Pedagogical Content Knowledge in Higher Education in Bhutan: Case Study at Royal Thimphu College

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ABSTRACT: The current study was conducted to understand the need, challenges, and opportunities in higher education at the Royal Thimphu College. Lee Shulman's concept of pedagogical content knowledge (PCK) was used as the conceptual framework for the study. Four categories under PCK were identified: content knowledge, curriculum knowledge, pedagogical knowledge, and pedagogical content knowledge to structure the questionnaire design. The study employed a sequential explanatory mixed methodology, and data was collected in a two-phase approach. Survey questionnaires were administered to all RTC faculty members ("tutors", n=76) in phase one, and focus group discussions (n=15) and in-depth interviews (n=13) were conducted in the second phase. The results show that most tutors reported being comfortable with the content knowledge of the subject matters they teach, however, relating content to real-life experiences and providing context-specific examples was more difficult for novices. Prescriptive curriculum design was challenging for all tutors, and this had a negative relation to tutors' ability to be creative in teaching and assessment design. Almost all tutors reported using various mixed student-centred strategies for lessons and assessments, however, only a handful of tutors could articulate the use of learning theories in their lesson plans. Students' underdeveloped skill of independent learning was a major challenge in using student-centred learning design.

Keywords: higher education, pedagogical content knowledge (PCK), sequential explanatory design, curriculum, pedagogy, and independent learning

Introduction

Historically, training on teaching and learning amongst tutors in higher education has been underemphasized (Major & Palmer, 2006). Most HEIs (Higher Education Institutions) around the world required lecturers or professors to have subject specialisations with Masters degrees or Ph.D. qualifications in their field of study to be hired to teach. Here, tutors are considered subject specialists, and hence assumed to have the ability to teach the subject matter.

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However, this trend is changing worldwide. This conception of the tutor role and scholarship began to include and emphasize original research not only in a specific discipline but also research that includes teaching-learning of the subject (Gaff & Simpson, 1994). The need for tutors to be trained in teaching and learning at the HEIs is a growing trend. Many renowned universities globally have their own teaching-learning research and development centres that provide professional on-site support and training to their teaching staff (Gaff & Simpson, 1994; Major & Palmer, 2006). At the Royal University of Bhutan, the Centre for University Learning and Teaching (CULT) was established in 2008 for the purpose of promoting excellence in learning and teaching at the university level across its colleges. The Royal Academy has implemented an on-site Teacher Development Centre. Likewise, the Royal Thimphu College (RTC), with its vision to inspire education by contributing to educational excellence in Bhutan, has initiated a Centre for Innovative Teaching and Learning (CITL) to inspire innovative teaching and learning culture at RTC and beyond.

Providing on-site professional development training in higher education at present is considered to be both necessary and complex. Generally, a need assessment study is advised in order to plan effective professional development training to support tutors' continuous improvement in the teaching-learning process (Salsberg et al., 2012; Sandford & McCaslin, 2004; Smith & Beno, 2003). A need assessment can be a formal one-time study design or a continuous informal input via feedback and other forms of iterative process within the institution, or a mix of both (Butler, 1992; McCawley, 2004; Travis, 1996). The need assessment study design can be policy-, explorative- or conceptual framework-driven depending on its goals. Most need assessments conducted by civil society organisations and government agencies are often policy-driven; this is also true for mass professional development programmes in education. However, policy-led professional development programmes in education are found to be ineffective due to a mismatch with the actual practice requirements (Daniels, 2016). The theoretical framework used in need assessment design for professional development in higher education uses adult learning theory and learning theories that are popular at present in higher education such as constructivism, cognitivism, reflection in education practice, and different approaches to learning in higher education.

Recognizing that teaching is a professional skill that requires context-specific knowledge (both subject and place) to be able to be an excellent tutor, the current study uses the conceptual framework of pedagogical content knowledge (PCK) pioneered by Lee Shulman in the mid-1980s to explore tutors need and challenge in teaching-learning in higher education. It was also inspired by the RTC's vision of fostering independent, life-long learning to create well-rounded, responsible citizens. This is embedded in the learning theories of constructivism and cognitivism.

Significance

The issuance of the Royal Kasho on Education Reform in Bhutan in 2020 has highlighted areas for improvement in the current modes of teaching and learning. It has

generated national urgency in creating a teaching-learning milieu that is tailored for the 21st century. Among others, one issue highlighted is the passive mode of learning that is pervasive in the current education system. The implication is that Bhutanese education institutions should take responsibility for fostering conducive learning environments through the use of the latest research and theories. There is limited research done on higher education teaching-learning in Bhutan. This study is one of the first of its kind as a need assessment conducted in higher education institutes in Bhutan on teaching-learning using the PCK conceptual framework.

Background/Context

The Royal Thimphu College was established formally in July, 2009 as the first private college in Bhutan. It currently has around 1,500 students studying undergraduate programmes in Business, Humanities, Social Sciences, and Sciences. It has around 95 tutors at present, of which most are Bhutanese; around 30 percent are from the USA, Asia (South Asia), Europe, and Australia. The need assessment study was conducted as an initial step to establish the CITL and to provide appropriate, need-based professional development training and research on teaching-learning.

Professional Development in Higher Education

In recent decades, training of university tutors has become common. However, there are few studies on the need and impact of such trainings, although it is generally agreed that they have some positive impact on tutors and student learning (Elci & Yaratan, 2012; Güneri et al., 2017). Tutors who participated in training self-report higher confidence in their role as a tutor and their pedagogical skills (Gibbs & Coffey, 2004; Ödalen et al., 2019). Professional development training of tutors in higher education is often complex, requiring conceptual models that change over time (Avalos, 2011; Gibbs & Coffey, 2004; Trigwell et al., 1994). The standards of professional development of tutors are often shaped by policy-makers, which are not necessarily aligned with the practice itself (Daniels, 2016).

According to Avalos (2011), the professional development of tutors is about "teacher learning, learning how to learn, and transforming their knowledge into practice for the benefit of their students' growth" (2011, p.11). Literature on professional teaching development planning is wary of "one size fits all" training design since learning needs and discipline-specific requirements are varied, especially in higher education (Güneri et al., 2017; Trigwell et al., 1994).

According to Trigwell et al. (1994) as cited by Gibbs and Coffey (2004), tutors usually take two approaches to teaching: the tutor-focused approach is mainly concerned with organisation, presentation, and testing of the content, and the student-focused approach which is concerned with supporting student learning. It also asserts that tutor training can increase the adoption of student-focused approaches.

Ning et al. (2010) states that improving overall quality of education in Bhutan, and tutor professional development, is preceded by challenges of attracting, recruiting, and retaining good teachers in schools. Tutors working in Bhutan recognized the importance of periodically improving their professional competencies, favouring training opportunities that are more "hands-on", skills-based, and easily implementable in their classes. In another study, Tshomo (2021) also uncovered similar tutor perceptions on the importance of professional development. However, factors such as "resistance to change" and resource and time constraints impeded the implementation of teaching practices learnt from new training programmes.

Pedagogical Content Knowledge (PCK)

Teaching in higher education is a complex process; there are many aspects that need to align such as tutors, learners, content matter, and pedagogy (Zepke, 2013). This process can be both messy and dynamic, but the quality of teaching depends on the interaction of these variables. The definition of quality teaching and learning has changed with time; traditionally, knowledge of the content was considered more important than pedagogy (Mishra & Koehler, 2006; Shulman, 1986).

According to Shulman (1986, 1987), teaching requires a distinctive body of knowledge for teaching known as the pedagogical content knowledge (PCK). PCK is an amalgamation of "content and pedagogy into an understanding of how particular topics, issues or problems are organized, represented, and adapted to the diverse interest and ability of the learner, and presented for instructions" (Shulman, 1987, p.8). Teaching requires the blending of content knowledge with pedagogy to make learning meaningful (Major & Palmer, 2006; Shulman, 1986, 1987; Zepke, 2013).

Since its conceptualization by Shulman, there has been robust discourse on what PCK actually comprises. It is generally agreed that PCK consists of four major categories: content knowledge, curricular knowledge, pedagogical knowledge, and pedagogical content knowledge/instructional knowledge (Hashweh, 2013; Kreber, 2006; Shulman, 1986, 1987). The difference between an experienced tutor and a novice is the capacity of the experienced tutor to navigate the learners' context by using the right pedagogy for the learner and the level of content by using appropriate instructional or learning tools to bring about quality learning (Shulman, 1986). This capacity of an experienced tutor is not something that comes naturally. It requires deep content knowledge, understanding of the higher education goal manifested in the form of curriculum, knowledge, and skills on teaching pedagogy, and finally "the wisdom of the practice" that takes years to build (Shulman, 1986, 1987). According to Hashweh (2013), there is disagreement concerning the need to portray a specific case of PCK of successful teaching. There are still concerns about the vagueness of the conceptualization of PCK and the studies conducted on it.

Using Shulman's PCK (Shulman, 1986), Mishra and Koehler (2006) formulated their TPACK (Technological, Pedagogical and Subject Content Knowledge) by adding a 'technology'

component. It entails tutors using technological knowledge to enhance their pedagogy, which has become an invaluable component of teaching in the 21st century.

Sherab et al. (2022) notes an encouraging trend in usage of technology among Bhutanese pre-service students in training. However, most trainees did not feel confident in integrating technology into their teaching once they become full-fledged tutors, indicating suboptimal preparation of trainees in technological pedagogy. Additionally, reported experiences such as expensive and slow internet connection, and low ownership of personal computers indicate resources as a barrier in achieving a robust TPACK education in Bhutan. Findings of another study, involving primary school tutors in Bhutan, indicate apprehension about online learning environments; tutors instead preferred face-to-face classes (Dhendup & Sherab, 2023). Low technological knowledge among tutors has been attributed to poor support structure.

Research Questions

What are the needs, challenges, and opportunities in teaching-learning at RTC in terms of pedagogical content knowledge?

Sub questions:

1. What are the challenges and needs in teaching-learning in each of the four categories of the PCK at RTC?
2. What are some of the opportunities present in teaching-learning at RTC?

Methodology

Most research using the PCK framework applies both qualitative and quantitative methods and design. An exploratory mixed methodology approach was used for the current study. A mixed methodology is often advised while studying a complex topic that cannot be addressed by a single method, and when very little is known about the topic. For the current study, since no similar study has been done in Bhutan, a mixed methodology with a sequential explanatory design was seen as the best approach. Here, the research builds on the quantitative findings with qualitative data (Ivankova et al., 2006). The qualitative design includes interviews, focus group discussions, and observations, while the quantitative component may refer to methods such as surveys (Creswell et al., 2006).

The data collection was done in two phases to help explore the topic deeper. During phase one, a quantitative survey was administered to assess the perceived knowledge of tutors under four themes: content, pedagogical, curricular, and instructional knowledge. Since this was an exploratory study, no hypothesis was designed for the survey. A self-assessment survey of 69 questions was deployed via Google Forms during the first phase of data collection.

The first part of the survey comprised ten questions that inquired about information such as gender, level of education, and teaching experiences. The second part of the survey collected data on the attitude, behaviour, and perceived knowledge of tutors pertaining to

teaching and classroom practices. Each category of PCK was broadly defined, and items representing the categories were developed into self-assessment statements.

Against these statements, respondents were asked to choose one response among *strongly disagree*, *disagree*, *neither agree nor disagree*, *agree*, or *strongly agree*. Some of the survey statements (especially on the fourth category, instructional knowledge) were adapted from the Paro College of Education (PCE) TPACK survey design which was made for the international ERASMUS+ project on "Blended Learning." Necessary permits were obtained from PCE.

For phase two, qualitative data was collected through focus group discussions and semi-structured in-depth interviews. This was conducted with tutors from every academic department. The focus group and in-depth interview questions were developed after looking at the preliminary results of the survey on four categories of PCK. 13 in-depth interviews and four focus group discussions (representing each department) with purposefully selected tutors were conducted with the mixed representation of gender, teaching experience, and level of education.

Additionally, document analysis was conducted of 17 class observations from 2021 to help understand teaching-learning needs in depth.

Table 1 shows the types of data and the corresponding number of respondents under each data category.

Table 1. Data Representation Summary

S. No.	Data Type	Method	Description	Male/ Female		Total
1	Primary	Survey	Survey had 69 questions covering 4 main categories: Content knowledge, Curriculum, Pedagogy and PCK (IK), along with some open questions at the end.	44	32	76 (out of 81 possible)
2	Primary	13 In-depth interviews	Each interview was 30 - 60 min long and transcribed afterwards.	7	6	13
3	Primary	4 Focus group discussions	Each FGD was 40 min - 90 min and transcribed afterwards.	7	8	15
4	Secondary	17 Class observations' (PL) document analysis	Each was a 3-page template, a few were filled in detail while some were sparsely filled.	9	8	17
	Total			67	54	121

Results

The response rate of the survey questionnaire was 93.83 percent. Table 2 shows the qualification of tutors against their teaching experience in number of years.

Table 2. Qualification and Teaching Experience (in Years) of Tutors

Qualification	Experience (Years)				
	0 - 5	6 - 10	11 - 15	15+	Total
Bachelors	7	1	0	0	8
Currently pursuing Masters	0	1	0	0	1
Masters	27	12	10	4	53
Currently pursuing PhD	2	0	1	2	5
Post-Doctoral	0	5	2	1	8
Total	36	19	13	7	75[3]

The majority of the teaching corps at RTC have a Masters degree and fall under the 0-5 years teaching experience category. This shows that most tutors, while trained at some point, do not necessarily have long teaching experiences.

Content Knowledge

The content knowledge component consists of three questions pertaining to tutors' perceived knowledge about subject matter. The quantitative data revealed that the tutors possess sound subject matter knowledge as evidenced by a high average mean score of 4.55 (SD = 0.53) reflected in Table 3. The overall mean response on the content knowledge was 4.54 (SD = 0.44). The mean value of being able to obtain a deep understanding of the subject matter is even higher at 4.7 (SD = 0.46). This indicates that tutors have a good amount of self-confidence pertaining to their level of knowledge of the content.

Table 3. Content Knowledge

Item (Computed)	Mean	SD
Overall	4.54	0.44
Sufficient knowledge of subject matter	4.55	0.53
Can think about the subject I teach like an expert	4.41	0.59
Able to continue to develop deep understanding of the content	4.70	0.46

The above self-assessed findings on the content knowledge were also validated by the qualitative data from the focus groups, in-depth interviews, and document analysis of class observations.

Qualitative data showed that all the respondents reported having improved their content knowledge while teaching at Royal Thimphu College and being able to understand and teach the subject like an expert. A tutor reflects on their experience:

[3] One respondent did not fill in the qualification question.

> When I first came to RTC, it was the first time teaching in a higher education. Sometimes I felt nervous but over the years I don't feel that anymore, I feel more confident… Even when the students ask questions – be it out of the box – I am able to answer. So, over time it has really changed.

However, the qualitative data on being able to relate the subject matter to real-world experiences were varied due to experience in teaching the subject/topic and on topics that are relevant but do not have any local context examples. Especially among new tutors, providing real-life examples, for some topics that are in its infancy in Bhutan, was reportedly challenging. A tutor notes:

> …I was teaching corporate law to them [… students]. They understand to the extent to which it is [applicable] in Bhutan. What is lacking is that when you teach the concept of corporate law here in Bhutan, we do not have enough case. Every case they discuss is based on criminal and civil case and they do not have separate corporate law.

Curricular Knowledge

The curriculum component of the survey was designed to assess the curricular knowledge of the tutors. Nine Likert items tested perceived tutor knowledge and practices in relation to the curriculum. Table 4 shows the computed mean of all nine Likert items. Further, the nine Likert items were computed to form three measures, namely the relationship between modules and programme, lesson, and assessment design in alignment with learning outcomes, and practices of self-reflection and feedback.

Table 4. Curricular Knowledge

Item (Computed)	Mean	SD
Overall	4.49	0.46
Relationship between modules and programme	4.53	0.56
Lesson and assessment design in alignment with learning outcomes	4.61	0.57
Practices on self-reflection and feedback	4.55	0.52

As far as curricular knowledge is concerned, the tutors feel they are aware of curriculum requirements and adhere to it. This is indicated by a high rate of self-perceived practices related to the curriculum with an average mean of 4.49 (SD = 0.46) as reflected in Table 4. However, qualitative data uncovered negative experiences that tutors commonly faced such as difficulty in navigating a prescriptive curriculum. This suggests that while the curricular knowledge base of tutors is quite high, and the curricular requirements are strictly adhered to, the curriculum

is seen as inefficient, restrictive, and a source of stress (elaborately discussed in the Discussion and Conclusion section).

In fact, strict adherence to curriculum requirements might explain why tutors find it difficult to navigate the requirements of the curriculum. Both the in-depth and focus group data findings showed that a prescriptive curriculum is viewed negatively by tutors because it dictates the exact content and assessment design for modules. Another common negative experience was in terms of insufficient time. Syllabus coverage coupled with numerous pre-set assessment designs was challenging for both students and teachers alike. Stress relating to not being able to teach and let students learn in their own space and time was also found in the data. It was also found that curriculum rigidity blocked tutors' creativity while teaching the subject matter. A tutor in the humanities department states:

> I want to give my students different assignments to bring out different outcomes but I am stuck with the DPD (definitive programme document) saying this is exactly what you are supposed to do and this is exactly how you need to mark them. I think that is irrelevant in the Humanities because times change, examples change and scenarios change. For assignments, I am unable to make any changes, as it even has an exact scenario and description of what the students are supposed to do.

Pedagogical Knowledge

This section tested the perceived prevalence of practices of six such teaching methods: case-based learning (CBL), problem-based learning (PBL), reflective learning (RL), active learning (AL), inquiry-based learning (IBL), and place-based learning (PLBL). These teaching-learning strategies were chosen as items for assessment due to their emphasis on deep learning that uses student-centred teaching-learning strategies.

Table 5. Total Perceived Practice of Teaching Methods

Item (Computed)	Mean	SD
Reported usage of CBL, PBL, RL, AL, IBL, and PLBL	4.34	0.47

Table 5 shows that the average reported usage of the above six teaching methods is 4.34 (SD = 0.47). There is a high reported usage of the overall six teaching methods. The data from the focus groups, in-depth interviews, and a few of the class observation reports indicate that tutors are well aware of the mixed group of students in their classes; hence stating their use of mixed or a variety of teaching strategies to engage students to learn. For example, there was reported use of group work, question-and-answer sessions in class, student presentations, and role play as assessment tools.

Tutors also chose assessment topics students could relate to such as gaming and social media. Building trust and relationships with the students came up when discussing pedagogical

knowledge. Tutors found that if they wanted students to understand the topic they had to learn what interests the students and provide positive affirmation through feedback to encourage learning; especially when students find the lessons difficult or among the underperforming and unmotivated students:

> I have one student who loves to play video games and he wasn't paying much attention or effort in the class so I convinced him to relate his assignment around his passion. So in the magazine, he wrote about articles on the games he likes and he really enjoys doing that.

However, prescriptive curricula and time constraints were major barriers to designing student-centric assessments. Flexibility was felt to be needed in both curricula and the institutional structure, as one tutor notes the following about the curriculum:

> I definitely feel like certain things we do because it is mandated. Usually, it comes from RUB because even if we are developing a curriculum in-house, we have to follow certain rules and regulations. ...I would definitely want RTC to be more autonomous and have some leverage to make our own curriculum without too much imposition.

Quality of teaching-learning was also mentioned in relation to prescriptive curriculum and fixed institutional structure. However, from qualitative data on pedagogical knowledge, when tutors were asked about the use of learning theories for their lesson design, only a few could mention and explicate the use of learning theories to design their lessons and assessments. Although most tutors reported using student-centric learning design for their modules, many could not actually state what it meant for their classes.

Pedagogical Content Knowledge (PCK) or Instructional Knowledge

For the category of PCK, tutors at RTC were surveyed on their usage of six teaching methods namely, case-based learning, problem-based learning, reflective learning, active learning, inquiry learning, and place-based learning. As mentioned before, the overall usage was remarkably high (Table 6). It is a reasonable assumption then that certain classroom practices, such as assessment design, should be congruent with the tenets of these teaching methods. For example, is the assessment design improving student's communication skills? (a goal of problem-based learning).

In order to test the relationship between perceived usage and practice, a correlation test was done. Two meta-variables were compared. The first variable is composed of six sub-variables that show the perceived use of the aforementioned six teaching methods. The second variable is a combination of six sub-variables that assessed assessment design and practices.

While the results of the correlation test do not mean anything in isolation, this is a useful tool that can give us an understanding of the type of relationship between teaching methods and practices as shown in Table 6.

Table 6. Correlation Between Perceived Usage of Teaching Methods and Practice

Correlation	Value (R)	Sig. (Two-tailed)
Spearman's Rho	0.67	0.00

Spearman's Rho value (R) of 0.67 revealed that there is a positive relationship between the perceived usage of teaching methods and their practices. There is evidence to suggest that there is a prevalence of practices in instructional design (for example, the rationale for the way assessments are designed) that are congruent with the objectives of the six teaching methods included in this survey.

The qualitative data on pedagogical content knowledge suggest that most tutors use a range of mixed student-centred learning approaches in the classroom, however, issues of underdeveloped independent learning habits in conjunction with poor reading, comprehension, and writing skills make student-centred learning design challenging for the tutors.

The data also suggest that the student body composition of the institution— where only 5-10 percent comprise the outstanding performers group, and a large majority falls under the average category—makes it extremely challenging for tutors to design student-centred learning environments that would require students to take ownership of their own learning. Student motivation was also reported to be a challenge since most of the students who come to the institution come just to get a college degree or due to family pressure. Differences between teaching first-year vs. final-year students were also apparent. Final-year students were more likely to be independent in self-learning than first-year students who commonly demand lecture-based lessons from the tutors. Tutors stated that with most of the students spending at least 6-7 hrs daily on campus for all levels, there may be little or no time to do anything during the day besides attending classes.

Two statements were also asked in the questionnaire to test the preference for lecture-based lessons and the use of exam/test format of assessment. These are dubbed traditional modes of assessments (summative) and are often viewed in opposition to student-centred assessments (formative). Table 7 shows the reported usage of these assessment formats.

Table 7. Usage of Lectures and Tests/Exams

Item	Mean	SD
Perceived use of lecture method of delivery (n=76)	4.08	0.91
Use of tests and exams more than assignments (n=75)	3.37	1.26

There is a slight preference towards the lecture method of delivery which speaks to a traditional mode of delivering content as shown in Table 7. It is probable that tutors are using this in conjunction with other methods of delivering content and assessing student knowledge. Going by the relative averages of the Likert items, the response on the "Use of tests and exams

compared to assignments" is relatively low. It is apparent that tutors are more hesitant to choose tests and exams over assignments to assess student knowledge. This might explain the fact that tutors generally prefer assessments that try to make students independent in their learning, as corroborated by qualitative data. Qualitative data also revealed that many students who are fresh from high school require a lot of supervision ("spoon-feeding") during their initial semesters. This might explain the higher prevalence and even the necessity of the lecture method of delivery.

Limitations

Since both quantitative (self-assessment survey) and qualitative (focus group discussion and in-depth interview) data were self-reported, the results of the study cannot claim to encompass a robust evaluation of actual teaching practices in class. The class observation data was limited, since not all observers had completed observation reports in detail, and the design of the class observation format did not necessarily have elements directly from the four PCK categories; rather it was designed for general class observation for institutional quality and monitoring purposes. The questionnaires for the survey, interviews, and focus groups on the four categories of PCK design were made for a general study and were not discipline-specific.

Discussion

Lesson Contextualization

Most tutors self-reported being comfortable with the content knowledge of the subjects they teach. However, relating this to real-life experiences was more difficult for novice tutors. At times, providing context-specific examples was difficult because of the nature of the topic many of which are still in infancy in Bhutan. The RTC student body composition is diverse in social, economic, and academic performance factors. Even the faculty composition is varied, with almost 40% being international. There are a lot of benefits associated with having a diverse student body and faculty composition especially in enhancing the quality of education. However, issues of contextualizing lessons are considered to be a challenge. Due to a rise in "internationalization" in education, there is an increasing number of both tutors and students from various cultural and social backgrounds. Tutors, who are unfamiliar with an ever-increasing mix of students, face challenges in teaching effectively if their cultural understanding is underdeveloped (Bodycott & Walker, 2000; Gay, 2002). It is as Cohn (1998, p.107) states, "an instructor's failure to know local laws, history, and culture undermines the effectiveness of the presentation and the rapport within the classroom." Lessons that are tailored to the "real world" has been linked to student performance, motivation, and deeper learning (King & Ginns, 2015; Rennie & Parker, 1996). Effective teachers contextualize knowledge by using a variety of teaching methods to cater to diverse students and provide real-world applications (Fuhrman et al., 2010; Sprinkle, 2009). For an institution with a regular turnover of teaching staff with one of the most diverse campuses in the country, this might be an important factor to look into while training or recruiting new tutors.

Curriculum - Meaningful & Independent Learning

Challenges on prescriptive curriculum design were also found to have a negative relation with tutors' ability to be creative in teaching and assessment design. This was often linked to students' independent learning skills and motivation issues in relation to not having the space and time for learners to engage meaningfully with the subject at their own pace. According to Todd et al. (2004), the current practice of universities requiring curriculum design with extensive focus on learning outcomes can lead to them being prescriptive and too structured, restricting independent learning and creativity. Offering students independence or choice in their learning can encourage deep learning. Independence in learning entails giving students more control over the decisions of the content they learn, its sequence, and its pace. Programmes designed to achieve independent learning—which inculcates autonomy and self-direction—are also prerequisites of employability (Stefani, 2000; Todd et al., 2004). However, teaching is underfunded at most universities which induces them to adopt one-size-fits-all standards in curricula and methods of assessing learning—what Ramsden (1992) called "mass production standards." Every student is different and yet everyone is treated the same. The education system in Bhutan especially at the primary and high school level does not prepare students to be independent learners. Considering that RTC's student body composition in a normal class would be average performers from their high school, most students coming to RTC are inadequately equipped to be independent learners with sufficient motivation to study.

Learning outcomes come with pre-set measures and assessment formats which can be conflictual with independent learning. This conflictual relationship is attributable to the emphasis on transparency in higher education (Hussey & Smith, 2002; Todd et al., 2004). It makes the task of balancing "freedom" and "structure" daunting for tutors. When this becomes challenging, it presents negative implications for learning. Hussey and Smith (2003) argue prescribing learning outcomes may impinge on tutor creativity. Independent learning, therefore, needs institutional policies which support it (Hughes, 2002). Learning outcomes need to be contextualized to student experiences and hence they cannot always be objectively measurable. It should not be used as a mere auditing tool to serve modern management techniques but needs to incorporate flexibility in order to achieve educational goals (Hussey & Smith, 2002). With RTC's structured institutional process the need to balance structure versus flexibility to enhance quality learning need to be looked at. There is also a need to study further the current curriculum design structure in higher education in Bhutan to look at its strengths and challenges in actual practices of teaching-learning.

Evidence-based Teaching-Learning

Most tutors reported the use of various teaching-learning strategies to cater to the learning needs of students. The most common strategies align with student-centred learning; however, since the data was self-reported, it is difficult to validate whether these student-centred teaching strategies are used effectively. The qualitative data on pedagogical knowledge also found that many tutors were not formally familiar with any specific learning theories, although their descriptions of strategies used in class related to popular learning theories such as

constructivism, for example, designing assessments that are context- and learner-centred. One of the main reasons for the tutors not being able to articulate learning theories in relation to the teaching strategies could be that only a handful of the tutors have had formal training in teaching. With a higher attrition rate at RTC training and mentoring new faculty will always be a challenge. A greater emphasis on pedagogy training for new faculty should be put in place so that teaching is evidence/science-based (Malot et. al, 2014) for meaningful learning and lesson as opposed to "give a class" (Sims, 2010).

There are three major camps of learning theory: behavioralism, cognitivism, and constructivism (Bada, 2015; O'Neill & McMahon, 2005). Each of these has its own offshoots. Learning theories play an important part in understanding tutors' roles and responsibilities in education (Peterson & Wilsom, 2006; Sandars et al., 2015). At present, there is a consensus that learning requires the active engagement of the learner and that learning is both a social and individual construct (Heuchemer et al., 2020; Kaput, 2018; O'Neill & McMahon, 2005). For example, engaging learners in meaningful activities that have a connection to quality learning, or understanding the prior knowledge and background of the student to make learning meaningful, is complex. The role of the tutor is to then build the bridge between student understanding of the topic and the intended lesson (Kreber, 2006; Peterson & Wilsom, 2006; Shulman, 1986, 1987). There is no one simple formula to do this, the methods used to fill the gap can be varied. To be able to engage the learning theory meaningfully tutors need to have a pedagogical repertoire that draws from many learning theories that are effective and meaningful (Peterson & Wilsom, 2006; Shulman, 1986, 1987). The relationship between theory and practice is complex.

From the data on pedagogical content knowledge (or instructional knowledge), many tutors reported that students' underdeveloped skill of independent learning was a major challenge. Although this tends to change by the time students are in their final year, the shift was not always enough to make the students ready for work life after graduation. Student motivation and poor reading, writing, and comprehension skills were the most challenging aspects while designing student-centred learning. The current large number of contact hours required for students was also found to be one of the factors that limit time and space for independent learning. A need to revisit the current contact hours, especially at the upper level to enhance independent learning skills among students is important. However, a cautious undertaking of meaningful independent learning has to be implemented that would gradually scaffold such skills considering the student body composition at RTC.

Conclusion

Teaching well in higher education is a complex process; what constitutes quality teaching varies according to how variables interact with each other (Mishra & Koehler, 2006; Shulman, 1986; Zepke, 2013). From the current study, it is evident that having confidence in content, curriculum, pedagogy, and instructional knowledge is not enough for quality teaching if there are structural issues relating to curriculum requirements and rigidity in institutional policies on academic regulations. Considering the gap in the majority of RTC's students' skills

of independent learning, especially at the entry level, a need is felt to relook at the curriculum design to scaffold independent learning skills. Also, providing tours and students with space and time for more meaningful learning experiences to enhance the overall quality of education is also evident from the study. There are also likely capacity gaps in professional teaching skills related to PCK and implementing effective student-centric teaching-learning techniques and strategies through professional development both in-house and from expert trainers to help tutors plan their teaching-learning methods that are based on evidence/science of education.

References

Avalos, B. (2011). Teacher professional development in teaching and teacher education over ten years. *Teaching and Teacher Education, 7*(1), 10-20. https://doi.org/10.1016/j.tate.2010.08.007

Bada, S. O. (2015). Constructivism learning theory: A paradigm for teaching and learning. *Journal of Research & Method in Education, 5*(6). 66-70.

Bodycott, P., & Walker, A. (2000). Teaching abroad: lessons learned about inter-cultural understanding for teachers in higher education. *Teaching in Higher Education, 5*(1). https://doi.org/10.1080/135625100114975

Butler, J. A. (1992). *Staff development*. School Improvemnet Research Series. https://educationnorthwest.org/sites/default/files/StaffDevelopment.pdf

Cohn, S. R. (1998). Teaching in a developing country: Mistakes made and lessons learned in Uganda. *Journal of Legal Education, 48*(1), 101-109. https://core.ac.uk/download/pdf/216975545.pdf

Creswell, J. W., Shope, R., Clark, V. L., & Green, D. O. (2006). How interpretive qualitative research extends mixed methods research. *Research in the Schools, 13*(1), 1-11.

Daniels, J. (2016). Professional learning in higher education: Making good practice relevant, *International Journal for Academic Development*, *22*(2), 170-181. https://doi.org/10.1080/1360144X.2016.1261352

Dhendup, S., & Sherab, K. (2023). Exploring Bhutanese primary school teachers' technological knowledge. *Journal of Global Education and Research, 7*(2), 116-130. https://www.doi.org/10.5038/2577-509X.7.2.1213

Elçi, A., & Yaratan, H. (2012). Needs for professional development in teaching and learning in an international university. *Eurasian Journal of Educational Research, 12* (49/A), 47-66.

Fuhrman, N. E., Fuhrman, R. G., & De Lay, A. M. (2010). Defining "good teaching" at the graduate level: Are we meeting the instructional expectations of doctoral students? *Journal of Faculty Development*, *24*(2), 19-24.

Gaff, J. G., & Simpson, R. D. (1994). Faculty development in the United States. *Innovative Higher Education, 18*, 167–176. https://doi.org/10.1007/BF01191111

Gay, G. (2002). Preparing for culturally responsive teaching. *Journal of Teacher Education, 53*(2), 106-116. https://doi.org/10.1177/00224871020530020

Gibbs, G., & Coffey, M. (2004). The impact of training of university teachers on their teaching skills, their approach to teaching and the approach to learning of their students. *Active Learning in Higher Education*, *5*(1), 87-100. http://alh.sagepub.com/content/5/1/87.refs.html

Güneri, O., Orhan. E., & Aydin, Y. Ç. (2017). Professional development needs of junior faculty: A survey study in a public university in Turkey. *Journal of Higher Education, 7*(2), 75-81. https://doi.org/10.2399/yod.17.005

Hashweh, M. (2013). Chapter 6 pedagogical content knowledge: Twenty-five years later. Advances in Research on Teaching. In Craig, C.J., Meijer, P.C. and Broeckmans, J. (Eds.), *From Teacher Thinking to Teachers and Teaching: The Evolution of a Research Community (Advances in Research on Teaching)* (pp.

115-140). Emerald Group Publishing Limited. https://doi.org/10.1108/S1479-3687(2013)0000019009
Heuchemer, S., Martins, E., & Szczyrba, B. (2020). Problem based learning at a learning university: A view from the field. *The Interdisciplinary Journal of Problem-based Learning, 14*(2). https://doi.org/10.14434/ijpbl.v14i2.28791
Hughes, P. (2002). *Developing independent learning skills.* [Paper presentation]. 2nd Annual Skills Conference 'Implementing skills development in higher education: reviewing the territory', University of Hertfordshire, Hatfield, UK.
Hussey, T. & Smith, P. (2002). The trouble with learning outcomes. *Active Learning in Higher Education*, *3*(3), 220–233. https://doi.org/10.1177/1469787402003003003
Hussey, T. & Smith, P. (2003). The uses of learning outcomes. *Teaching in Higher Education*, *8*(3), 357–368. https://doi.org/10.1080/13562510309399
Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field Methods, 18*(1), 3-20. doi:10.1177/1525822X05282260
Kaput, K. (2018). *Evidence for student-centered learning.* St. Paul: Education Evolving. https://files.eric.ed.gov/fulltext/ED581111.pdf
Khan, M. N., & Sarwar, M. (2003). Needs assessment of university teachers for professional enhancement. *International Journal of Business and Management, 6*(2), 208-2012. https://doi.org/10.5539/ijbm.v6n2p208
King, D., & Ginns, I. (2015). Implementing a context-based environmental science unit in the middle years: Teaching and learning at the creek. *Teaching Science, 61*(3), 26-36. https://eprints.qut.edu.au/88947/
Kreber, C. (2006). Developing the scholarship of teaching through transformative learning. *Journal of Scholarship of Teaching and Learning*, *6*(1), 88-109, https://files.eric.ed.gov/fulltext/EJ854916.pdf
Malott, K. M., Hall, K. H., Moore, A. S., Kell, M. M., & Cardaciotto, L. (2014). Evidence-Based Teaching in Higher Education: Application to Counselor Education. Department of Counseling Scholarship and Creative Works. 30. (53), 294-305. https://digitalcommons.montclair.edu/counseling-facpubs/30
Major, C. H., & Palmer, B. (2006). Reshaping teaching and learning: The transformation of faculty pedagogical content knowledge. *Higher Education*, *51*(4), 619-647. https://doi.org/10.1007/s10734-004-1391-2
McCawley, P. (2004). *Methods of conducting an educational need assessment*. University of Idaho. Retrieved April 30, 2021, from https://www.cyfar.org/sites/default/files/McCawely%202009.pdf
Meier, S. (2021). An investigation of the pedagogical content knowledge across German preservice (physical education) teachers. *Advances in Physical Education*, *11*(3), 340-352. https://doi.org/10.4236/ape.2021.113029
Mishra, P., & Koehler, M. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054. http://one2oneheights.pbworks.com/f/MISHRA_PUNYA.pdf
Ning, N. T., Kam, H. W., Sundara, R., Chin, Y. K., & Hoe, L. N. (2010). *Teacher quality enhancement project: Policy guidelines and strategic plan.* Royal Education Council.
Ödalen. J., Brommesson, D., Erlingsson, G., Schaffer, J., & Fogelgren, M. (2019). Teaching university teachers to become better teachers: The effects of pedagogical training courses at six Swedish universities. *Higher Education Research & Development*, *38*(2), 339-353. https://doi.org/10.1080/07294360.2018.1512955
O'Neill, G., & McMahon, T. (2005). Student-centered learning: What does it mean for students and lecturers? In O'Neill, G., Moore, S., McMullin, B. (Eds), *Emerging issues in the practice of university learning and teaching* (pp. 27-36). AISHE. http://eprints.teachingandlearning.ie/3345/1/O%27Neill%20and%20McMahon%202005.pdf

Peterson, P. L., & Wilsom, S. M. (2006). *Theories of learning and teaching: what do they mean for educators?* National Education Association. https://files.eric.ed.gov/fulltext/ED495823.pdf

Ponce, O. A., & Pagán-Maldonado, N. (2015). Mixed methods research in education: Capturing the complexity of the profession. *International Journal of Educational Excellence*, *1*(1), 111-135. https://doi.org/10.18562/ijee.2015.0005

Ramsden, P. (1992) *Learning to teach in higher education.* Routledge.

Rennie, L. J., & Parker, L. H. (1996). Placing physics problems in real-life context: Students' reactions and performance. *Australian Science Teachers Journal, 42*(1), 55-59. https://eric.ed.gov/?id=EJ530089

Todd, M., Bannister, P., & Clegg, S. (2004). Independent inquiry and undergraduate dissertation: perceptions and experience of final-year social science students. *Assessment & Evaluation in Higher Education*, *29*(3), 335-355. https://doi.org/10.1080/0260293042000188285

Trigwell, K., Prosser, M., & Taylor, P. (1994). Qualitative differences in approaches to teaching first year university science. *Higher Education, 27*(1), 75-84. https://www.jstor.org/stable/3448286

Tshomo, T. (2021). A case study of professional development programs: Perspective and practices of Bhutanese ESL teachers and pre-service teachers. *Bhutan Journal of Research and Development, 9*(2), 132-152. Retrieved from https://bjrd.rub.edu.bt/index.php/bjrd/article/view/83

Sandars, J., Patel, R. S., Goh, P. S., Kokatailo, P. K., & Lafferty, N. (2015). The importance of educational theories for facilitating learning when using technology in medical education. *Medical Teacher*, *37*(11), 1039-1042. https://doi.org/10.3109/0142159X.2015.1019438

Sandford, B. A., & McCaslin, N. L. (2004). *Assessment of professional development activities, instructional needs, and delivery methods of part-time technical and occupational faculty in U.S. community colleges.* National Research Center for Career and Technical Education. University of Minnesota. https://files.eric.ed.gov/fulltext/ED493602.pdf

Salsberg, J., Seller, R., Shea, L., & Macaulay, A. C. (2012). A needs assessment informs development of a participatory research faculty development workshop. *Journal of Higher Education Outreach and Engagement, 16*(1), 183 -193. https://files.eric.ed.gov/fulltext/EJ975806.pdf

Sherab, K., Tshomo, U., Gyamtsho, D. C., & Thinley, J. (2022). Technological, pedagogical and subject content knowledge (TPACK) profile of final year pre-service teachers at Paro College of Education, Royal University of Bhutan. In M. A. Impedovo, M. S. Khalid, K. Kinley, & M. C. Yok, *Blended learning in higher education* (pp. 113-125). Aalborg University Press.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educated Researcher, 15*(2), 4-14. https://doi.org/10.3102/0013189X015002004

Shulman, L. S. (1987). Knowledge and Teaching: Foundations of the new reform. *Harvard Educational Review*, *57*(1), 1-23. https://doi.org/10.17763/haer.57.1.j463w79r56455411

Sims, M. E. (2010). How does background and training affect dance pedagogy in higher education? Master's Thesis, University of Kentucky. https://uknowledge.uky.edu/cgi/viewcontent.cgi?article=1004&context=gradschool_theses

Smith, C., & Beno, B. (2003). *Evaluating staff and organizational development.* California Community College Council for Staff & Organizational Development. Retrieved April 15, 2021, from http://www.4csd.org

Sprinkle, J. E. (2009). Student perceptions of educator effectiveness: A follow-up study. *College Student Journal*, *43*, 1341-1358. https://psycnet.apa.org/record/2010-01469-018

Stefani, L., Clarke, J., & Littlejohn, A. (2000). Developing a student-centred approach to reflective learning. *Innovations in Education and Training International, 37*(2), 163–171. https://doi.org/10.1080/13558000050034529

Zepke, N. (2013). Threshold concepts and student engagement: Revisiting pedagogical content knowledge. *Active Learning in Higher Education*, *14*(2), 97-107. https://doi.org/10.1177/1469787413481127