Journal of Global Education and Research
ISSN 2577-509X (online) ISSN 2577-5081 (print)

Volume 4 | Issue 2 Article 5

December 2020

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Recommended Citation

Gyamtso, D. C., Sherab, K., & Maxwell, T. W. (2020). Research at the Royal University of Bhutan and ways forward. *Journal of Global Education and Research, 4*(2), 154-172. https://www.doi.org/10.5038/2577-509X.4.2.1094

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Revisions

Submission date: Apr. 25, 2019; 1st Revision: Jul. 26, 2019; 2nd Revision: Aug. 24, 2019; 3rd Revision: Nov. 24, 2019; 4th Revision: Jul. 6, 2020; Acceptance: Jul. 7, 2020

Research at the Royal University of Bhutan and Ways Forward

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Abstract

The Royal University of Bhutan (RUB) was formed by an amalgamation of teaching institutions in 2003. RUB policy requires research; however, studies have shown that RUB faculty are variable in their response to the requirement to add research to their workload. While improvements have been made, challenges to research output have been identified. This article sets out recent developments in research at RUB. Data were gathered through an online survey of RUB faculty (n = 206) and semi-structured interviews with the college Presidents (n = 5) and Deans of Research and Industrial Linkages (n = 8). Findings show that improvement continues, but many challenges remain including some that were identified in prior research. Suggestions for ways to improve research processes and some future research projects are presented.

Keywords: research culture, research leadership, strategies for research output improvement, higher education

Introduction

Research plays a crucial role in higher education institutions globally as it helps in increasing the knowledge upon which economic, social, and technological progress of a nation depends (Altbach et al., 2009). Likewise, the Royal University of Bhutan (RUB), as the premier institute for higher learning in Bhutan, aims to be the country's research leader (Royal University of Bhutan [RUB], 2018). When RUB was established in 2003, "one of the most significant challenges for the colleges and faculty was to come to terms with the concept of academics' work so that RUB could take its place alongside the world's universities as a research institution" (Choeden & Maxwell, 2012, p 187). This study examines the changes in the state of research in RUBthe improvements, outputs, and perceptions on research by academics in RUB over a period of five years since the previous study by Choeden and Maxwell in 2012.

Research is central to RUB policy (RUB, 2014); however, the RUB has only recently started developing and strengthening its research culture. The Department of Research and External Relations (DRER) was established in 2005. The immediate challenges the department faced were (a) in developing academics' research capacity, (b) creating an enabling research culture, (c)

enhancing academics' knowledge of the publication process and (d) the lack of an appropriate research policy (Choeden & Maxwell, 2012; Thapa, 2014; Sherab & Dorji, 2015; Sherab & Schuelka, 2019). That the newly amalgamated institution faced such challenges is not surprising. The ten geographically widespread colleges had previously been teaching institutions attached to various government departments (Maxwell, 2012).

A culture of research was emerging by 2012 (Choeden & Maxwell, 2012). Their institutional extended situational analysis revealed that although RUB academics were "aware of the value of … research *per se* …, certain factors impeded their engagement in research and scholarly activities" (Choeden & Maxwell, 2012, p. 196). The key factors pointed out by the participants in that study were lack of recognition of research by the institution and more widely, lack of time, lack of research skills, insufficient resource support, and lack of incentives. Maxwell (2012) identified at least three additional areas at the institutional level for the improvement of research outcomes at RUB:

- Research culture development;
- Finding time for research (research as part of workload); and
- Developing what it means to be an academic.

Recent research has indicated that RUB faculty had much higher perceptions in terms of how research positively impacts teaching and learning (Sherab & Dorji, 2015). Nevertheless, there are still some barriers, including a lack of mentoring processes to help junior faculty (Sherab & Dorji, 2015) and until very recent years a lack of library support (Maxwell et al., 2008; Ransom, 2011). Maxwell (2018) reported from his impact study of education doctorate holders in RUB over the last decade that research capacity had been built where mentoring was important and critical skills were evident. Thapa (2014) used regression on data from RUB academics ($n = 228$) and concluded that publishing in research journals and presenting at conferences were statistically significant for two explanatory variables: qualifications and participation in conferences and seminars. Interestingly, Thapa noted that teaching load did not contribute to low research output, but rather a lack of infrastructure and support impeded research output.

Literature Review

It is widely accepted that research occupies a critical position in promoting a nation's prosperity (Li et al., 2008; OECD, 1996) and its citizens' well-being in the knowledge-based era (Abbott & Doucouliagos, 2004). In short, research capacity is of central importance to countries all over the world (Conroy, 1989; Harman, 2002; Waworuntu & Holsinger, 1989) including developing countries such as Bhutan (Sherab & Schuelka, 2019). Universities have traditionally taken the lead in conducting research. At the same time, academics have a key role in teaching and in service (Boyer, 1990). Thus, there is an on-going tension for academics as they negotiate the balance between these three roles. More importantly for the present study is the understanding that research is a relatively new addition to the concept of workload. Consequently, the supporting notions of research culture and leadership in research are also relatively unknown, or at least new, to many Bhutanese academics' understanding of their work. Both concepts have to be developed in RUB. What follows is a short review of largely Western literature on these two central topics of research development and some related Bhutanese literature.

Research Culture Development

Maxwell (2012), Mathews (2013) and more recently Sherab and Schuelka (2019) identified the development of a research culture in RUB colleges as an important priority. *Research culture* is a contested term. One precise definition used quite often is by Williams et al. (1993) who state that "culture is the commonly held and relatively stable beliefs, attitudes and values that exist within the organisation" (p. 14). In other words, research culture guides the behavior of university workers in relation to research (Kiley, 2005). Tierney (2008) showed the complexity of research culture, but it is research culture development that is particularly relevant to this paper.

Bosch and Taylor (2011) point out that knowledge of the development of research is not well developed and "even less is known about the development of research in a developing country" (p. 443). Pratt et al. (1999) state that "the establishment of a research culture takes time, careful planning, resources and the right environment" (p. 55). Bosch and Taylor (2011; see also Ion & Ceacero, 2017) in their study of a research-active and a research non-active institutions in South Africa postulated two phases (perhaps a third) for developing research (culture);

1. *Instilling*: Research has to become embedded into mission and functioning. Leaders/managers, such as RUB's Dean of Research and Industrial Linkages (DRIL), need to focus on "securing commitment of staff, upgrading staff qualifications, and stimulating research activity" (p. 453). Management actions are "highly structured, centralised, … [and demand] research output as part of performance [and create] structures and positions that manage research" (p. 453);
2. *Broadening*. The focus is upon knowledge generation. Research is in silos or more widely spread across a majority of departments. Research stimulation is at the discipline/professional level. The institution aims to increase its research output/profile. Research publication enhances image/identity. Leadership is within the department/center not in management; and
3. *Honing*. The research profile is highly recognized and research dominates activity. Research depth and quality are important.

In contrast to Bosch and Taylor (2011), who advocated a strong central role to change, Johnson and Louw (2014) found that research culture can be developed through communities of practice but that institutional structures are necessary and research leaders need to be active if research culture is to be institutionalized (see also Tynan & Garbutt, 2007).

Maxwell and Namgay (2014), in a Bhutanese study, proposed a concept of change that can be used in research (culture) development. Using the idea that developing research culture is about changing people, their concept of the institutional zone of proximal development (akin to Vygotsky's zone of proximal development for individuals) implies that strategies need to be identified for particular individuals and groups in the institution (Levykh, 2008). Maxwell and Namgay (2014, p. 38) found that working with "Fullan's (1991) ideas of (1) materials provision (e.g., resources), (2) developing practices (e.g., quality and timely feedback) and (3) beliefs (e.g., equity) were touchstones [for action]. Pressure (e.g., use of extant policy) and support (e.g., individual capacity building) were useful". These studies show that there is more than one way to develop a research culture.

Research Leadership Development

The previous section implies leadership is important at the institutional level. RUB has its formal leaders (Presidents, DRILs and doctorate holders) and Maxwell (2018) discusses this issue. Some of these leaders have been undertaking initiatives. However, Ball (2007) maintained that having formal leaders in an organization does not necessarily mean that they lead or academics will follow: the presence of actual leadership can be accidental or informal. Macfarlane (2011) found that 60% of professors in his UK-based online questionnaire study ($n = 233$) with interview follow-up ($n = 15$) believed that professors as a role model and mentor, as well as their expertise, were used *a little* or *not at all*. However, this study was in a mature university context. In her multi-method study, Evans (2014) found that effective leadership in research could be informal and addressed:

- *Processes* (such as constructive criticism, asking good questions, and writing skills);
- *Choices* (to which journal to submit and which tasks to prioritize); and
- *Standards* (continually improve with a focus on quality).

Remmik and her colleagues' (2011) study of 25 early career university teachers in Estonia showed that informal relationships were effective and that support varied according to the traditions and activity of the particular work unit.

Leadership Strategies That Promote Research

Lues (2013) described how two initial strategies transformed a department in a South African university over a decade in which research output increased three-fold in five years. The two sets of formal/informal strategies were (Fullan, 1991):

1. *Support* (physical assistance, applauding performance and output as well as financial support and incentives); and
2. *Advancement, development and training* (research skill capacity-building workshops, workshops on publication, stimulating research culture through research gatherings).

In addition to these strategies, Lues also pointed out that the identification of benchmarks for full-time academics was also useful.

In some ways, many researchers at RUB are like early-career academics. Hemmings and Kay (2010) found that early career researchers needed to devote at least 25% of their work time to research activities. Hemmings (2012) cites many researchers who indicate that research self-efficacy (confidence) is critical in an academic career. A good doctoral experience, mentoring, and networking as an early career academic (ECA) are ways that confidence can be built. Four key implications from his Australian research ($n = 12$) for building confidence in ECAs included, firstly, a strong and effective mentoring programme is needed. Are the grants producing results? Secondly, ECAs could join a network of like-minded academics. ECAs needed to find these like-minded people and get them together. Thirdly, time management training and counselling are needed. This implies a clear understanding of the balance amongst teaching, research and service and, lastly, get success(es) to build confidence. Aim within the (institutional) zone of proximal development (after Hemmings, 2012).

Finally, in a study, something similar to the role of DRILs at RUB, Brew et al. (2017) identified research education coordinator, as a strategy to build research cultures (Table 1). While ideas regarding improvement are abundant, Table 1 shows those most related to this article.

Table 1: Brew et al. (2017) Research Educator Strategies With Examples

Brew et al. Research Educator Strategies	Examples
Work with[in] institutional structures and imperatives (policies).	Show how the policies can work for individuals and groups;
Build on experiences.	Build capacity, set goals and follow up
Involve colleagues	Both informal and formal support by senior colleagues are essential
Establish conversations about research	Retreats and (mini)conferences, as well as weekly/monthly seminars, are useful
Position oneself as a researcher	Apply pressure and support to encourage the idea that every faculty member of RUB is also a researcher

[1] These examples are ours.

This literature has shown that there are ways to develop research output at RUB through a focus upon research culture and leadership in research. In relation to research leadership in RUB, Maxwell's study (2018) showed that some Bhutanese education doctorate holders on return to their college *had* taken formal and informal leadership roles identified above while others had not taken up the leadership role that is implied in obtaining a doctorate.

Research Questions

Our general question was *What is the state of research at the Royal University of Bhutan?* for which there are three contributing questions:

1. What improvements have taken place to promote and develop research in RUB since 2012?
2. What is the level of faculty perceptions on knowledge and skills required for conducting research, attitude towards research, and reasons for publishing?
3. Is there any significant difference in faculty perceptions on knowledge and skills required for conducting research, attitude towards research, reasons for publishing, publication knowledge, and research grant getting?

Methods

The study employed a concurrent mixed method approach (Cooksey & McDonald, 2011; Creswell & Clark, 2011). Data were triangulated by methods and persons. The study employed a structured online questionnaire developed specifically for this study and analyzed using SPSS, version 22. Google forms were used for the questionnaire sent to academics of RUB ($N = 537$) using a simple random sampling technique giving each academic in the colleges of RUB an equal and independent chance of being selected.

The online questionnaire consisted of demographic items, a four-point Likert scale (1 = Strongly disagree to 4 = Strongly agree) to measure RUB lecturers' (a) research knowledge and skills (9 items), (b) attitude towards research (8 items), and (c) reasons for publishing (8 items), and the dichotomous scale on (a) knowledge of publication, and (b) research grants. An *other?* section for

each of these allowed supplementary information to be collected. An online questionnaire was the most economical method since academics are spread geographically in the eight constituent colleges of RUB. A total of 206 (38.4%) RUB academics (male = 386 and female = 128) responded to the survey. The DRILs were instrumental in ensuring the Google questionnaire was made available. However, in one of the colleges, due to Internet connectivity problems, paper-based questionnaires were administered. Semi-structured interviews with research leaders by email (because of distance) were undertaken with DRILs (n = 8) and College Presidents (n = 5). Clarifications were sought by telephoning the DRILs/Presidents when required. The questions focused on their role, outputs achieved, kinds of research promoting activities conducted/introduced**,** obstacles/barriers researchers in the college face. An opportunity was provided for additional points to be made that were not covered in the questions**.** The analysis was thematic. Thirdly, an analysis of RUB documents such as the *Bhutan Journal of Research and Development* (RUB, 2018), *RUB Human Resources Manual* (RUB, 2017)*, Annual University Research Grant Guidelines* (RUB, 2016) concerning research was undertaken.

Principal Component Analysis (PCA) was conducted to identify subsets of items measuring a common sub-construct for each of the three scales: (a) research knowledge and skills, (b) attitude towards research, and (c) reasons for publishing. PCA helped to condense the number of items and also to establish construct validity of the items. Kaiser-Meyer-Olkin measures of sampling adequacy for all the three scales were greater than the minimum requirement of .6 and Bartlett's Test of Sphericity showed statistically significant results ($p < .001$) with large chi-square values indicating suitability for PCA (Manning & Munro, 2007).

The variance explained by retained components in scales 1 and 3 was on the higher side but scale 2 was slightly on the lower side (55.8%). However, in social sciences, according to Hair and his colleagues (2010), solutions that accounted for around 60% of the variance in items or a bit less can be considered as satisfactory. Cronbach's coefficient alpha, measuring the internal consistency reliability, was also computed. Alpha values above .70 are interpreted as *acceptable*, above .80 *good reliability* and above .90 *excellent reliability* (Manning & Munro, 2007).

PCA on Knowledge and Skills to Conduct Research Scale

This PCA produced two components. However, items 5, 6, and 9 were removed from the analysis as they loaded on both the components. All the six items were included for subsequent analysis which produced two distinguishable components. The two components accounted for a substantive 70.72% of the variance in the items, which was more than adequate (Hair et al., 2010), and showed moderate correlation with each other, and each component demonstrated acceptable reliability (< .70) (Table 2). Component 1 was called *Skills to use research software;* and Component 2, *Knowledge for writing research.*

PCA on Attitude Towards Research Scale

The PCA for the *Attitude towards research* scale produced two components. However, the second component had only two items (7 & 8) which did not meet the minimum requirement of three items to form a component. As a result, these items were removed from further analysis. Furthermore, items 1 and 6 were also removed from the analysis as they loaded on both the components leaving one distinguishable component with four items (Table 3). The component accounted for a 55.8% of the variance in the items, which was somewhat on the lower side (Hair

et al., 2010). Cronbach's reliability alpha for this scale was acceptable (.71) and it was named *Attitude towards research.*

Table 2: Rotated Component Matrix for Skills to Use Research Software and Knowledge for Writing Research

Statement	Component	
	1	2
2) I can use software to analyse qualitative data	.818	
3) I can use software to analyse quantitative data	.794	
4) I use software for referencing	.752	
8) I know how to write a research report		.899
7) I have good academic writing skills		.858
1) I have adequate skills to collect basic information in my area of expertise		.631
Component correlations		
Component 1		
Component 2	.51	
Cronbach's reliability alpha	.76	.79

Table 3: Component Matrix for Attitude Toward Research

Statement	Component
	1
3) Research supports and improves my teaching as it brings updated material in the classroom	.895
4) I think research impacts on policy and society	.853
2) I think research is at least as important as teaching	.682
5) I make sufficient time to do research	.488

PCA on Reasons for Publishing Scale

PCA on the *Reasons for publishing* scale extracted two components. However, the second component had only two items. The remaining component accounted for a 73.6% of the variance in the items (Table 4), which was on the higher side (Hair et al., 2010). Cronbach's reliability alpha for this scale was excellent (.94) and it was named *Reasons for publishing*.

Table 4: Component Matrix for Reasons for Publishing

Statement	Component
	1
3) I want to share what knowledge I create with the society	.909
6) I want to generate new ideas	.865
7) I want to contribute to the pool of existing knowledge	.865
5) I want to help the nation in policy formulation	.857
2) I want to help in expanding my institution's academic profile	.856
4) I want to improve the lives of people through my research	.844
1) I want to expand my personal academic profile	.806

Chi-Square tests on the dichotomous (Yes/No) type of items were performed to check if there were any statistically significant relationships ($p < .001$) in terms of faculty perceptions on *publication knowledge* and gaining *research grants* by their *gender*, *highest qualification* and *teaching experience*. Marginal significance ($p < .01$) is also noted.

Findings

Key developments at RUB are set out, then demographics of the participants are provided, followed by the findings from the survey, the interviews, and tangible research outputs achieved so far. First, we look at the formal developments in RUB research literature.

Key Institutional Developments

It is important to note that several key institution-wide developments were established to promote research in RUB in recent years. The appointment of DRILs in each of the RUB colleges in 2009 as the focal persons directly responsible for the promotion of research (culture) was an important initiative. The publication of the *Zhib'tsholRUB Research Policies* (RUB, 2014) as the guiding document for research across the colleges of RUB was crucial and the re-launch of the peer-reviewed *Bhutan Journal of Research and Development* (*BJRD*) in 2012 was also a significant move.

Other journals based in colleges have since been developed (see below) with a more local audience. In 2014 the Annual University Research Grant (AURG) of approximately USD 22,000), to support researchers through merit-based and peer-reviewed processes, was introduced. The establishment of the Institute for Gross National Happiness Studies in 2014 as an independent, inclusive, interdisciplinary, secular, and non-partisan research institute was another important development.

The DRER further streamlined its roles into three distinct divisions in 2014 (a. External Relations, b. Higher Degree Research and c. Development) to promote the department's activities more efficiently. And recently the new RUB Human Resource Rules and Regulations have included rating points for "research publication and grants received as part of a faculty member's promotion thus firmly placing research in the RUB academics' profile as crucial" (RUB, 2017, p. 141). Clearly policy development has taken place at RUB in recent years.

Findings From the Questionnaire

A total of 206 (38.4%) RUB faculty (male = 386 and female = 128) responded to the survey Table 5 contains the demographic characteristics of the survey respondents.

Table 5: Demographic Characteristics

Characteristic	Category	Sample		Population
		n	%	%
Gender	Female	46	22.3	25
	Male	160	77.7	75
Highest qualification	Bachelor	40	19.4	19
	Masters	139	67.5	67
	PhD	27	13.1	13
Teaching experience	Less than 5 years	62	30.1	NA
	6-10 years	63	30.6	NA
	11-15 years	24	11.7	NA
	16-20 years	31	15.0	NA
	21 years and above	26	12.6	NA

The sample was representative of the overall RUB population related to gender and qualifications and highest qualification. Men outnumbered women by 3:1. Majority of the respondents had

master's qualification. The population of faculty who responded to the questionnaire were less experienced, with greater than 50% having ten or less years of teaching (and so research) experience. While only 13 percent of the respondents had a doctorate, over a period of 15 years, RUB has made considerable progress.

Level of Faculty Perceptions on Scale Components

Some RUB faculty members perceive they have adequate skills to conduct research while almost the same number report that they do not. Table 6 contains the overall mean and standard deviations of the four components. Relatively speaking, their skills to use software showed the lowest mean and the highest standard deviation indicating that some RUB faculty need to upgrade their skills to use various software packages. They agree that they have a positive attitude towards research and know how to write research reports. They have a clear understanding of why they need to publish.

Table 6: Overall Mean and Standard Deviation for Four Components

Component	*N*	*M*	*SD*
Skills to use software	202	2.82	.72
Knowledge for writing research	204	3.09	.57
Attitude towards research	205	3.05	.61
Reasons for publishing	205	3.56	.47

Demographic Comparison of the Four Components

Three one-way MANOVAs were conducted between the four components and three categorical variables (*gender, highest qualification,* and *teaching experience*) were used to explore if there were statistically significant differences in perceptions with regard to the four components. Inspection of multivariate Box's *M* Test did not show any significance in terms of all the three categorial variables, indicating that homogeneity of covariance matrices of the dependent variables was equal across groups. Levene's tests for each of the dependent variables were produced to check the homogeneity of variances. For each MANOVA, all the four dependent variables were not significant ($p > .05$), indicating no differences between various grouping variables.

The overall multivariate (MV) *F*-tests showed that *highest qualification* (Wilk's Lambda = 0.852, MV $F(8, 384) = 4.859$, $p < .05$, partial $\eta^2 = .092$) and *teaching experience* (Wilk's Lambda = 0.836, MV $F(16, 581) = 2.191$, $p < .05$, partial $\eta^2 = .044$) were significantly different. However, multivariate *F*-test showed no significant difference for *gender*.

Following the significant multivariate *F*-tests, univariate *F*-tests were examined to identify which of the four components contributed to the significance. For independent variables with more than two categories, *post hoc* Tukey multiple comparisons tests were examined to identify which categories significantly differed. Univariate *F*-tests did not show any significance for *teaching experience*. According to the results of univariate *F*-tests, *highest qualification* showed statistically significant difference ($F(2, 483) = 4.694$, $p < .05$, partial $\eta^2 = .156$) on only one component which was *knowledge for writing research*. The examination of effect size, as measured by Partial Eta Squared, explained quite a substantive variability of scores between faculty members with different qualifications.

Consultation of *post hoc* Tukey multiple comparison tests showed that the mean perception of the faculty with a PhD qualification in terms of their knowledge for research writing (M = 3.56, SD = .45) was significantly higher than the mean for faculty with Master's qualification (M = 3.10, SD = .54) and the mean for faculty with Bachelor qualification (M = 2.75, SD = .54). The mean for faculty with Master's qualification was also significantly higher than faculty with Bachelor qualification. These results are not unexpected and reinforce the idea that research qualifications are critical in Bhutanese university research outcomes.

Chi-Square Tests on Publication Knowledge

Chi-Square tests were performed on *I know the difference between a refereed and non-refereed journal* and *I understand the process of publishing in a refereed journal* by gender, qualifications and teaching experience. Table 7 contains the chi-square tests data showing the relationships on publication knowledge. The Chi-Square tests revealed that there were statistically significant differences on both the items amongst faculty with different qualifications and marginal significance on both items for faculty with different years of teaching experience. However, no significant relationships by gender were indicated (p > .001).

Table 7: Chi-Square Tests Showing Significant Relationship on Publication Knowledge

Categorical Variable	Item	*N*	Value	*df*	Asymptotic Sig (2-sided)
Highest qualification	I know the difference between a refereed and non-refereed journal	206	21.759	2	< .001
	I understand the process of publishing in a refereed journal	206	29.139	2	< .001
Teaching experience	I know the difference between a refereed and non-refereed journal	206	16.170	4	< .003
	I understand the process of publishing in a refereed journal	206	13.881	4	< .008

Examination of the values of the independent variables (qualification) in the cross-tabulation tables showed that the faculty with PhD qualification exhibited much higher perceptions; that they know the difference between a refereed and non-refereed journal; and that they also better understand the process of publishing in a refereed journal compared to the faculty with Masters and Bachelor qualifications. Faculty with Master's qualification showed higher perceptions in both dependent variables compared to faculty with Bachelor qualifications. The faculty with a greater number of years of teaching experience showed marginally higher perceptions on both the dependent variables. Again, these results make sense and reinforce the idea that research qualifications and experience are critical in Bhutanese university knowledge of research publication.

Chi-Square Tests on Research Grants

Chi-Square tests were performed on *Research grant* items by gender, qualifications and teaching experience. The Chi-Square tests revealed that there were statistically significant relationships amongst faculty with different qualifications on two items and marginal significance with one item (see Table 8). The fourth item *I wanted to win an external research grant to help boost the College's research activities* did not show any significance. In terms of faculty teaching experience, only one item showed marginal significance (see Table 8). Again, gender did not show any significant relationships (p > .001).

Table 8: Chi-Square Tests Showing Relationship on Research Grants

Categorical Variable	Item	*N*	Value	*df*	Asymptotic Sig (2-sided)
Highest qualification	I have won an internal research grant	206	12.782	2	< .002
	I have developed successful external research proposals with partner institutions	206	34.188	2	< .001
	I established an effective network with partner institutions on research activities for disseminating, exchanging and co-creating research-based knowledge	205	14.782	2	< .001
Teaching experience	I have developed successful external research proposals with partner institutions	206	14.286	4	< .006

Examination of the values for *qualification* in the cross-tabulation table revealed that faculty with a PhD qualification also exhibited much higher perceptions that they have developed successful external research proposals with partner institutions than their peers with lower qualifications. In addition, faculty with a PhD have established an effective network with partner institutions on research activities for disseminating, exchanging and co-creating research-based knowledge. Respondents with a master's qualification followed. The faculty with a Bachelor qualification had the lowest perception. Faculty with a PhD qualification reported a higher success rate of winning an internal research grant followed by faculty with Master's and Bachelor qualifications. Faculty with a greater number of years in teaching showed marginally higher perceptions that they are able to develop external research proposals with partner institutions. Based on these results, qualifications and experience are critical in Bhutanese university knowledge of acquiring research grants.

Aside from the quantitative data, the *Other?* question at the close of each section allowed supplementary information to be collected. Two significant issues emerged. First, there was a consistent demand for research training and workshops on a range of topics such as writing proposals, literature review, academic writing, data analysis, use of software, research methodology, procedures to conduct research, amongst others.

Second was the need to support junior lecturers in conducting research. This is corroborated by comments such as "do not award research grants to seasoned researchers in the college, leaving the bulk of teaching to the juniors"; "full time teaching (2-3 modules) and doing research is challenging on 'time', this will under *[sic]* the quality of work outputs both in teaching and research"; and "no time to do research because of workload." This clearly indicates that research is not considered a part of workload by some academics.

Findings From the Interviews With DRILs and College Presidents

The analysis is arranged in seven themes: Accountability; Funding; Publications; Seminars, Conferences and Workshops; External Collaboration; Summary of College Initiatives; and Challenges faced by colleges and the (DRER).

Accountability

All the DRILs interviewed said that a good part of their time and responsibility was spent on managing and monitoring research activities in the Colleges such as "overseeing all the activities

related to research"; "promoting research" and "creating an enabling environment for our staff and students to engage in research." These are key aspects of their formal job description.

Research-related activities by all the DRILs included the development of research policies, procedures and standards for their college, identification of research priorities, and opportunities for their college and aligning them according to the *Zhib'tshol*. For example, one Dean mentioned that he "reviewed the college's policies and set appropriate standards and proper procedures". DRILs mentioned that they liaise between their college and the DRER office in the Office of the Vice Chancellor (OVC) making sure the College is informed of any policy and regulations updates. DRILs also said that they evaluate and monitor research proposals in the college. A dean mentioned that he carried out "performance assessment of the [research center located at the college] on a periodic basis". Reports on research centers are submitted to the Research and Innovation Committee at the OVC, the committee that decides the fate of the center by its performance as set out in the report. Just five of eight DRILs indicated that they take part in research projects themselves.

All five college Presidents interviewed alluded to oversight as a role. However, some saw their role more widely: building research partnerships, developing research policies, building research capacity, and promoting a culture of research and scholarship. One President provided research mentoring and other capacity development opportunities, including international exposures to both senior and early career researchers. Two Presidents have reported taking initiatives to promote research activities in their respective colleges while others indicated they were inactive in the area of research.

Funding

There are several sources of research funds for RUB colleges. Seeking external funds to support research is the responsibility of the Colleges and the DRER. All the DRILs mentioned this as a key responsibility for them, that is, they seek out and manage funds for research and consultancy from/in business, industry, and government. The DRILs indicated that they found it rather difficult to secure funds for research projects. Funds are also obtained based on the interest by external sponsors, for example, from UNESCO, the Japanese Funds-in-Trust for Safeguarding of Intangible Cultural Heritage and Watanabe Electric Corporation Japan. Five colleges have been successful in obtaining international grants.

Secondly, to assist colleges' research, RUB has competitive Annual University Research Grants (AURG). Till date, the AURG has supported approximately 90 research projects in the member colleges of RUB.

Thirdly, the colleges set aside (as required by the RUB policy) one percent from the gross annual income of the College. For example, this might be Bhutanese Ngultrum 0.9 million which is equivalent to about USD12,500 to be distributed in the form of College Annual Research Grants. Three colleges also support faculty to attend national seminars, conferences, training and workshops.

Publications

Those interviewed (DRILs [*n* = 8] and Presidents [*n* = 5]) were aware that research publications promote the institution's national and international image and bring funds, partnerships, and attention to the academics. In addition to the *Bhutan Journal of Research and Development BJRD* at the OVC, seven colleges have launched their own research journals. The journals are relatively new and double-blind peer-reviewed. Examples include the *Bhutan Journal of Natural Resources and Development* since 2016**,** the bi-annual research journal - *Educational Innovation and Practice*, with three issues to date, and *Rabsel the CERD Educational Journal* (in its 18th volume). Aside from journals, four colleges also publish newsletters, and another has a bibliography of students' research published as part of their research activities.

Unfortunately, it was not possible to acquire an overview of publications by RUB faculty. However, all volumes of the *BJRD* from 2012 until 2017, and the sole number in 2007 were analyzed and no discerning increase in the number of Bhutanese contributors was noted. Additionally, it must be mentioned that although data were not available during the time of the research, it is informally known that RUB academics have published in international journals.

Seminars, Conferences and Workshops

Most of the colleges have made efforts to organize conferences, seminars and workshops for both internal and external participants and for their students, as well. International level conferences are expensive and require considerable planning and preparation' however, four colleges have been able to host them with international support.

The number of seminars in the colleges was greater compared to conferences. At the international level, two colleges collaborated with international partners to organize three international seminars. At the national level, the number of seminars (11) was higher and more colleges (6) were involved. One college was most active and conducted four national seminars. More locally, a small number of colleges organized college level, seminars such as the Annual College Faculty Research Meets and Annual Student Research Meets. Only two colleges have monthly or bi-monthly research seminars.

Workshops were popular and include activities organized by the colleges to promote and share knowledge, skills and research findings to both faculty and students. The number has grown since 2012. All the colleges managed to collaborate with organizations and stakeholders to conduct a series of advanced and basic research workshops on methodology, statistics, and academic writing for faculty and students dependent on availability of funds. In summary, it is evident that capacity building is taking place.

External Collaboration

The terms of reference for DRILs clearly show that one of their fundamental responsibilities is to initiate collaborations with external institutions, universities, and agencies. Both the DRILs and presidents mentioned that they fulfilled this role in representing their colleges at every opportunity to "network and forge links with relevant national and international stakeholders for collaborative projects, partnerships, scholarships, faculty internships" RUB's ability to secure competitive research grants, enhance research and publication culture, initiate faculty and student exchange

programmes, and build research capacity will depend on how proactive the DRILs are. However, only a small number have been successful in promoting external linkages. Some DRILs (n = 3) have not been able to initiate external linkages as they are still focusing on developing basic requirements such as in-house capacity building, establishing research centers, and working on research policies.

Summary of College Initiatives

As we have noted, the DRIL is the college focal person who is directly responsible for the promotion of research culture. It is the college presidents and the DRILs who would be expected to respond to the recent initiatives of the OVC. It is evident from the findings that Colleges that have made progress in research have done so where the DRILs and presidents are more proactive. It appears there have been responses to the OVC initiatives. The DRILs, who meet at least annually, have initiated a number of research-related activities and programmes (some have been mentioned above). Broadly, RUB colleges in general and DRILs in particular, have made progress but there remain numerous challenges.

Challenges Faced by Colleges and the Department of Research and External Relations (DRER)

Some of the prominent challenges nominated by academics, DRILs, and Presidents include lack of research time due to heavy teaching load and other responsibilities (four colleges). The lack of funds to support field research, purchase data analysis software and subscription to online databases was also hindering the research effort. Lack of ways to encourage publication and a lack of confidence to publish and secure grants (one college) hinder the academic work. Primary data is difficult to find. For example, Bhutanese documents (both government and private) often do not have adequate information. The lack of secondary data (such as organizational records) also hinders some research. Some indicated that the university itself was not always helpful. A lack of interest by and poor management support of OVC (one college) undermines research work as does poor data management systems (one college). The struggle that most faculty have over the new human resources and promotion system has created difficulties. Claims were made that the promotion standard has been set so high that some faculty perceive that they cannot achieve the different publication benchmarks, research grants success, and/or other academic contributions to gain promotion. Faculty report that for these reasons, they do not try. Other challenges are context-specific such as the location of the college, and lack of standardized system in the Dzongkha language.

Discussion

As we have noted, research is a fairly new phenomenon in the Bhutanese higher education system. It was introduced formally in 2003 (Sherab & Greenwood, 2014) when almost no faculty held doctorates. The development of a research culture in RUB colleges is recognized as an important priority (Maxwell, 2012; Mathews, 2013). After about 15 years, much has been done to promote research (culture). Faculty engagement in research and consultancies have been increased if from a low base especially over the last five years or so. Capacity building, internal funds for research and new journals are notable achievements. Most, if not all, colleges are involved in the organization of seminars and research training for both faculty and students.

Choeden and Maxwell's (2012) study revealed that although RUB academics were aware of the value of "research *per se* in their professional growth and development, certain factors impeded their engagement in research and scholarly activities" (p. 196) such as lack of recognition of research within the Colleges and at the centre. To some extent, this is still the case. For example, perhaps it is significant that only four colleges have *research* as a key category on their home page despite RUB policy stating its importance.

This latter point raises another question: is the rhetoric of policy reflected in budget choices? For example, if Bhutan's development depends on RUB's research, is 1% of the budget for research sufficient over time? Does RUB need to be more proactive in search for scholarship opportunities for its faculty? At the moment, RUB does not provide budget for scholarships. Most PhD holders have managed their own scholarships through their personal initiative or through international competitive or development scholarships.

Findings from this study indicate that lack of time is an issue, but according to earlier research by Thapa (2014) in Bhutan, teaching load is *not* an issue. Yet we would ask how many faculties would average the benchmark of one day per week doing research as suggested by Hemmings and Kay (2010). Perhaps the issue is lack of self-confidence (Hemmings, 2012) and to some extent this is supported by the observation that OVC goalposts are perceived by some to be too high regarding research and other outcomes to gain promotion. What incentives do faculty at RUB have to undertake quality research over time? An important issue here is faculty capacity for research (Harman, 2002; Sherab & Schuelka, 2019). Our data show how important formal research awards are in understanding key areas of the research and grant getting process.

Considerable gains in research were planned with the introduction of the new Annual Performance Agreement system (RUB, 2017) wherein comparable status to research and academic activities were allocated 30% each in the overall workload which is considerably more than the 20% identified by Hemmings (2012). The status given to research recognized its importance in the profile of academics; no doubt, hope was/is that academics' individual work plans would reflect this. However, allocation was halved (15%) in the latest review of the Annual Performance Agreement system as directed by the Executive Forum of RUB. The reason cited was research was still considered in the early stages for academics (RUB Executive Forum, 2018). Likely this move was realistic but reading into our findings indicates that there are still few faculty members who are achieving this 15% goal.

Related to the above, the workload issue emerged from the online (Google) questionnaire data which revealed that senior faculty in the colleges were more often engaged in research activities leaving the bulk of teaching to the junior faculty. If so, this clearly impacted on the time available for the latter group to conduct research. Hence promotion for the junior faculty would be difficult to achieve. However, it was beyond the scope of this research to ascertain if this was a true situation. This needs to be further explored.

Finally, the gender issue in our study was interesting. There were no significant gender differences in the questionnaire data. Yet, there are important differences, the most obvious one being the ratio of men to women (3:1) in the colleges of RUB. It should be noted that all the DRILs are men and only one woman is President of a college. Some explanation about gender issues in higher education administration and management in RUB is given in Maxwell et al. (2015). Key ideas

they presented were that social structures and practices, supported by certain Buddhist interpretations, were dominant in affecting RUB academic women's role. Discriminatory practices were identified including unequal access to learning opportunities (including overseas), research, and in access to power (information) (Maxwell, et al., 2015).

Conclusion

There are theoretical and practical implications as well as limitations and future research questions raised in this study.

Theoretical and Practical Implications

This study shows that endeavors have been made to promote research in RUB since the Choeden and Maxwell (2012) study. However, as explained by Pratt et al., (1999), the establishment of a research culture takes time, careful planning, resources and the right environment, as is evident from the findings of this research.

While some central initiatives have been fairly widespread others have not. For example, taking lead from the OVC, all the colleges have introduced College Research Grants, and seven of them have their college-specific journals. The Institute of Gross National Happiness at the OVC to promote research has been established. The recognition and inclusion of research in the RUB (2017) Human Resource Rules and Regulations have further helped to promote research in the colleges including capacity building, research culture development and increased availability of funds as observed from the survey and interview data. Although not mentioned by DRILs or Presidents, even access to library facilities has been greatly improved since electronic resources have been made available. Yet there are system level challenges that have been pointed to before (Choeden & Maxwell, 2012; Maxwell, 2012; Maxwell et al., 2015) including time management by faculty and what research means to them as academics. The funding issue needs some attention since the importance given to research in key policy documents does not appear to be reflected in the research funding.

While not immediately evident from the research, the outputs and promotion of research culture development are not equitably spread across all the colleges due to several factors which need to be addressed. First, Colleges that have made progress in research have done so through their own initiatives where the DRILs and presidents are more proactive. Others have been less successful. The former are using formal and informal ways to promote research (Maxwell 2012). The Department of Research and External Relations at the OVC and college leadership remains critical.

There are vast opportunities for research in Bhutan. All the colleges need to make the best use of these opportunities by capitalizing on their niche areas and further strengthening and promoting the initiatives they have taken so far. One way would be to ensure that research opportunities are equitable within and between colleges. Attention to workload has formally begun with the introduction of the new individual work plan and the APA point system in RUB (RUB, 2017). However, to what extent the policy will be practiced will only be reflected a few years later. A workload policy, addressing teaching, research, and service (Boyer, 1990; Houston et al., 2006) will provide opportunities for research as well as teaching and service.

Findings from this study highlight that a significant factor that made a difference in the development of research in the colleges is the qualification and experience of the college faculty. This is an indication that colleges' well-qualified and experienced faculty made a difference in terms of winning both internal and external research grants, proposal preparation, networking, and probably research output. Investing in capacity building is essential. These can be higher degree research programmes and scholarships for both in-country and ex-country studies. With the development of digital technology, there will be faculty who can conduct their classes from any part of the world.

In summary, some colleges are in the *instilling* phase and need to move to the *broadening* and then on to the *honing* phase (Bosch & Taylor, 2011). Some colleges are at the broadening phase moving to the honing phase. This implies that research leadership needs to be nurtured and strengthened in all the colleges to improve motivation and performance (Ramsden, 1998; Sherab & Schuelka, 2019). Various strategies are set out above in *Strategies to support researchers*.

Limitations and Future Research

A major constraint of this study was lack of an accurate research output database in the colleges, as well as in the DRER. This limited the scope of this study. Such a database is usually available in other universities. At least four studies are suggested by this research: (a) what are the motivators and demotivators for researchers at each college? (b) What actual time is spent by faculty in undertaking research? (c) How has the quality and quantity of publications developed since 2003? (d) What strategies are successful in promoting research in the colleges?

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Acknowledgements

We would like to thank Sonam Wangmo, Deputy Chief Research Officer, Department of Research and External Relations, Royal University of Bhutan for helping with the data collection for this project.