, partly by the Third *Druk Gyalpo*'s [Dragon King of Bhutan] five-year

plan and also with the help of Jesuit missionary Father William Mackey (Solverson, 1995), there were 11 schools containing only about 400 students. The growth rate of modern education in Bhutan has been astronomical. In 2010, there were 573 schools with a total enrollment of 175,310 – far exceeding general population growth (Policy & Planning Division, 2010). Nearly every child attends schools from the pre-primary level until Class 10, which is provided free by the Royal Government. After Class 10, students must take the Bhutan Certificate for Secondary Education (BCSE). Based on their marks on the BCSE, students either enter upper-secondary school for Classes 11 and 12, enter a vocational training institute, or enter the labor force. After Class 12, students take the Bhutan Higher Secondary Education Certificate (BHSEC) exam for entrance into tertiary institutions (Policy & Planning Division, 2010). At every step of this process, from the BCSE to the BHSEC, a culling process occurs that separates and segregates students based of academic performance in a supposedly meritocratic system. However, as many researchers have pointed out (summarized in Furlong & Cartmel, 2007), meritocracy is a false promise of equity and most often promotes students that have had more advantages through their societal status.

Youth with disabilities in Bhutan have begun to enter the education system with more frequency although, as highlighted above, the academic atmosphere is strict and competitive and there is little in the way of accommodations to help access the curriculum. However harsh the educational environment may be for youth with disabilities, still there is an increasing expectation that youth with disabilities belong in school. International movements in 'universal education' and 'education as a human right' have become prominent in global discourse, with Bhutan itself supporting many of these initiatives (Ninnes, Maxwell, Rabten & Karchung, 2007). The discourse of Education for All (EFA) also brings forth unanticipated dilemmas in developing national education systems in that resources – both physical and in personnel – are limited to accommodate such a wide range of academic abilities under one school roof (Schuelka & Johnstone, 2012).

The next section of this article will discuss how Bhutan is attempting to navigate these built-in dilemmas of universal education. In the previous section, I have discussed how 'modern education' has risen precipitously in just the past few decades and suggested that this has made fundamental changes to Bhutanese society as a result. Some of these changes will become more clear in the next section, especially concerning youth with disabilities.

Everybody goes to school: Present realities for youth with disabilities in Bhutanese education

According to the latest data, the prevalence of disability among Bhutanese youth is 21% of the youth population (National Statistics Bureau & UNICEF, 2012). This represents a huge increase from previous figures of a 3.5% disability prevalence rate among youth (Royal Government of Bhutan, 2002), generally accounted for in the change of methodology to a disability functionality survey but, arguably, could also accounted for in a changing conceptualization and understanding of disability in Bhutan. Indeed, with more cosmopolitan ideas entering Bhutan and an increasing emphasis placed both on the *role* of school in society and *accessing* school as a human right, disability conceptualization has expanded to encompass learning disabilities and other functional limitations in an academic and social environment. The prevalence of youth with 'mild disabilities' is 19%, which is 90% of all cases of disability in

Bhutanese youth (National Statistics Bureau & UNICEF, 2012). There has also been a push by many visiting American and Canadian medical professionals to increase the amount of disability diagnoses for children. Whether or not this is appropriate for Bhutan is another question for another time.

Other societal changes have also changed the conceptions of education in Bhutan. While a vast majority of Bhutan is still rural and agrarian, Bhutan is one of the most rapidly urbanizing countries in Asia (Walcott, 2009). The flight of youth from rural Eastern *dzongkhags* [districts] to urban centers in the West like Thimphu and Phuentsholing has drained a lot of human capital from these rural areas. A rapidly changing economy now emphasizes academic skills and educational qualification and the democratization of Bhutan demands more entrepreneurship, innovation, and interaction with the rest of the world. Put together, this has led to disproportionately high urban youth unemployment (Kinga, 2005). In short, education now matters more than ever in Bhutanese society.

There is a shifting attitude in Bhutan that youth with disabilities can benefit from school, whereas previously most people had very low expectations for youth with disabilities. Comparatively, the expectations for youth with disabilities in Bhutan are still low – with most people I have interviewed stating that youth with disabilities will never become employed and will never live independently in adulthood. (Of course, multi-generational households are still the norm in Bhutan, although this *too* is changing.) Nevertheless, there has been a push to get youth with disabilities into some sort of educational situation. There are several special education schools run by the Ministry of Education and others by a non-governmental organization (NGO). Some of these schools are for specific categories of disability that require specialized communication and instruction, such as vision or hearing impairment. Two of the schools run by an NGO emphasize vocational training skills and take on students with developmental disabilities as well as those with vision or hearing impairment. The Ministry of Education is now supporting a pilot-initiative to bring inclusive education to its general schools and there are two schools in Thimphu and Mongar that are fully implementing this policy.

Inclusive education is an educational philosophy that believes that all children benefit from attending the same community school. In this kind of school, youth with disabilities are included members of the general classroom, but are still pulled out of class occasionally to received specialized instruction in subjects such as maths, English, and Dzongkha. Inclusive education has been at the forefront of international discourse on disability and education, although its definition and philosophy have broader goals, as evidenced by this quotation:

> [S]chools should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions. This should include disabled and gifted children, street and working children, children from remote or nomadic populations, children from linguistic, ethnic or cultural minorities and children from other disadvantaged or marginalised areas or groups. (UNESCO, 1994, p. 3)

There is one such lower-secondary school in Thimphu that is the primary pilot school for inclusive education in Bhutan, and this is where I have done the majority of my interviews and observations. Below is a description of the classroom where I have done my observations.

In Madam Karma's Class I, there are 40 students sitting in little plastic chairs around wooden tables. The room feels cramped, but there is still room to move between the tables and Madam Karma often does just that – checking on the student's work and making sure they are on task. In this class, 12 of the students receive special education services. These students are usually in the regular Class I room,

only leaving for specialized reading instruction. Often there is a classroom aide that is in the room to assist the students with disabilities, and this makes a huge difference in terms of behavior management and the students' learning. Forty students alone is a difficult task to manage for any solo teacher, but add 12 students that are struggling with school and it becomes nearly impossible. Madam Karma is a good teacher, and better able than most to keep her students on task and learning.

The unfortunate reality in Bhutanese schools is that Madam Karma is in the minority when it comes to teachers. Most teachers are under-trained, under-resourced, and under-supported when it comes to teaching a diverse range of abilities in their students. Partly, this has to do with the professional training they receive. At Paro College of Education, for example, students in teacher training need only to complete one 16 hour course on Special Education (Paro College of Education, 2013). There is no professionalization of special education in Bhutan, and the few 'special educators' in the education system have either received their training abroad or simply been put into that role with a background in general teaching.

When teachers are not supported professionally, and not trained adequately, they often fall back onto old pedagogical methods and fail to see the overall vision of the educational policy and their place in implementing it (Johnstone & Chapman, 2009). The vision of special education and inclusive education in Bhutanese education policy is clearly progressive (Schuelka, 2013), but the reality of educational practice is much different. On many occasions I have witnessed Bhutanese teachers using physical and verbal abuse as a disciplinary tool, and many of the special schools feel more like institutions where neglect and abuse are common. Besides these unfortunate occurrences, more generally the conservative pedagogical techniques of lecture, recitation, memorization, repetition, high-stakes examinations, and copying from the board are all widespread and used in every classroom I have been in from pre-primary to tertiary levels. These archaic pedagogical and curricular techniques make teaching an inclusive classroom extremely difficult. I suspect that the reason behind this prevalence of out-dated pedagogy is three fold. First, the lack of proper training and maintenance of this training, as suggested above. Second, the heavy influence of the Indian educational system. The Indians were instrumental in forming Bhutan's education system (Dorji, 2003; Namgyel, 2011) – sending teachers, textbooks, and curricular materials for decades – and the Indians, themselves, learned from the colonial British during a period when education was the most marginalizing and brutal (Willinsky, 1998). Third, the Bhutanese monastic educational tradition where these pedagogical techniques are considered normal. The differences in how education is *used* between secular and monastic systems (Denman & Namgyel, 2008) makes a big difference in how education should be *taught*.

While there are struggles between teachers, principals, and parents to fully realize the potential of including youth with disabilities in Bhutanese schools, there are some positive trends and inherent cultural attributes that I foresee increasing the inclusiveness of Bhutanese schools and of Bhutanese society in general. In the final section of this article, I will discuss the future of youth with disabilities in the Bhutanese educational system.

Moving forward: Using policy, practice, and culture to better the educational experiences of youth with disabilities in Bhutan

Dorji throws the ball and a pack of boys go wildly running after it. After a brief tussle, one boy emerges victorious, holding the ball aloft and grinning. He runs back to Dorji, triumphantly handing him back the

ball. Dorji winds up and throws it again and again the pack of boys go running after it. After throwing the ball, Dorji yells out enthusiastically and puts his arms in the air to encourage the boys to return the ball to his hands. This cycle repeats itself over and over again for at least 20 minutes. These are boys from Class IV and Dorji, the ball thrower, has severe autism.When I asked the boys from Class IV what they thought about Dorji, they replied, "We like having Dorji play with us. He throws the ball well."

This scene and the boys' reaction about Dorji echoes what I have observed with children all over the world: children are naturally inclusive. Especially in Bhutanese schools, I have seen children include a diverse group of their peers in all activities from recess to classroom work. More often than not, Bhutanese students collaborate on all of their academic work. While this can be frustrating in higher education when I am trying to assess my students individually, this tendency also presents an opportunity for greater inclusiveness in all educational levels in Bhutan. Whether the Ministry of Education likes it or not, the Bhutanese education system is chock-full of competition, even though the students are not necessarily inclined to compete against one another. If the Ministry of Education truly wants to promote Gross National Happiness (GNH) in its education system (Policy and Planning Division, 2012), then it needs to cultivate this already present cultural attribute in its students. Examinations and high-stakes testing are not positive ways to support student inclusivity.

Bhutan also has the policy framework in place for more inclusive classrooms. The brand new National Policy on Special Educational Needs (Royal Government of Bhutan, 2012) promotes the increased training of teachers in special education, increased personnel support of students with disabilities in the classroom, and increased resources and improvement to the physical accessibility of schools, among other things. This is a very positive direction for educational policy in Bhutan concerning youth with disabilities. All policies in Bhutan are approved by the Gross National Happiness Center, which represents the overall development strategy of Bhutan. The GNH strategy, as well as Bhutan taking steps away from older educational models and approaches, is opening up the potential of schools to be positive centers of learning and inclusiveness.

There are, however, going to be hiccups moving forward with these policies. As was mentioned previously, teachers are the ones that make or break new policies and, if they are not trained and supported, any new educational policy or initiative will be unrealized. There needs to be an expansion and professionalization of the special educators in Bhutan to facilitate the implementation of these policies. The biggest obstacle to increasing the quality of education for youth with disabilities is the curriculum and pedagogy. Without any accommodations, youth with disabilities taking the BCSE and BHSEC will have an inherent disadvantage. The teaching of subject matter through rote does not promote inclusiveness and will leave students with learning disabilities behind. The competitive nature of the curriculum, examinations, and pedagogy in Bhutanese schools will have to change if youth with disabilities are to have greater success in schools and if the Ministry of Education wants GNH to be its driving educational philosophy.

These are tangible steps that the Ministry of Education can take, although there are intangible factors that influence the success of youth with disabilities in school. The National Statistics Bureau and UNICEF (2012) suggest that parents need to be educated as to what a disability is and the resources they have available. I would take this one step further and suggest that parents are the primary source of disability empowerment and, if they are encouraged to advocate for greater educational quality for

their children with disabilities, they can make the greatest impact. Another factor that will influence the quality and effectiveness of education is the outcomes of going to school in terms of employment opportunities and higher education opportunities. As Demerath (1999) found in Papua New Guinea, the value and quality of an education is severely diminished if there are no positive outcomes that lead from going to school. I argue that this is especially true in Bhutan as the economy struggles to catch up to the supply of educational graduates. The opportunities for employment for young adults with disabilities are limited, although organizations like Ability Bhutan and Big Bakery do support inclusive employment.

Conclusion

In conclusion, Bhutan has progressed far in terms of its general education system in a relatively short time period. That education for youth with disabilities is only recently catching up in its development is fairly unsurprising. Through its policies, the Ministry of Education and the Royal Government are trying to move education in a more progressive direction, but they are somewhat hampered by entrenched and out-dated educational practices. Bhutan, like any other nation – even those with abundant resources – has found itself navigating the paradoxes created by the call for both universal education and for a high-quality and competitive educational system. These things do not need to be dichotomous. If anything, ensuring a high-quality education for *all* students – no matter their ability – will be the most beneficial in creating the kind of Bhutanese GNH society that the Royal Government wants to achieve.

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Researching women's participation in local government in Bhutan: A description of the methodology used in a recent study

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Abstract

A team of thirteen researchers in the Royal University of Bhutan (RUB), Bhutan, and the Norwegian Institute for Urban and Regional Research (NIBR), Norway, conducted a study on political participation of women in local government in Bhutan between July 2012 and June 2013. Data for the study were gathered from eight Dzongkhags (districts) in the eastern, western and central regions of Bhutan. Although some studies were done previously by Bhutanese researchers, NGOs, and government agencies on women and political participation, many of these were mostly quantitative in nature, hence unable to provide useful insights into women's leadership journeys in rural Bhutan from individual perspectives. The aim of the present study was to study Bhutanese women's leadership journeys prior to and after the local government elections that were held in the country in 2011. The study used a mixed method approach employing both qualitative and quantitative techniques, including interviews, surveys, and an extensive document study (although we used data from this source only to contextualize the study and not to present them as analyzed data). Data from multiple sources were then triangulated to deepen our understanding of women's participation in political leadership and governance in rural Bhutan. This paper, drawn from that study, describes the methodological strategies used to gather and analyze the data.

Introduction

Social research often asks two fundamental research questions: 'What is going on?' and 'Why is it going on?' In this study our effort was to find answers to both these questions. Since literature on women's participation in local governance in Bhutan based on grounded studies was scarce, the present study gathered essential data from informants in the villages who participated in the 2011 local government election, including those who were elected and those who were not. In this paper we outline the focus of the research and the methods used in the study. 'Method' is used here to mean a "coherent strategy or set of strategies for gathering a particular type of data", "a particular research technique or way to gather evidence about a phenomenon" (Mutch, 2005, p. 221). We also explain the choice of the methodology employed in the study. We then present a detailed discussion of the choice of Bumthang district as a case study and the methodology used to explore women's leadership experiences in this district as a single case study. The paper continues by discussing the techniques and decisions regarding data analysis, presentation of the findings, and quality issues. The paper concludes by reflecting on the results of the methodological decisions for the study.

Methodological Approach and Focus of the Study

Research design

This study focused on women as leaders, their entry into political life, and the experiential journeys up to and after the 2011 local government elections. Accordingly, the study explored issues related to access and opportunities in relation to political participation at the local level, and, when elected, how women

and men accepted the challenges of being part of the political arena. In doing so, the study analyzed how decision making is carried out at the local level, and the nature of relationships at various levels of local government. To explore these issues, the study asked four research questions that guided the methodology and the data gathering techniques.

1. What motivates or encourages women to participate in local governance or to become local leaders?

2. How do local cultural norms roles act as challenges, barriers or opportunities for women to engage in political leadership?

3. How do women's traditional roles act as challenges, barriers or opportunities for women to engage in political leadership?

4. What kinds of decision making processes exist at the local level that influence women's participation in local governance?

Sampling for the study was done consciously and systematically according to methodological concerns. Accordingly, a total of eight Dzongkhags were covered in the study. The Dzongkhags were selected based on the zonation method used by the National Statistical Bureau of Bhutan for the 'Bhutan Multiple Indicator Survey' (BMIS) (2010, p. 5). The sampling method was based on the belief that data gathered were generally representative of the situation in the remaining twelve Dzongkhags in the country. For both the planning and investigation phase of the study it was important to choose the most effective sample size in order to focus on the study objectives. It was important to recognize that if the sample size was too small, the reliability of the data would be rather limited. Conversely, if the study was too large, its scope would be unrealistic in terms of both time and resources. Hence for any kind of study, the eventual sample size is usually a compromise between what is desirable and what is feasible (Degu & Yigzaw, 2006). Hence, it was more useful for this study to increase the integrity and depth of data gathering and analysis processes than to merely increase the sample size.

While data for the seven Dzongkhags were gathered through a survey comprising 37 closed and open-ended items, followed by semi-structured interviews with purposively selected informants from among the survey respondents, those for the Bumthang case study were gathered through in-depth interviews (see below for methodological decisions for choosing Bumthang as a case). Both the survey questionnaire and the qualitative interviews focused on factors that influenced women to participate in local government elections, including their knowledge, experiences, and social and cultural influences. The questions also explored the challenges informants faced before, during and after election as local leaders, and reflections on the future opportunities for women's leadership in local government. In doing so, the study also explored factors that were likely to enable more women to participate in future leadership elections.

Population and Sample Selection

In order to investigate the key issues in the research questions, it was important that the data gathered were generally representative of the status of women's political participation across the country as well as to capture narratives of beliefs held by the informants. Data collection thus necessitated several key

decisions regarding the selection of participants, as well as the geographic regions and constituencies they represented. The study's target population included female and male participants who contested the 2011 local government elections, both elected not elected.

According to the zonation of the country done by the National Statistical Bureau of Bhutan for the "Bhutan Multiple Indicator Survey" (BMIS) (2010, p. 5), each of the twenty districts fall in one of the three regions, as shown in Table 1 below. Based on two distinct criteria, at least two Dzongkhags were chosen from the three zones. One district was chosen from each region based on the highest number of women who contested in that district. Accordingly, Paro in the western region, Dagana in the central region, Monggar in the eastern region were chosen for the study as they had the maximum number of women who contested the 2011 local government elections. Also, Dagana was chosen because it was then and still is the only district that has the only female Gup in the country. The second district was then chosen from each region with the aim to ensure that the diversity in the region was represented in the data. For example, in the western region, Samtse district was selected as a contrast to Paro district (the district chosen according to the first criterion). For the central region, Trongsa was chosen as a contrast to Dagana (chosen according to the first criterion). Similarly, in the eastern region, Samdrup Jongkhar was selected as it presented a good contrast to Monggar.

Table 1 Districts Chosen According to Region

Region	Western Region	Central Region	Eastern Region
Districts included in each region	Gasa Punakha Haa Paro Thimphu Chhukha Samtse	Bumthang Trongsa Wangdue Zhemgang Dagana Tsirang Sarpang	Trashiyangtse Lhuentse Trashigang Monggar Pemagatshel Samdrup-Jongkhar
Districts selected for the study	Paro Samtse	Trongsa Dagana Bumthnag	Trashigang Monggar Samdrup Jongkhar

In the central region again, Bumthang district was selected as special single case study as it had only 1 female representative in the local government. The reasons for selecting Bumthang and the methodology used to conduct the case study will be discussed later in the paper. The six Dzongkhas in the eastern region put together has a bigger population than in western or central Bhutan. The eastern region also has the largest number of constituencies. Three districts were thus chosen for the eastern region to ensure that findings were representative. Accordingly, a third district, Trashigang, was chosen because it had the second highest number of women contestants in the 2011 elections. The districts selected in each region have been listed in the table above.

Participant Information

The research participants were chosen according to region, district, and gender and from the seven Dzongkhags covered in the study. To gather multiple and fairly representative perspectives, beliefs and

assumptions, both elected and non-elected female and male respondents who contested the 2011 local government elections were selected (see Table 2). Table 2 presents the informant details according to the position they contested, the result of the contest (elected/not elected), and the Dzongkhag where their constituencies belonged. Data were gathered from 135 respondents who participated in the 2011 local government election. Informants consisted of candidates who had contested for the position of Gup, Mangmi or Tshogpa, and were either elected or not elected.

Table 2 Questionnaire Respondent Demographics by Region

Dzongkhag	Gup		Mangmi		Tshogpa		Total
	Non-Elected	Elected	Non-Elected	Elected	Non- Elected	Elected	
Dagana	3	2	4	3		5	17
Monggar	1	3	2	3	4	14	27
Paro	1	3	2	9	4	15	34
Samdrupjongkhar	1		1	1		3	6
Samtse				2	5	14	21
Trashigang		3	3	2	4	6	18
Trongsa				3	4	5	12
Grand Total	**6**	**11**	**12**	**23**	**21**	**62**	**135**

Survey respondents also included both male and female candidates from all the Dzongkhags under study (see Table 3). The study included informants with diverse background in terms of the regions they belonged to, the positions they contested, and who were elected as well as not elected.

Table 3 Questionnaire Respondent Demographics by Gender

Dzongkhag	Gup		Mangmi		Tshogpa		Total
	Female	Male	Female	Male	Female	Male	
Dagana	3	2	4	3	2	3	17
Monggar		4	3	2	11	7	27
Paro		4	6	5	7	12	34
Samdrupjongkhar	1		1	1	2	1	6
Samtse				2	11	8	21
Trashigang		3	3	2	8	2	18
Trongsa				3	6	3	12
Grand Total	**4**	**13**	**17**	**18**	**47**	**36**	**135**

The respondents also belonged to diverse age range (see Table 4), which helped to look at information from different experiential perspectives. This helped to ensure diversity of participant experiences, views and perspectives. Table 4 shows the participant age ranges, the position they contested and the total number of respondents with respect to each age range.

Table 4 Questionnaire respondents and demographics by age

Age	Position Contested			Total
	Gup	Mangmi	Tshogpa	
26 - 35	7	20	49	76
36 - 45	7	8	20	35
46 – 55	1	5	9	15
56 and above	2	2	5	9
Grand Total	**17**	**35**	**83**	**135**

Data Collection, Analysis and Presentation

Questionnaire

The instruments used to collect data in the seven Dzongkhags included a survey questionnaire and in-depth interviews. The research instruments and protocols were co-developed by the RUB-NIBR research team and in a research planning workshop held in May 2012 in Bhutan.

The survey questionnaire designed for data collection consisted of 37 closed and open-ended items meant to understand the respondents' backgrounds, experiences and views relevant to the research questions. The questionnaire covered four thematic areas: respondents' socio-economic backgrounds; experiences of becoming a leader; experiences of being a local leader; and the respondents' perceptions about the scope of women's participation in local government elections in the future. While the open-ended items allowed the respondent "to provide his or her own answer to the question" (Babbie, 2004, p. 245) and to express "views, opinions or even predictions" (Wellington (2006, p. 106), the closed-ended items enabled the respondents to either provide a very specific response to a question or "select an answer from among a list provided by the researcher" (Babbie, 2004, p. 245). The questionnaires were administered to all female candidates who contested the 2011 local government elections in the seven districts selected for the study. Although the study's primary focus was women's leadership experiences, it was important for the study to see how men perceived the situation. Hence, an equal number of questionnaires was administered to male participants in the districts. Findings suggest that this methodology was useful, in that while some of the opinions and beliefs were unique to female participants, others were common to both male and female participants. Therefore, the data did not represent only female perspectives.

Interviews

In order to deepen our understanding of the issues that emerged from the questionnaire data, a semi-structured interview comprising fourteen open-ended questions was conducted separately from the surveys with selected informants in each of the seven districts covered in the study. This enabled the researchers to further explore the issues raised in the survey through substantive conversation with the informants and "gather responses which are richer and more informative than questionnaire data" (Koshy, 2005, p. 92). The questions were generally intended to gather responses for thematic analysis. A semi-structured (or focussed) interview was a better option than a structured approach as the former gave the researchers the flexibility to use pre-set questions as well as ask questions that emerged from the interviewer-interviewee conversation. The questions were designed to explore more deeply the issues

that arose from the survey questionnaires, which enabled the study to understand the issues more deeply than questionnaire items normally allowed. The researchers were aware that although semi-structured interviews did not allow much "statistical comparability of interviews in the study", they provided a "more valid explanation of the informants' perceptions and constructions of reality" (Minichiello et al, 2008, p. 51).

The data from the interviews were then transcribed, organized in a text format and prepared for analysis. The data were then coded using thematic coding techniques (Creswell, 2008). Based on the thematic patterns that emerged from the qualitative data, thematic categories were built. The main themes identified at this stage were segregated into two categories, those related to contesting the election and those that concerned being an elected leader. In the former category, the following themes emerged from analysis: previous experiences; motivation, support and inspiration for contesting; perceived qualities of a good leader; attitudes and perceptions; campaign processes; opportunities; challenges; and perceptions about the future. In the latter category, the following themes emerged from data: roles and responsibilities; experiences as a leader; expectations and achievements; training; opportunities; challenges; and perceptions about the future. The thematic categories were then analyzed and interpreted for their meanings and significance. In the final stage of analysis, significant findings from the qualitative and quantitative data were synthesized to establish complementarities, contrasts and paradoxes. On the basis of these findings, and those of the Bumthang case study, recommendations were generated for policy and practice.

The Bumthang Case Study

Rationale

The participation of women in local governance in Bumthang district was explored as a case study as it stood out from the other districts in Bhutan. Although it is among the economically prosperous, socially and culturally vibrant, and geographically advantaged districts in the country, only one woman participated in the 2011 local government elections. It was a unique and important case of political participation and warranted a closer study than any other district.

Methodology

The case study

The Bumthang scenario was explored as a case study. Since a case study method enables, as Gillham (2005, p. 102) says, a "meticulous description" of a phenomenon and is not normally to be "wasted on issues that are unimportant", Bumthang was taken up as a special case. Also, a case study approach was found to be the most effective methodological approach with respect to Bumthang as it required in-depth exploration of the possible factors that influenced the level of participation of women in local governance in that Dzongkhag. Creswell (2008, p. 477) says that a case study "seeks to develop an in-depth understanding of the case" in which the researcher "locates the 'case' or 'cases' within their larger context, such as geographical, political, social, or economic settings". As such, a case study "has a distinct advantage" when "a 'how' or 'why' question is being asked about a contemporary set of events, over which the investigator has little or no control" (Yin, 2003, p. 9). Yin (2003, pp. 13) is of the view

that a case study aims to understand "contextual conditions" that affect, and are perceived as potentially pertinent to, the phenomena under examination; it is undertaken by investigating a "contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." To do so, the study used semi-structured interviews as the primary data gathering tool (described below).

Data collection and analysis

A semi-structured interview comprising ten open-ended questions was used with the participants to "gather responses which are richer and more informative than questionnaire data" (Koshy, 2005, p. 92). The questions were generally intended to gather responses for thematic analysis. The rationale for using semi-structured interviews with the Bumthang informants was the same as that for interviews in the other districts (see 3.6.2 above). Each of the ten questions in the interview had a number of probes that captured issues that were important for the study but about which not much has been said in the literature. As a case study, qualitative interviews helped to explore and understand the issues more deeply than would have been possible with a survey questionnaire.

While data for this case study were collected and analyzed separately from the rest of the data from the seven Dzongkhags, its findings complemented those from the latter and enabled a more holistic understanding of the factors that influenced women's participation in local governance in Bhutan. The methodological approach used for this part of the study was thus consistent with Yin's (2003, p. 150) recommendation that a case study may be conducted within a larger study. Yin (2003, p. 150) explains that, in this case, "the larger study will contain your completed case study but also should report separately the findings about the data from the other methods. The larger study's overall report would then be based on the pattern of evidence from both the case study and the other methods." Yin (2003, p. 150) also says that where the larger study seeks to use multiple methods to see if various forms of evidence agree, a "case study would have shared the same initial research questions as those driving the other methods, but you would likely have conducted, analyzed, and reported your case study independently".

Informant selection

Informants for the Bumthang case study were chosen systematically. Fifteen informants were selected for the in-depth interviews. The selection was based on the assumption that the informants had grounded knowledge and varied backgrounds and experiences so that the issues explored in the study were approached from multiple perspectives. Creswell (2008, p. 213) says that unlike in quantitative research where the informants are identified systematically through random sampling, in qualitative research, "we identify our informants and sites based on places and people that can best help us understand our central phenomenon". Based on the principles of "purposive or judgmental sampling" (Babbie, 2004, p. 183), three informants each were selected from the four Gewogs, one informant from the Dzongkhag administration, one informant from the Chamkhar town, and one from the national parliament. To gather perspectives from a variety of social, cultural and economic situations, the sampling technique ensured that the informants represented different career backgrounds and experiences, as shown in Table 5 below. In qualitative research, one way of enhancing quality is by challenging the notion that "there is only one

way of interpreting an event" (Janesick, 2000, p. 393) and thus responding to the adequacy of methods. Thus, purposeful sampling enabled the study to interview informants who were information rich and enabled the researchers to understand the key issues sought by the research questions.

Table 5 Bumthang Interview Participants (by Gender, Position and Election outcome)

Total number of informants	Gender		Position	Elected?	
	Male	*Female*		*Yes*	*No*
15 (9 women, 6 men)	1	1	Mangmi	2	0
	1	0	Gup/DYT Chair	1	0
	1	0	Member of Parliament	1	0
	1	3	Business Person	N/A	N/A
	1	0	Religious Personality	N/A	N/A
	0	3	Homemaker	N/A	N/A
	0	2	Teacher	N/A	N/A
	1	0	Village elder		

The interview data after analysis showed a number of thematic categories. The themes that emerged from the data were then organized into the following categories.

1. Views concerning low level of women's participation in local governance
2. Factors that would enhance women's participation (education, training, advocacy, family support, social support)
3. General social perception (positive, negative, change perception)
4. Occupational divisions that define men's and women's roles in the community (child rearing, household chore, field work, business, rituals, village meetings, community events)
5. Decision making in the family (women's voice and influence in relation to men)
6. Decision making at the village/community level
7. Importance of taking leadership roles (advantages and disadvantages, short/long term benefits)
8. Women's participation in the future
9. Factors that will promote greater participation of women in local government (literacy, education, advocacies, trainings, increased opportunities)

Ethical considerations

Gregory (2005, p. 41) sums up the importance of the ethical dimensions of research:

> Invoking the importance of consent on the part of those affected by our actions brings in its wake the invoking of such key morally-significant notions as autonomy, self determination, privacy, the right to privacy, respect for persons, treating individuals as ends in themselves rather than as means, trust as an integral feature of human intercourse, and so on. Thus, consent should always be sought as a tribute to the autonomy of individuals ... if we ride roughshod over the wishes of others, we do damage to the fabric of trust that sustains human relationships.

The study followed the generally accepted norms concerning human research. Glesne (1999, p. 39) says that "If the study involves some sort of organization or agency, then you must first make contact with its *gatekeepers*, the person or persons who must give their consent before you may enter a research setting" and the "conditions of access" should be negotiated with them. Accordingly, prior approval for data collection in the Dzongkhags was sought from the Honourable Secretary of the Ministry of Home and Cultural Affairs.

Research participants "have a right to expect that when they give you permission to observe and interview, you will protect their confidences and preserve their anonymity" (Glesne 1999, p. 122). Thus, ethics in relation to privacy or confidentiality was pertinent during the "writing-up phase of the qualitative inquiry process" (Glesne, 1999, p. 123). Accordingly, 'respondent codes' were used for the questionnaire respondents as well as the interview participants. Anonymity of informants was ensured in the all the relevant sections of the book where data were presented. Also, all questionnaire and interview data gathered from the informants, both in print and electronic forms, were stored in a secure location in the university office.

No major ethical issues were encountered in the study. However, principles of anonymity were strictly followed while administering the survey questionnaires. For the interviews, the participants' free and informed consent was sought. The data presentation and dissemination methods also ensured that the identities of the survey and interview participants were not or will not be revealed.

Addressing Quality

Since the study employed a combination of quantitative and qualitative methods to gather and analyze data, it was important to recognize the reliability of the numbers generated from the data and their interpretation, as well as the role of interpretation and the researcher's intuitions and reflections about the data. Thus, the research design paid attention to two important quality criteria - validity and reliability. Validity is the extent to which an instrument measures what it is supposed to measure. In this study, the quantitative data were compared and contrasted with those from the qualitative interviews (see Creswell, 2008). 'Reliability' as a quality criterion assumes that any significant results must be more than a one-off finding and be inherently repeatable. Merriam (1998, p. 199) suggests that the "way in which the data were collected, analyzed, and interpreted, and the way in which the findings are presented" be evaluated for validity and reliability (see also Kvale, 1996, p. 235; Minichiello et al., 2008, pp. 182-183; Richards, 2005, p. 43). Other researchers must be able to perform exactly the same experiment, under the same conditions and generate the same results.

It was also important to know what aspects of the qualitative data needed especially to respond to quality questions. These two terms are directly associated with the positivist paradigm whereas the four Guba and Lincoln (in Lincoln, 2002, p. 330) recommend may be used to assess the trustworthiness of data - *credibility, transferability, dependability*, and *confirmability*. These criteria emphasize the value of "commitment of inquiry to fairness", "learning of respondents", and "open and democratic sharing of knowledge rather than the concentration of inquiry knowledge in the hands of a privileged elite". 'Credibility' helped the study to attend to the adequacy of methods used to explore the problem. This understanding enabled the study to triangulate methods, data sources and data types in both domains

of inquiry in this study – men's and women's perceptions and elected and non-elected contestants' perceptions. 'Transferability' as a criterion kept the research conscious reinforced the need for the study to use theoretically reliable concepts and methods to guide data collection and analysis so that the same process could be used in similar studies (Marshall & Rossman, 1999, p. 192) in the future. For example, the design of the questionnaires, their pre-test and improvement before they were administered, and their thematic and content analyses were aimed to ensure quality. The criterion of 'dependability' helped the study to challenge the assumption that there is only one way of interpreting reality. Finally, 'confirmability' helped the study look at the claims and assertions in the data through a critical lens (Marshall & Rossman, 1999, p. 195) by valuing multiple perspectives, contrasting evidences, and paradoxes in the data.

Presentation of significant findings

The methodology also specified how the data from the survey and the qualitative interviews should be presented. Since questionnaires and interviews were used to gather data from the same people who participated in the study in the seven districts (excluding Bumthang), the findings were triangulated and presented in the form of thematic descriptions (these will be organized as Chapter 4 and Chapter 5 in a book to be published soon). Since the data from the survey were analysed using simple content analysis techniques, relevant data were also presented in the form of comparison tables to show frequencies of informants' affirmation of the thematic descriptions from the qualitative data. The findings from the interviews are presented mainly in the form of thematic descriptions with multiple perspectives, patterns, and contrasting evidences, illustrated by informants' statements from the interviews.

The Bumthang case study, unlike the study of the seven districts, used only semi-structured interviews (see description above). The findings from this single case study were also discussed in light of previous studies separately from those from the seven other districts. Data from the case study will be discussed further in a relevant Chapter of the book to look for deeper and "larger meanings" (Creswell, 2008) and implications for existent knowledge, policy and practice.

Conclusion

Studying women's role in local governance in Bhutan is a fairly recent academic effort among Bhutanese researchers. Not many previous studies existed that informed the present study. And the few that were available were mostly quantitative in nature and were not always useful for understanding and appreciating the perspectives of people on the ground based on their lived experiences. So a multimethod approach was found to be the most appropriate to pursue the research questions. The foregoing sections of this paper described the design and methodology employed in this study and argued why the central issues articulated through the research questions required a combination of positivist-interpretivist epistemology as the supporting paradigm.

The study yielded several valuable lessons for researchers making methodological decisions for similar studies in the Bhutanese context. The largely qualitative multimethod design allowed interaction, talk, multiple perspectives, meaning making and interpretations based on personal intuitions and reflections. Data triangulation was found to be a useful methodological technique as it helped to compare

or contrast claims and assertions in one data set with those in the other. This process helped to confirm the validity of the findings from the survey and the interviews. The paper also demonstrated how the research process was mindful of the need to attend to quality criteria used in positivist research as well as those advocated for qualitative studies. The study involved walking into villages and interacting closely with both male and female informants of varied family, educational, and occupational backgrounds. Being cognizant of the ethical standards of researcher behaviour and conduct was important. Since the principles of anonymity and informed consent were observed strictly, no serious ethical issues were encountered. This study found that researching in Bhutan may sometimes be a process of expediencies and uncertainties owing to the geography of the country and a general lack of research literacy and understanding of its value among the people (we discuss this in a separate paper). Yet, with a good research design and sound methodological strategies, including multiple options, to which the researchers are committed, the barriers that the researchers may experience, can be overcome without difficulty. This study has shown that methodology is an organic entity where links among the research design, methods, ethics, procedures, and quality criteria must be fully understood and appreciated by the researchers.

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