The ICT-Integrated Pedagogy in the Colleges of Royal University of Bhutan

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ABSTRACT

This paper reports a research study on the integration of ICT and pedagogy in the colleges of the Royal University of Bhutan. It investigates whether ICT is integrated into the pedagogy, and if so, in what way. The samples (Faculty members) of the study were picked up randomly from ten colleges under Royal University of Bhutan.

The study identifies the use of Virtual Learning Environments (VLE), used as part of ICT-integrated pedagogy. However, the use of VLE has been found to be confined to be a platform where activities such as work plan, module descriptors, uploading assignments have been done. The interactive teaching-learning via VLE is considerably low, where only a few of the lecturers are found to be using VLE for discussion, class tests and quizzes besides the activities mentioned. The concepts and application of learning design or instructional design are confined to a few lecturers who actually attained training. The status of ICT integrated pedagogy in higher education in Bhutan is at an early stage being affected by low speed internet connectivity and lack of adequate resource as well as training in ICT integrated pedagogy. However, lecturers are highly motivated by the potentials of technology.

KEYWORDS

ICT, Integration, pedagogy, Virtual Learning Environment.

1 INTRODUCTION

The computers and internet were introduced in 1980's and 1999 respectively in Bhutan [1]. ICT known as IT (Information Technology) then got further impetus with the support from the Royal Government of Bhutan in recognition of the same as indispensable development tool. Tobgay and Wangmo [1] mention the introduction of IT curriculum for teachers as well as students in the year 2000. They also state that the Ministry of Education (MOE) had started supporting the higher secondary schools particularly with providing computers, LCDs, internet, multimedia and e-learning resources. However, the use of Information and Communication Technology (ICT) took place sometime in 2004 only when Samtse College of Education (SCE)[1] began using ICT to support distance education [2].

Over the years the MOE has taken initiative of improving education system recognising the potentials of ICT by "...using new teaching methods, introducing technology in teaching/learning" [3]. The MOE further in association and support from Singapore International Foundation (SIF), had initiated a "project aimed at encouraging teachers to move away from conventional teaching methods and adopt ICT in the teaching learning process" [3].

With ICT facilities such as laptops, mobiles and internet increasingly used by teachers and students, the teaching and learning have undergone change mainly in the colleges of Bhutan [4]. Since 2004, the use of ICT has been increasing with introduction of Moodle, a VLE (Virtual Learning Environment) in 2008 in the colleges of Royal University of Bhutan (RUB). Thus, with increasing familiarity with ICT

[1] called National Institute of Education (NIE) by that time

tools, "teachers are now moving towards integration of ICT in their teaching practices" [4]. However, Kinley et.al [4] report that there are challenges such as 'lack of skills', 'internet connectivity', 'lack of training' and 'lack of adequate resources' in the process of integration. Therefore, this paper will explore the aspects of ICT integration under the research question, 'To what extent is ICT integrated into pedagogy in the colleges of RUB?' Under this broad question, following sub questions are asked to survey the status of the integration:

- How does knowledge and skills of ICT tools influence ICT integrated pedagogy?
- How does training in ICT influence integration of ICT into pedagogy?
- What professional use of ICT is being practised by RUB lecturers?
- What type of ICT integration approaches is prevalent across the RUB colleges?
- What is the level of ICT integration in the colleges of RUB?

Technology has been developing at a fast rate that its influence has been felt by teachers and educators worldwide as pedagogy has been undergoing improvements with ICT. The change of pedagogy from the traditional methods to new approaches as 'integrated pedagogy', a 'catalyst in transforming the teaching and learning process' and the 'technology-supported classroom' are the various connotation given to ICT in the recent times [5]. Jung [6] therefore asserts that, "...teachers need visions of the technologies' potential." However, Jung [6] further says that, "...combining new technologies with effective pedagogy has become a daunting task." Nevertheless integrating ICT with pedagogy has become important aspect of 21st century teaching and learning. Since Bhutan has been striving towards making use of ICT in all spheres of life, this paper explores the theme of ICT integrated pedagogy particularly in teaching across ten colleges of the Royal University of Bhutan.

The paper uses SAMR (Substitution Augmentation Modification Redesign) model popularised by conceptual framework developed by Ruben Puentedura [7] Using the framework, data have reported, discussed and aggregated to show the state of ICT integrated pedagogy.

1.1 Significance

This particular study on ICT integrated pedagogy in the colleges of RUB provides a status of the integration process. It will enable the colleges to get understanding of the level of integration. Further the research results will become important baseline for all researchers, professionals, and policy-makers that deal with the educational technology of Bhutan. Previously, with the exception of a few studies at the individual college level [4, 8] the actual situation in Bhutan was unknown and we were left guessing whether it mimicked other countries. Taking Bhutan's several special circumstances (political, demographical, and historical) into account, such inference is highly speculative. This also includes regional meta-studies that sometimes skip Bhutan and, although the data of Bhutan are not so deviating, will nevertheless always be supposed to behave like the dominant actors of the region.

2 LITERATURE REVIEW

The definition of ICT in the context of the research activity is the first part of literature review. The second major part explains the concept, types or levels of ICT integration .The concluding part will highlights conceptual framework.

2.1Definition of ICT

Information and Communication Technology (ICT) has been defined in ways different people wanted it to be used and understood. It was simply known as Information Technology (IT) until 1992 when the term ICT came into use with introduction of communication dimension, email [9]. Nowadays different service facilities such as internet, cell phones, laptops, LCDs have become indispensable tools (which are also termed as ICT tools) for faster and easier communication. These ICT tools including computer hardware and software have found its use in education. According to Pelgrum and Law [9], ICT is a facilitator that brings change or reform in the educational practices. Therefore ICT in the context of this research activity refers to the ICT tools which have potentials to improve teaching by way of integrating them into teaching and learning process.

2.2 Concept of Integration

According to Hepp, Hinostroza, Laval and Rehbein [10] ICT has great potential to take a 'pedagogical tool role' where it can be used to create 'framework' for bringing change and "...improvement of teaching and learning practices". However, ICT integrated teaching approaches have been taking place in different stages. The UNESCO [11] states that the use of ICT began as "substitute for current teaching practice". Nevertheless, with technological advancement, the use of ICT has shifted from substituting role to ICT supported pedagogy, moving towards more advanced stages. Cox et. al [5] state that "... a major part of effective use of ICT lies in planning, preparation and follow-up of lessons, and in particular the pedagogical thinking that links teaching style, the selection of resources, the activities and the learning objectives". They also mention that pedagogy of ICT has to be understood within the broad framework of educational practices where teacher's values, beliefs and ideas would largely be influencing factors. However, the use of ICT by teachers would also be determined by the level of pedagogical knowledge which is defined as "...the processes and practices or methods of teaching and learning and how it encompasses, among other things, overall educational purposes, values and aims" [12].
Since ICT is now in use, teachers need to know how to integrate ICT into pedagogy. Khirwadkar [13] says that, "Teachers are expected to know to successfully integrate ICT into his/her subject areas to make learning more meaningful." In order to bring meaningful learning in students, teachers need to know the use of appropriate and relevant ICT tools which will integrate ICT and pedagogy. Leach and Moon [14] mention the relationship between pedagogic knowledge and subject knowledge. One of the three approaches of the use of ICT as outlined by McCormick and Scrimshaw [cited in 14] is "ICT to transform conceptions of subjects". Hence content knowledge too is a necessary part of ICT integrated pedagogical approach to teaching. TPACK discourse sees content knowledge as "knowledge about the actual subject matter that is to be learned or taught" [12]

2.3. Approaches to ICT Integrated Pedagogy

Cox et al. claim that there are three approaches to using ICT in teaching. The first approach is named as 'integrated approach' where teachers aim at improving students' achievement by using ICT within the content or subject matter, enhancing the delivery of concepts and skills. Teachers focus on achieving the aims and objectives of the curriculum by reviewing the 'curriculum areas'. The second approach called 'enhancement approach' deals with use of ICT facilities and innovative teaching method. A teacher may use video clip on a topic and initiate

discussion bringing new style of his teaching. The third is the 'complementary approach', which lays stress on students 'improving their class work' by allowing them to take notes through ICT and to communicate with teachers.

Khirwadkar [13] highlights four different approaches namely, (a) ICT skills development approach (aimed at providing skills and training), (b) ICT pedagogy approach (focused on pedagogy where teachers design lessons making use of appropriate ICT tools which will help fulfil learning outcomes), (c) subject-specific approach (embedded ICT within subject) and (d) practice driven approach (focused on practice of using ICT).

2.4 Stages of ICT Integration

Cox et al and Khirwadkar's 'integrated approach' and pedagogy 'approach' respectively are similar since both approaches aim at improving students' learning outcome through use of ICT in teaching. However, the extent of the use of ICT in pedagogy is dependent on teachers' knowledge of ICT, where they can be "able to fit its use either into their existing pedagogy or to extend their pedagogical knowledge so that they can accommodate ICT effectively in their teaching" [5]. Thus the knowledge of ICT is a determinant of the level of ICT integration. If the teachers possess basic knowledge of ICT, it will lead to the first stage integration where ICT tools such as LCDs and power point presentation would merely substitute the traditional chalk and board method of teaching. The teaching would be enhanced with the use of ICT tools. Since teachers have started using ICT in teaching, this stage is an emergent stage. As teachers become increasingly adept with ICT skills, they would take the usage of ICT beyond ICT's substituting role with making use of specific tools and software achieving professional use of ICT in terms of meaningful, efficient and innovative usage. At this level, not only teachers' teaching would be enhanced but also students' learning. The ICT forms an integral part of teaching as well as learning. Students too use ICT to carry out learning task at this level. As teachers experiment through their skills in bringing changes in teaching as well as for learning, this is an innovative stage. However, when teachers start to rethink of their pedagogy and start using the ICT tools in a way they have never used before, they would have attained the maximum level of ICT integration. They would have become creative in the use of ICT bringing transformation in their teaching and learning. Therefore this high level of integration can turn into a transformative stage. Though, the use of ICT would largely depend on the knowledge and skills demanding practical aspects yet attitude is considered an equally important factor. According to a study conducted by Rastogi and Malhotra [16], it was revealed that there exist high correlation among three variables ICT knowledge, ICT integration and attitudes to ICT.

2.5 Teachers' Attitude Towards ICT

According to Leach and Moon [14], one of the 'professional characteristics' that are evident in teachers have 'passion for learning' and like 'teaching the subject'. The use of ICT in teaching will therefore be dependent on the beliefs and values or positive attitude. As per Hepp. et.al., [10] "Teacher beliefs mediate their planning and classroom practices, in particular the belief about their level of ability to use ICT in classrooms."

2.6 Conceptual Framework

To analyse ICT integrated pedagogy, factors such as approaches to integration, integration process and their relevant characteristics become important matters to be studied. The SAMR was used for the

conceptual framework. However, the two lower levels, Substitution and Augmentation have been merged in emergent level. Therefore the table given below shows three stages in the conceptual framework.

Table 1: Conceptual Framework

Approaches to ICT Integration	Stages of Integration	Level of Integration
Pedagogy or Integrated approach	Transformation level	Teachers would use ICT in a way they have never used before. They would use ICT in meaningful and efficient way.
Enhancement approach	Innovative level	Teachers would use ICT tools to enhance their teaching method. They bring changes in their pedagogy using ICT
Complimentary approach	Emergent level	Teachers merely use tool in simple ways. e.g. use powerpoint and LCD

Since ICT integrated pedagogy has been increasingly used in teaching, different stages of integration have been identified with specific usage of ICT tools. In all three levels four characteristics remain common which are:

1) college ICT resource,
2) ICT skills and knowledge
3) teachers attitude and motivation
4) teachers' professional use of ICT.

The four characteristics would apply to all the levels of integration in varying use of ICT from simple to complex level. For instance at the emergent level basic knowledge and skills of ICT would enable a teacher to make use of power point presentation using LCD whereas at the transformation level, a teacher having become skilful in the use of ICT would become creative and efficient. A teacher would have become highly knowledgeable with high level of motivation at this stage. He or she would become professional and role model to inspire other teachers.

3 METHODOLOGY

Data have been collected using mixed approaches. Survey questionnaire was administered to get the quantitative data and SPSS has been used to analyse the same. A semi-structured interview too was used as part of qualitative data collection. Thematic analysis has been done with the interviews. A total of 138 lecturers (114 males and 24 females) across ten colleges (out of 11) under RUB have taken part as research samples. 111 was administered through questionnaire whereas 27 further participated in the interviews. The response rate was 46.25%. Random samples were used though gender representation was not given importance since number of women lecturers is comparatively very low with ratio of 101 against 378 male lecturers as per RUB 2012 staff statistics. The sample participated voluntarily, i.e. could choose not to answer the survey. The data doesn't include lecturers who are on long term study leave. However, proportion of the questionnaire administered was based on the size and strength of the college. Some larger colleges were sent with higher number of questionnaires. While collecting interview data two major limitations were encountered which were distance and time constraint. It took longer travel days for researchers to travel between colleges due to scattered locations especially the two colleges in the east of the country. Researchers' time could not be relieved to collect data due to involvement in regular college teaching and other academic and management responsibilities. The research has focused on capturing lecturers' standpoint. Students may have other perceptions.

While the voluntary participation principle was obeyed in the survey questionnaire, active ICT users as identified by colleges have been selected for

interviews by management. When the data for lower levels of integration, 'emergent' and 'innovative' level has been collected through survey questionnaire the higher 'transformative' has been explored by interviews.

4 DATA PRESENTATION AND ANALYSIS

4.1 IT Qualification

Out of 111 respondents, 45 possess IT qualification ranging from certificate to masters while the rest do not have formal training in IT. The majority of the respondents with formal qualification belong to the age group of 30 – 39 years. Within the same group, 14 of them have obtained a certificate course in IT. As evident in the data, the majority of college faculty lies within the age group of 30 – 49 years. The rest who do not possess formal IT qualification have gained IT knowledge through college based workshops or training, exploring self-tutoring program, consulting ICT expert colleague and peer learning (see figure 1)

Table 2: IT Qualification

Age group (in Yrs)	MA	BA	Dip	Cert	Others	No response	Total
25 – 29	2	2	3	6	12	1	26
30 – 39	4	0	3	14	16	4	41
40 – 49	0	1	0	8	23	2	34
50 – 64	0	0	0	0	7	1	8
No response	0	1	1	0	0	0	2
Total	6	4	7	28	58	8	111

4.2 Factors influencing the use of ICT

Regarding the factors influencing the use of ICT in teaching, all age groups have rated adequate ICT facilities as very important followed by personal interest and management support respectively. ICT facilities are seen very important in enhancing personal interest and encouraging self-tutoring and learning. This is indicated in figure 1.

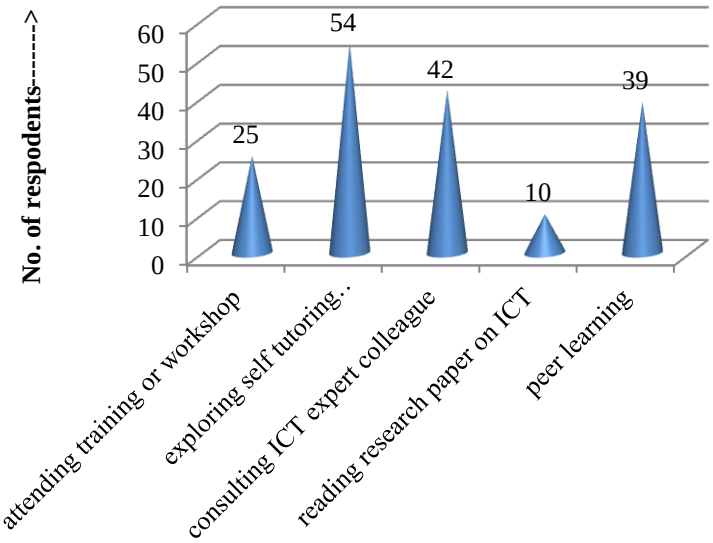


Figure 1: Self-learning of ICT

4.3 ICT knowledge and skills

Out of a total of 111 respondents, 77 have received some form of training in ICT use (Table 3). Of these, 62.1% were trained within Bhutan mostly in college based workshops and trainings. They were primarily trained in the use of Virtual Learning Environment (VLE) to support teaching and learning. A dean of one of the RUB colleges says that crash courses on VLE are being offered to the faculties. 7.2% of those who attended training outside Bhutan were mostly IT lecturers; they were trained in Linux, networking, and tele-collaboration. Further, 8 lecturers were sent to Singapore under the "Bhutan Wire project" apart from VLE training. The dean of a college said that they "were sent to…learn some techniques of how to integrate in teaching with ICT in teaching".

Table 3: ICT training

Age group (in Years)	No of respondents	Attended ICT Training			Total
		Outside Bhutan	Within Bhutan	Within college	
25 to 29	26	2	5	7	14
30 to 39	41	1	15	19	35
40 to 49	34	3	8	9	20
50 to 64	8	2	2	4	8
No response	2	0	0	0	0
Total	111	8	30	39	77

4.4 Professional use of ICT

Almost all lecturers use a computer or laptop to prepare lessons. However, the major constraints that affect their commitment in preparing lessons are internet inconsistency, lack of knowledge on computer software and time constraints. Despite indicating lack of knowledge of computer software as one of the constraints, they have tried to tackle the issue by consulting ICT expert and colleagues and exploring on their own as indicated in the data given below (Table 4).

Table 4: Learning the application of computer software

Constraints in designing lesson using ICT	Attending training or workshop	Consulting ICT expert colleague	Exploring self-tutoring program	Reading research papers on ICT	Peer learning
Time constraint	8	6	11	3	6
Heavy teaching load	6	7	8	1	4
internet inconsistency	5	9	14	2	12
lack of knowledge on computer software	2	10	8	1	7
Power cut-off	1	4	3	1	4
No responses	1	0	2	1	0
Invalid responses	1	4	5	0	3

A dean of a college says that, “people who have been assigned with additional responsibilities besides their teaching load, face time constraints. They do not get the right time to sit and prepare very good lesson that integrates ICT very well in their lessons.” A lecturer pointed out that having access to internet in the classroom help to find out clarification instantly when certain terminology cannot be understood. Also as shown in the data in table 5, ninety one lecturers use ICT for online professional learning, using internet beyond classroom.

The college faculty use mostly face-to-face mode of teaching and the online mode of teaching (which is used least) is used to support face-to-face teaching learning (Figure 2). The online mode of teaching includes features such as post assignment task, group discussion forum, quiz and chat. In one of the colleges a lecturer (and college VLE coordinator) is even found to be using Camtasia as a tool for teaching. Other tools such as photoshop graphics and animation making too are being used by the lecturer. He says that he, “generally found those tools very important to be integrated in teaching learning”.

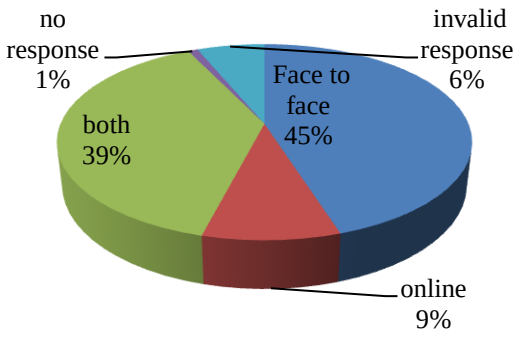


Figure 2: Modes of Teaching

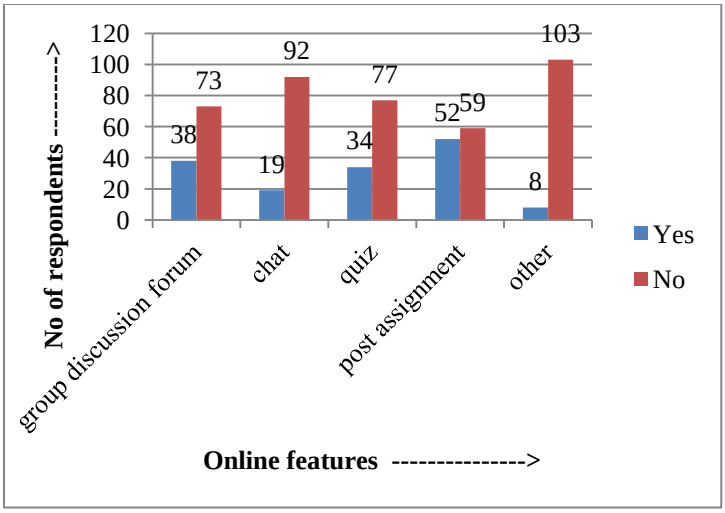
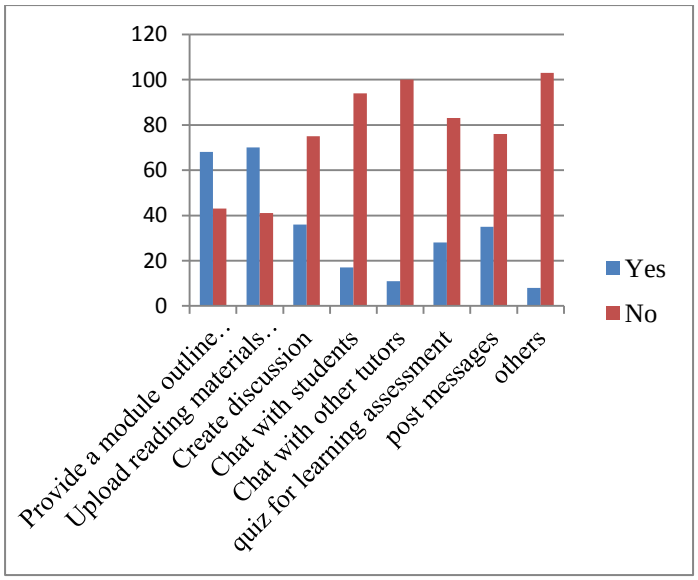


Table 5: Purpose of using ICT

Purpose of using ICT	Yes	Frequency(if yes)				No
		Daily	Weekly	Monthly	No response	
create materials for students use (handout, test)	107	38	56	12	1	4
access research and best practices in teaching, curriculum administration (planning, monitoring, evaluating and reporting)	105	33	47	24	1	6
communicate with colleagues/other professionals	107	67	30	9	1	4
communicate with students	102	49	38	13	2	9
post information to a website to assist your student in their work	92	20	46	26	0	19
online professional learning	91	33	25	34	0	20
online search for resource (journal, conference, papers, books etc)	108	52	35	21	0	3

The data (Table 5) shows that the faculty in general use ICT for variety of purposes including communicating information with others and online search for materials for students. The usage of ICT generally appears to be more regular on daily and weekly basis compared to its usage on monthly basis. Communicating information with colleagues and students takes place on a daily basis, while planning, creating and making learning materials available for students as part of their regular teaching learning process takes place on weekly basis.



Besides the faculty using online teaching for uploading module outline and work plan, and reading materials for students, the finding is not very significant (Figure 4). Creating discussion and quizzes for learning assessment would be most useful activity in assisting student learning, but only a minority of faculty engage in that.

4.5 Attitude and motivation

As indicated in the data (Table 5), most have agreed that the use of ICT in teaching enhances the

effectiveness of classroom teaching, thereby leading to improvement in student achievement. The data further indicates that faculties believe that the ICT integrated pedagogy help students in learning the subject content better. According to a lecturer, "it is ...student centered ...[encouraging] independent learning". He also highlighted the use of e-learning with the use of ICT, which enables students to learn at "any time, any place, day or night". Another lecturer says that teaching is not confined to classrooms only but goes beyond. He says that, "inside [the classroom] we use power point slide, that is the most commonly used in most of the faculties. And outside that VLE is the one, virtual learning that module component, we upload the material, we upload the teaching material, question bank and everything is kept in".

Table 6: Opinion on the use of ICT

Opinion on use of ICT	Scale						
	SD	**D**	**N**	**A**	**SA**	**NR**	**Total**
Teaching demands use of ICT	3	4	6	38	49	11	111
ICT supported teaching has enhanced my effectiveness in classroom teaching	3	0	13	42	47	6	111
The use of ICT connects content with pedagogy resulting to ICT integrated teaching	2	0	16	57	31	5	111
The learning outcome of the students is achieved more efficiently with the use of ICT	0	2	20	49	36	4	111

(SD- Strongly disagree. D-Disagree. N- Neutral, A- Agree, SA- Strongly Agree, NR- No response)

As table 5 shows, there is cognitive and analytical appreciation of ICT, the faculty members understand that using technology makes teaching more easy and comfortable. The materials once developed can be saved and retrieved for future use. The motivation level in using technology for teaching amongst the faculty is very high, too (Table 6).

Table 7: Motivation in using technology

Motivation in using technology for teaching	**Response**		
	Yes	**No**	**Total**
it motivates student learning	87	24	111
it is easier and comfortable	93	18	111
it can be saved for future use	90	21	111
it provides ready materials	74	37	111

As well as the faculty themselves using technology in teaching, some of them have also tried to encourage students to use ICT tools in their learning process. For instance, some of them have demonstrated how to make presentations, how to create discussion forums and upload assignments online (Table 7). A lecturer pointed out that students are being trained to make use of the VLE as they get admitted to the college. Another lecturer said that students preferred to submit assignments online. Table 8 shows that 54.04% of the 111 lecturers ask students to submit assignment electronically as well as ask them to make presentations using laptop.

Table 8: Encouraging students to use ICT

Encourage student to make use of ICT tools to	Response (%)	
	Yes	No
teaching them how to make PPT presentation	38.74	61.26
demonstrating the use of ICT when I make use while teaching	36.04	63.96
creating forum for discussion on VLE (Virtual learning environment)	36.04	63.96
instructing them to make group presentations using laptop	54.05	45.95
asking students to submit assignments electronically	54.05	45.95

5 DISCUSSION

5.1 ICT knowledge and skills

Out of 111 research samples, 45 have formal IT qualification. There are 58 lecturers who despite having no formal IT qualification have obtained some trainings and workshop on ICT. Eight have not responded. Therefore, basic ICT knowledge and skills per se is not an issue in the colleges of RUB. VLE is one major component of the training that has been imparted to the lecturers. Most of the participants suggested the need for training in VLE. Furthermore, few teachers used VLE features that promote discussion, despite this being commonly recommended e-moderation practice. This could be due to inadequate training or reflection of insufficient practice. A dean of a college said that, "lecturers are not trained properly, …. they are trained but only for short duration, about three to four hours and that there are so many features that can be learned." Other knowledge and skills that participants wanted were video editing, making animations and photo editing. The question is what kind of training that should be provided; e.g. lecturing, more interactive instruction or coaching? Should everybody receive training, or should a few super-users be appointed? Kinley [16] studied one of the colleges and noted that after two VLE professional development programs; the VLE was still only used by the ICT teachers and a few lead users. Our survey data does unfortunately not really give any further clues to solutions, nor do the interviews.

5.2 Approaches, stages and levels of ICT integration

The data analysis (both quantitative and qualitative) reveal that the lecturers have mainly reached the enhancement level of ICT integration though a very few also have reached the transformation level. As per figure 2 only 39 % use ICT (Online) as well as face to face teaching. A lecturer expressed that, "the use of ICT as a classroom teaching and learning could be very basic and fundamental tool use, or flashing the information, text on the LCD screen or LCD projector".The innovative level is mainly seen in the use of the features available on VLE. Teacher activities such as posting materials on website, creating discussion forums, communicating with students as well colleagues online, quiz and assessing assignments online and using rubrics are some of the common VLE features that are used actively. Students too are engaged in using ICT to participate in learning process. Students have to participate in group discussion forum on VLE, get reading materials online, submit assignments electronically and make presentation using laptops. However, a lecturer had even moved beyond enhancement level, where he had used animation tools and Camtasia. Another even used online exam to assess students. This transformation level is minimal with only two lecturers having used them in a way others have not.

5.3Attitude and motivation

About 90 percent of the samples agree that the use of ICT is motivating for the students as well as lecturers. Due to high motivation level of lecturers, it is seen that the use of ICT has been found to be dominating in the teaching approaches. Some of the lecturers have also gone to the extent of inspiring students by literally demonstrating how to use ICT as they did their teaching to show and encourage students to follow them. Some of the lecturers are found to be learning on their own through consulting ICT experts and on their own through self-tutoring. Self-motivated acts of the lecturers of learning and using ICT in their teaching reveal the inherent inspiring and motivating potentials of ICT tools. 36.04 % of lecturers are

found to be demonstrating the use of ICT so that students learn. Out of 111, 88 believe that ICT should connect content with pedagogy (Table 6).

5.4 Barriers to ICT integrated pedagogy.

Though many lecturers are found to be using ICT to the extent of becoming innovative in the usage of ICT in their pedagogy, yet they are not free of certain barriers. Lack of knowledge of computer software, internet inconsistency, heavy workload and time constraint are some of the major hurdles affecting integration of ICT into pedagogy. UNESCO [9], pointed out that 'extensive knowledge of ICT' would be required if pedagogy has to be transformed with the usage of ICT. A great deal of thinking and planning had to be done requiring adequate time and consistent internet service. Resource availability has also been an important factor. A teacher said that, "all the classrooms are not equipped with LCD projectors and it takes lot of time in arranging one". Another barrier that have been affecting all colleges is low connectivity." A lecturer said that their "teaching learning process is still at a primary stage" due to the "limited bandwidth".

6 CONCLUSIONS

ICT knowledge and skills are mainly connected to the use of VLE in the context of RUB. When use of ICT is discussed, lecturers begin with relating it to the VLE. That way it gives an impression that use of ICT in pedagogy is synonymous with VLE. The training in ICT is mainly concentrated to the VLE usage. Yet the participants still suggest the need for training in VLE. This indicates that training should be given adequately to enhance the use of VLE. The use of ICT has highly motivated the lecturers. The ICT-integrated pedagogy approach is mainly at the emergent and innovative levels. There are a couple of barriers that impede the move towards the transformative stage. Low internet bandwidth, inconsistent internet service, lack of training in ICT-pedagogy are the main barriers. Addressing these barriers will further raise the motivation level.

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