

Exploring the effectiveness of PowerPoint usage for classroom teaching and learning in the college of education in Bhutan

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ABSTRACT: *The study explores students' perceptions of the effectiveness of PowerPoint used by their tutors for teaching and learning at a teacher education college in Bhutan. The study adopts the theory of social constructivism as the foundation for inquiry, employing an embedded mixed method design. A total of 250 students from all academic programs responded to the survey questionnaire. To gather qualitative data, four focus group discussions were conducted, with each group consisting of seven participants, selected through purposive sampling. The key findings indicate that PowerPoint is perceived as an effective teaching and learning tool when it is pedagogically well-constructed, incorporating interactive student activities and group discussions. The study highlights the need for further enhancement and refinement of tutors' capacity in terms of PowerPoint design, creativity, and the use of interactive tools and features. The findings also underscore the importance of establishing a formal student feedback system to evaluate tutors' PowerPoint design, use of physical ambience, and teaching pedagogy for effective teaching and learning. The study recommends enhancing tutors' knowledge and skills in PowerPoint through professional development programs, as well as advocating for further research in this field.*

KEYWORDS: PowerPoint, teaching-learning, effectiveness, pedagogy.

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1. Introduction

The evolution of information technology has affected every aspect of education, including classroom teaching and learning. With technological advances, PowerPoint (PPT) lectures have become more prominent in the classroom (Gier & Missouri, 2009), and it has become the world's most widely used presentation program (Lari, 2014). Decades ago, chalk and chalkboard were used at colleges for presentations. Today, the roles of chalk and chalkboard have been replaced by digital projectors, and presentations are stored in electronic form. Thus, presentations have become a significant part of the teacher and students' education system. The quality of a presentation defines the ability of students to understand a given topic. Nouri and Shahid (2005) claim that the use of PPT presentations in classroom instruction has significantly increased globally without the examination of their effects on student learning and attitudes. PPT is often the

first step for tertiary teachers wanting to introduce ICT into the university lecture (Clark, 2010).

Using PPT for presentations took hold in the late 1990s. The use of PPT tools has become so common that students are transfixed, and it has become the staple mode for delivering lectures (Robert & Michael, 2016). Despite the use of PPT slides by the faculty in teaching and learning, no specific study has been undertaken to determine its effectiveness in teaching and learning in the Bhutanese context, particularly in teacher education colleges. The common perception among the faculty in the college (casual conversation) over the use of PPT slides is: PPT is a very handy and convenient tool aiding in the delivery of lessons. Besides the potential benefits of using PPT, it also has its own set of limitations. Elliott and Gordon (2006) argue that rather than using PPT to engage students in inquiry, analysis, metaphorical thinking, and discussions, it generally serves as simply

a colourful and fancy substitute for lecturing. However, it is how the PPT slides are used by the faculty which determines their effectiveness. Jones (2003) states that “*where PPT is considered a negative factor, it is usually as a result of the ‘misuse’ of the technology through inappropriate pedagogical approaches.*”

When the majority of the faculty choose to use PPT slides as a pedagogical tool for teaching-learning in the college, discrepancies in terms of content, presentation, design and engagement of learners are evident from the random study of a few PPT slide samples used by the faculty. Some PPT slides were deficient in terms of content, construction and the level of engagement of the learners, as compared to other PPT slides randomly studied. Informal discussion with a few students also pointed out the discrepancies in PPT slides in terms of content, construction and the engagement of learners used by the faculty. A few students shared that it is discouraging after realizing that their tutor uses PPT from earlier semesters without any updates. Tutors’ poor PPT use and indifferent attitudes can have a direct impact on the student’s overall learning. There is also a high probability that it might set and promote substandard practices of PPT use among student teachers who will be serving in schools across the country. Without compelling study in this field of dominating pedagogical tools, the common affirmation and commitment to enhanced teaching-learning appear more challenging. It is in this context that the study on the use of PPT slides by the faculty in the college is imperative. As Clark (2008, p. 43) argues, “*The greatest variable rests with the teacher, who can use the technology in pedagogically exciting ways, even in a lecture.*” It is not the question of whether or not to use PPT, but seeking to gather evidence of current practice related to its effectiveness and exploring conditions for enhanced practice is urgent in teacher education colleges like ours.

As there is no formal study conducted to ascertain the effectiveness of PPT tool use for teaching and learning, this study investigated the perception of the students on the effectiveness of PPT used by tutors for classroom teaching

and learning. The study also explored students’ views, suggestions and recommendations on how they can learn best through PPT-based teaching-learning. Therefore, this study focused on answering the following questions:

- i. How do students perceive tutors’ PPT design and use for classroom teaching?
- ii. What kinds of teaching strategies are adopted by tutors when using PPT lessons?
- iii. What are students’ perceptions on improving the effectiveness of PPT use by tutors?

2. Literature review

The study conducted a literature review on PPT as a widely used presentation tool in various disciplines and subject areas. In addition, to contextualize more about the current study, the PPT design, its use, and the classroom-learning pedagogy were examined. The literature on the use of PPT in the Bhutanese classroom context is very limited. Therefore, the study needed to draw more heavily on the literature on the use of PPT for teaching and learning across different countries and disciplines.

2.1. Use of PPT as a tool for teaching-learning

Clark (2010) states that the key element in the use of PPT as a presentation tool is its potential to increase and maintain student interest and attention to the lecture when combined with active teaching and student involvement. Similarly, Gilroy (as cited in Clark, 2010) admits that many students are not receptive to lectures, claiming that the screen is a fundamental part of students’ daily routines in a technologically driven society. According to Lari (2014), technologically exposed students will prefer to learn by using technology like PPT presentations to learn in the classroom instead of using traditional means as the environment has changed, and reviving traditional means will not instigate interest in students to have an interactive classroom. Students shared that they learn better when teaching materials are presented in the form of PPT presentations, as using PPT is more appealing, which helps them focus better (Ozaslan & Maden, 2013). Additionally, the study conducted by Corbeil

(2007) suggests that students exposed to PPT presentations preferred them over textbook presentations, as students showed keen interest in concentrating in class when visual effects were used to highlight important topics. In addition, Nouri and Shahid (2005) assessed semester-long student perceptions of multimedia and shared that media technology made the class presentation and discussion more interesting. Nouri and Shahid (2005) also shows that students in the PPT section reported higher comprehension abilities during a classroom presentation.

2.2. Use and misuse of PPT tool: Challenges and pedagogical issues.

As no modern technology is free from its limitations, PPT is viewed as a hindrance to promoting interactive lectures and student engagement as it reduces creativity and spontaneity in classrooms, making students more passive spectators than participants (Adams, 2006). Most PPT presentations in the classroom are used to perpetuate teacher-centered instruction in which the goal is to transmit a big chunk of information to the students in an efficient time (Elliott & Gordon, 2006). However, Jones (2003) states that where PPT is considered a negative factor, it is usually a result of the ‘misuse’ of the technology through inappropriate pedagogical approaches. Appropriate use of PPT involves using its features to enhance the teaching and learning experience, and this is daunting to some who do not wish to spend significant time developing their understanding of the pedagogical opportunities and limitations offered by PPT (Jones, 2003).

Although PPT is a tool that holds great potential for engaging students, in all likelihood, it is grossly overused and misused in 21st-century teaching (Konukman et al., 2010). As any development in ICT comes as a tool for making tasks easier, there is also a risk of overusing PPT in teaching-learning. The use of PPT for every lesson daily can increase the probability of teachers falling into a certain pattern of behaviour and habit. Cosgun (2017) argues that PPT slides may force the teacher to read the slides without providing any opinion or explanation on the issue,

and slides may include more information than necessary, which could create confusion or even distract students from the central information. As PPT became more common in classrooms, students became increasingly disengaged in PPT-augmented lectures (Konukman et al., 2010). Though PPT facilitates easy access to a tremendous amount of information about a subject in a fast, efficient, clean, and safe fashion, as the actual is more and more replaced by the virtual, some experiences and some ways of knowing are being lost (Adams, 2006). Jones (2003) points out that the common abuse of PPT in classroom situations includes using excessive details, poor use of visuals, using too many slides in one lesson, content often unmodified from an earlier PPT lesson, and not making plans for coping in the event of technological failure.

2.3. Effective PPT design and format: What matters?

Preparing a PPT with appropriate design, format, and content is also fundamental. Jones (2003) suggests a few important ideas, such as being aware of the target audience, planning the structure well, trying to avoid having more than 6 lines of text per slide, including only necessary information in the slides, being consistent and minimalist with effects, transitions and animation and using an average of 15 – 20 slides per 50-minute presentation. According to Bellamy and Mclean (2014), the elements that go to make up the overall design of the presentation include the placement of each component (text, images, etc.), the choice of font(s), and the colour scheme. They further state that “*whatever the choice, do not use more than two different fonts in each presentation*” (p. 163). “*Headings and subheadings should be between 28 and 48pt where body text and annotations should be between 18 and 28pt*” (Bellamy & Mclean, 2014, p. 163).

2.4. Effective PPT use: Adopting better teaching pedagogy

Undoubtedly PPT has the potential to facilitate “active” lecturing and “active” learning for students if it is used properly and effectively (Smith, 2016). Further, David and Vicki (2009)

state that an important issue in PPT use is not whether PPT slides are used but how the instructor incorporates them into a lesson. According to Shepherd (2006), the effectiveness of PPT depends on factors such as; ensuring that the presentation is a well-researched and informative, high-quality design, including the use of multimedia and entertaining the audience and making the experience enjoyable. For instance, a study by Bolkan (2018) among university students reports that students find animated PPT presentations or lessons easier to understand as opposed to non-animated lessons. Similarly, a study by Vicki and David (2009) found that students demonstrated higher performance when CBQs (Content-Based Questions) were included along with the traditional PPT presentations and handouts compared to when traditional PPT was provided without the CBQs.

Research has shown that it ultimately depends on the lecturer/presenter and her/his teaching pedagogies and presentation skills whether these negative points of PPT play out in the learning environment or not (e.g., Wanner, 2015). As Clark (2008, p. 43) argues, "*The greatest variable rests with the teacher, who can use the technology in pedagogically exciting ways, even in a lecture.*" It is evident that the use of PPT in classroom teaching has become indispensable. While tutors continue to use it as a dominating teaching tool, the teaching pedagogy used in parallel to such multimedia tools requires further study to understand the contextual reality of the learning process and its scope.

3. Methodology

The study adopted the theory of social constructivism as a foundation for inquiry. With the increasing use of ICT tools, the use of PPT has become a primary/dominant teaching-learning tool both by tutors and students at the college level. According to the constructivist learning theory, learning is the result of cognitive constructs based on individual experience and (pre)knowledge gained during social interaction (Sanja & Zlata, 2020). The constructivist learning model aims to encourage students not just to remember information but to engage it, work

with it, take ownership of it, and understand it by adding to known knowledge and building on new knowledge by exploring possibilities (Clark, 2014). The study explored the pedagogical practices adopted by the tutors while using PPT as a primary teaching-learning tool. Thus, the conceptual framework derived from social constructivism theory was used to enable the study to examine PPT-based teaching-learning from the lens of students' critical observations and their learning experiences.

Considering the nature of the study, both positivist and interpretive research paradigms were employed. The positivist paradigm is based on the assumption that a single tangible reality exists- one that can be understood, identified, and measured (Park et al., 2019). Interpretivism argues that truth and knowledge are subjective based on people's experiences and their understanding of them (Ryan, 2018). The use of both quantitative and qualitative methods, in combination, provides a better understanding of the research problem and question than either method by itself (Creswell, 2012). Further, grounding on both the enquiry approach, the study used embedded mixed method design. The use of the method anchored on a positivist and interpretive research paradigm was aimed at gathering quantitative data supported with qualitative data related to students' negative and positive aspects of PPT use in classroom teaching and learning. This has also allowed the phasing of the data collection to be simultaneous or sequential, depending on the priority of the research questions.

3.1. Population and sampling method

The population of the study comprised students of five different programs. The target population was categorized into six major disciplines (Modules), namely, Social Science, Language, Science, ICT and Mathematics, Contemplative Counseling and Professional Modules, considering the different nature of subjects and teaching strategies used. A total of 250 students currently studying any one of the six major disciplines were asked to respond to the detailed survey questionnaire. Further, to gather in-depth qualitative data from the students, a

focus group discussion (FGD) was carried out. The FGD offers an opportunity for the researcher to study how individuals collectively make sense of a phenomenon and construct meanings around it (Bryman, 2016). FGD was conducted with three groups of students, namely, in-service students, Post-graduate and Bachelor's degree students.

Considering the requirement of understanding the perceptions of general students attending different subjects, the study adopted a stratified random sampling method. Bryman (2016) states that stratified sampling ensures the resulting sample is distributed in the same way as the population in terms of the stratifying criterion. For the FGD, the purposive sampling method was used. Depending on the total number of students from different courses and subjects, the total number of samples from each group was taken.

3.2. Data collection instrument and analysis

Students' perceptions of the use of PPT in teaching and learning were gathered using a survey questionnaire which was administered online as well as personally to the students. The survey questionnaire consisted of three main sections, which are students' demographic information, students' perception of PPT templates, formats and frequency of PPT use and the current practice of using PPT by their tutors (focusing on maintaining students' learning interest and pedagogy). It was measured using statements on a five-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree). The reliability of the survey questionnaire was tested using Statistical Package for Social Sciences (SPSS 25) tool. The Cronbach's Alpha based on the standardized item score was 0.920. To gather qualitative data, focus group discussion (FGD) instrument was used. The survey data were entered into the SPSS (25) and used descriptive statistics mean and standard deviation to answer the research questions. For the qualitative data, FGD responses were recorded with their consent. The data gathered from focus-group interviews were transcribed, coded and categorized

into three themes. To respect and protect the confidentiality of the participants, the study used pseudonyms such as R1 to represent Respondent 1, R2 to represent Respondent 2 and so on.

4. Result and discussion

The findings of the study were presented under three broad themes, namely 1) Students' general perception of the use of PPT tools for teaching-learning, 2) Perspectives on tutors' PPT design and teaching pedagogy, 3) Factors contributing to interactive and effective PPT use for teaching-learning which are detailed below.

4.1. Students' general perception of the use of PPT tool for teaching-learning

The rationale behind presenting students' general perception of the use of PPT as a tool for teaching-learning is crucial. Considering the fact that respondents are future teachers and social workers, understanding the general acceptance or views, opportunities and challenges of using the PPT tool are important.

The survey data revealed that the respondents' general perception of the use of PPT as a tool for teaching-learning is positive, as evidenced by the overall average mean score of ($M=3.86$; $SD=0.85$) reflected in Table 1. The student's average rating on item 1-5 falls at agree level, implying that the use of PPT in teaching and learning enhance their learning, as reflected in Table 1. The findings reflect general satisfaction with the use of PPT, with the majority of the survey participants agreeing to the specific statement. For instance, the average mean score for the statement "*I feel motivated when tutors use PPT to teach*" is as high as ($M=4.05$; $SD=0.81$) followed by "*The use of PPT allows me to learn the concepts better*" with ($M=4.02$; $SD=0.73$). Similarly, the mean score for other statements, "*The use of PPT increases my opportunity to interact and discuss with my peers,*" is also high ($M=3.81$; $SD=0.86$). The statement "*PPT tool should be the primary teaching-learning tool in higher education*" has a score ($M=3.66$; $SD=0.84$). The last item under the first theme, "*I am happy with the constant use of PPT by my tutor for teaching-learning,*"

Table 1. Descriptive statistics of students' general perception

No	Item	Mean	Std. Deviation	Level of opinion
1	I feel motivated when tutors use PPT to teach.	4.05	0.81	Agree
2	The use of PPT allows me to learn the concepts better.	4.02	0.73	Agree
3	The use of PPT increases my opportunity to interact and discuss with my peers.	3.81	0.86	Agree
4	PPT tool should be the primary teaching-learning tool in higher education.	3.66	0.84	Agree
5	I am happy with the constant use of PPT by my tutor for teaching-learning.	3.75	1.01	Agree
Average		3.86	0.85	Agree

Level of opinion: 1-1.50 strongly disagree; 1.51-2.50 disagree; 2.51-3.50 neutral; 3.51-4.50 Agree; 4.51-5.00 strongly agree. (Choden, 2012, p.12; McMillan, 2013, p.61; Miller et al., 2009, p.351)

has a score (M=3.75; SD=1.01). Thus, it can be concluded that the respondents, in general, are satisfied or have a positive perception of the use of PPT for teaching and learning. It is supported by the average mean score (M=3.86; SD=0.85).

The qualitative data too revealed that the student participants were very appreciative of the use of PPT slides in the teaching. For instance, R3 expressed that;

“I feel that PPT is very easy and comfortable to use for teaching and learning. With the advancement of technology, many new apps are being introduced, which can even make PPT use more convenient and effective. However, I think it depends on the user or teacher”.

The above view was echoed by R1 when he expressed that *“I like the use of PPT for teaching-learning.”*

However, some interview participants cautioned that though the use of PPT in teaching and learning is motivating and enhances learning, the excessive use of PPT or poor planning on the part of a tutor may prove otherwise. For instance, R1 expressed that *“Though I like the use of PPT for teaching-learning, the constant use without much variation in terms of design and teaching strategy makes students feel monotonous.”* This is supported by R2, who feels that the effective use of PPT depends on how it is being used and how it can engage the students. This can be related to the findings of Konukman et al. (2010), who argue that overuse of PPT for teaching-learning can increase the risk of teachers and students falling into repetitive behaviour patterns undermining

creativity and innovation in teaching-learning. Therefore, while the respondents understand the significance of PPT as a fundamental tool for teaching-learning, they perceive overuse and teacher-dominated PPT lessons as hindrances to effective teaching-learning.

4.2. Perspectives on tutors' PPT design and teaching pedagogy

The effectiveness or success of PPT use for teaching-learning is defined by an effective combination of two factors; the type and quality of PPT design and the teaching-learning pedagogy adopted by the tutor, as discussed below.

4.2.1. Students' perception of PPT design and technical features

The quantitative data revealed that the participants were positive about the quality and type of PPT designed by the teachers, as evidenced by a high average mean score of (M=3.77) and (SD=0.91) reflected in Table 2. Specifically, Item 1, with a high mean score and standard deviation (M=3.87; SD=0.91), shows that students have a positive view of the tutors' use of PPT in terms of word animation and slide quality. Further, looking at the score of items 4 and 5 (with M=4.05; SD=0.80 & M=4.14; SD=0.74) respectively, students agree and perceive tutors' PPT use as systematic, learner-friendly and effective though they do not agree to the highest point. Further, citing the score of items 6 (I feel my tutor is creative in designing PPT) and 7 (My tutor makes PPT-based lessons interactive by

Table 2. Descriptive statistics of students' perception of ppt design and technical features

No	Item	Mean	Std. Deviation	Level of opinion
1	My tutor makes careful use of word animations to emphasize every point in the slides.	3.87	0.91	Agree
2	I get a feeling that my tutor uses the same design and format of PPT for every lesson.	3.22	1.01	Neutral
3	My tutor provides a list of references used at the end of every PPT lesson.	3.69	1.09	Agree
4	I feel the overall design of the PPT used by my tutor is very systematic and professional.	4.05	0.80	Agree
5	I feel the format of PPT used by my tutor is very learner friendly and effective.	4.14	0.74	Agree
6	I feel my tutor is creative in designing PPT.	3.78	0.93	Agree
7	My tutor makes PPT-based lessons interactive by using quizzes, concept mapping and other tools.	3.66	0.95	Agree
	Average	3.77	0.91	Agree

using quizzes, concept mapping and other tools) with (M=3.78; SD=0.93 & M=3.66; SD=0.95) respectively, students perceive tutors' PPT design in terms of creativity and interaction as agreeable.

On the contrary, the interview participants were not very positive about the PPT slides designed and used by their tutors. For instance, one of the interview respondents expressed that *"some of the PPTs are very wordy and small, which makes it difficult to concentrate on the lesson,"* expressed R3. Similarly, respondent R4 shared, *"I have a problem with my eyes, and it is difficult to look at the wordy PPT slides, but I informed my tutor later about it."*

Further, another respondent, R2, stated:

"For the last two years, I should say that maximum of the tutors had been using the PPT while teaching and then yes, they did not have that innovation or design, and then, yes, of course, they bring PPT directly, and then some of the PPT I found was that even not edited well. And there were lots of mistakes and then that needed to be checked when tutors are using the PPT".

In terms of the PPT design, R4 stated that *"For me, I prefer formal and simple PPT design and format."*

Therefore, it is quite evident that students

perceive that there is room for improvement in tutors' PPT design and technical features. Further, students are of the view that designing more interactive PPT lessons by incorporating interactive tools and designs can help make teaching-learning more effective.

4.2.2. Teaching pedagogy adopted by tutors while using PPT for teaching-learning

The survey data revealed that the students were positive about the teaching pedagogy adopted by tutors while using PPT for Teaching-Learning, as apparent by a high average mean score of (M=3.91 & SD=0.86) reflected in Table 3.

Specifically, the data also indicate that tutors making use of teaching materials such as whiteboards, charts and other materials along with PPT for classroom teaching were rated high (with M=3.70; SD=1.054). It also indicates that some tutors are making use of other teaching-learning materials such as charts, boards, role-play, videos and books in PPT-based teaching-learning in the current practice. Further, items 3 and 4, with scores (M=3.94; SD=0.833 & M=3.96; SD=0.884), respectively, indicate that students perceive PPT lessons as quite interactive, though not strongly agree. Similarly, item 6 (My tutor tries to retain students learning attention frequently during PPT lessons)

Table 3. Descriptive statistics of teaching pedagogy adopted by tutors while using PPT for teaching-learning

SL	Item	Mean	Std. Deviation	Level of opinion
1	My tutor makes use of a whiteboard, charts and other materials along with PPT for classroom teaching.	3.70	1.05	Agree
2	My tutor provides an opportunity to ask questions or seek clarifications at any time during PPT lessons.	4.26	0.80	Agree
3	My tutor assigns at least one group activity during every PPT-based lesson.	3.94	0.83	Agree
4	My tutor frequently asks for students' understanding or opinion on every PPT slide to make us engaged.	3.96	0.88	Agree
5	My tutor emphasizes collective knowledge construction through listening and discussion during PPT-based lessons.	4.04	0.75	Agree
6	My tutor tries to retain students learning attention frequently during PPT lessons.	3.98	0.74	Agree
7	I feel that my tutors PPT based lesson is teacher centered.	3.80	0.91	Agree
8	My tutor makes PPT-based lessons interactive by using quizzes and concept mapping.	3.66	0.95	Agree
	Average	3.91	0.86	Agree

with a high mean and standard deviation score (M=3.98; SD=0.749) supports the earlier items and perception. Item 2 (My tutor provides an opportunity to ask questions or seek clarifications at any time during PPT lessons) has the highest score among all with (M=4.26; SD=0.80), indicating that the tutors encourage or provide enough time for students to ask questions during the PPT lessons.

On the contrary, most of the respondents from the interview expressed that PPT lessons were not very interactive. For instance, R1 stated that *“So far, I think displaying PPT on board and then through that they lectured mostly and then of course group work was there, but mostly lecturing.”* A similar experience was shared by R2 *“We have similar experiences, most often like two hours, maybe one and a half-hour lecture. Towards the end or somewhere at the end, one or two discussions would be there, but it's mostly lecturing”*. PPT lessons substantiated by other teaching-learning materials such as charts, board, role-play and videos make students attentive and interactive, said R2. Referring to the quantitative and qualitative results, it is quite evident that PPT-based teaching-learning is perceived by students as more teacher-centered,

which calls for more interactive teaching pedagogies. This is supported by item 7 (I feel that my tutors PPT based lesson is teacher-centered) with the mean score and standard deviation (M=3.80; SD=0.91). The key element in the use of PPT as a presentation tool is its potential to increase and maintain student interest and attention to the lecture when combined with active teaching and student involvement (Clark, 2010). Gier and Kreiner (2009) also argue that an important factor in whether PPT helps or harms student learning is likely to be whether the instructor incorporates active learning techniques with the use of PPT slides. The survey conducted by Clark (2010) indicated very clearly that the level of student interest in a PPT lecture was dependent on presentation management or pedagogy.

There are numerous studies conducted on how to increase the pedagogical value of PPT-based lessons. For instance, Rabinowitz et al. (2016) suggest active student learning strategies such as; encouraging students to take notes on key concepts followed by discussion and using Crossword Puzzles and Games within PPT. Gier and Kreiner (2009), in their study, used content-based questions (CBQs) and found that students

demonstrated higher performance when CBQs were included along with the traditional PPT presentations and handouts compared to when traditional PPTs were provided without the CBQs. With ICT, the lecturer can encourage a greater degree of constructivist learning within the lecture format (Clark, 2010). *“The easiest way to do this is by posing questions and problems, offering visual imagery to stimulate a creative response to issues, and teaching across Gardner’s multiple intelligences”* shared (Clark, 2010, p. 43). It is evident that PPT-based lessons can be made more exciting, engaging and effective through the best use of pedagogy. With the rapidly emerging educational technology tools, it appears even more favourable to make PPT-based teaching pedagogy more engaging and interactive.

4.3. Factors contributing to interactive and effective PPT use for teaching-learning

This section presents the student’s perception of the features that make PPT-based teaching-learning more interactive, engaging, joyful and effective. This is fundamental as it helps to identify what, how and why a few factors are inevitable for the success of PPT use for teaching-learning. This is presented under two sub-themes, namely perception of the features that contribute

to effective PPT design and perception of the features that contribute to effective PPT, use as presented below.

3.1. Perception of the features that contribute to effective PPT design

The responses to all the items are rated agree and strongly agree by the respondents, as shown in Table 4. This indicates that students are supportive in terms of tutors using different means to make PPT design and use more systematic, updated, interactive and user-friendly. Item 1, with a score (M = 4.31; SD=0.755), indicates that students prefer tutors to have interactive tools within PPT lessons. This is further supported by the result of item 3. (I prefer including visuals, animations, proverbs, video clips and other new interactive tools in PPT-based lessons) with M=4.84; SD=0.730. The level of opinion for item 3 is rated as strongly agree, which indicates that using interactive tools within PPT is fundamental. Similarly, students also agree with the need for lesson outlines (Item 2) and providing a reference list (Item 5) in PPT by the tutor. Further, students have also perceived the importance of having a conducive physical ambience, such as direction/degree/level of screen and size of the classroom for effective PPT-based lessons.

Table 4. Descriptive statistics of students’ perception of effective PPT design

No	Item	Mean	Std. Deviation	Level of opinion
1	Including other interactive tools within PPT, such as quizzes, concept mapping, and collective illustration, can improve better student interaction and learning.	4.35	0.75	Agree
2	I prefer having the lesson overview outlined in the PPT lesson.	4.18	0.73	Agree
3	I prefer including visuals, animations, proverbs, video clips and other new interactive tools in PPT-based lessons.	4.84	0.73	Strongly agree
4	I feel that displaying all the points and content at once in a single slide is distracting and ineffective PPT use.	4.10	0.90	Agree
5	Providing a reference list and reading material list on PPT can help me learn better.	4.11	0.83	Agree
6	I feel physical ambience (direction/degree/level of screen, size of classroom) is important for an effective PPT lesson.	4.26	0.74	Agree
7	Students should have an opportunity to provide feedback regarding the tutors’ PPT use and formats.	4.24	0.68	Agree
	Average	4.29	0.76	Agree

Interestingly, during the FGD, students also pointed out the need to develop a feedback system and culture between tutor and students to improve the PPT-based teaching-learning in terms of PPT design and pedagogy. Respondent R1 stated that:

“I think it’s important for the tutors to seek suggestions from students regarding the tutors’ use of PPT, like whether students like it or not though it may not be good or appropriate from the students’ side to comment or suggest on tutors PPT use I think this might help.”

Similarly, R2 stated that *“I think it is important for the tutors to seek students’ feedback and suggestions about the design of PPT not always, but doing it sometimes can help.”* *“For example, in my case, I am a migraine patient, so this can help my tutor understand my problem and help improve the use of PPT design for all other friends”*. Supporting the qualitative responses, item 7 (Students should have an opportunity to provide feedback regarding the tutors’ PPT use and formats), with mean and standard deviation scores $M=4.24$; $SD=0.688$, suggests that such system and provision are perceived as important by students and are required for better PPT design and use. Coming to the design and technical features of PPT, respondents have perceived that overall, tutors’ PPT design is not very interactive, learner-friendly or not very exciting in terms of colour combination with a large number of slides. Respondents have also specifically pointed out that few of the PPT lessons are very wordy, with heavy content within single slides affecting students with visual problems and undermining the overall teaching-learning. The finding aligns with Jones (2003), who states that a tutor or presenter should be aware of the target audience, plan the structure well, try to avoid having more than 6 lines of text per slide, include only necessary information in the slides and be consistent with the design. The finding reveals that most of the respondents prefer simple and consistent PPT design with only important or specific points highlighted in the slides. Further, it was found that they prefer a PPT design with a

good balance of audio-visuals, links for student activities, illustrations, lesson outlines, reference lists, and updated designs.

The study revealed the consequences of technical challenges faced by the tutors while using PPT. It was reported that the majority of the tutors waste a lot of time connecting PPT to the screen and face difficulty in fixing problems related to audio-visual and having to get help from IT staff most of the time. Students are of the view that there is an opportunity for tutors to improve on technical areas related to PPT use and design. In response to technical soundness related to PPT use and design, R4 stated that:

“In terms of the technical area, I have observed that our tutors spent a lot of time setting the PPT lesson in the class. Many times, tutors are not able to solve the technical issues, such as not being able to connect the PPT on the screen, and calling the IT people most of the time wastes a lot of time. And also, sometimes, while playing videos in the PPT, we experience sound setting problems and not being able to connect audio, which is also a common problem”.

As the study reveals, the student’s perception of effective PPT design centers on technical soundness and includes using a variety of interactive tools within PPT, such as the proper balance of visuals, systematic formats and designs which matches the level and types of learners. Therefore, developing effective PPT designs which are learner-centered, seeking students’ feedback when necessary and making efforts to solve technical issues beforehand are found to be important factors in determining effective PPT design.

4.3.2. Perception of the features that contribute to effective PPT use

Vicki and David (2009) suggest that the important issue in using PPT is not whether PPT slides are used but how the instructor incorporates them into a course. They further state that an important factor in whether PPT helps or harms student learning is likely to be whether the instructor incorporates active learning techniques with the use of PPT

Table 5. Descriptive statistics of students' perception of effective PPT use and pedagogy

No	Item	Mean	Std. Deviation	Level of opinion
1	Tutors should provide enough discussion time during PPT lessons to create an interactive learning environment.	4.64	0.37	Strongly agree
2	I prefer challenging activities and problem-solving exercises in PPT lessons.	4.00	0.76	Agree
3	Providing enough opportunities to ask questions during PPT lessons can help me improve my learning.	4.81	0.21	Strongly agree
4	I feel tutors should provide half of the lesson time for individual and group activities for better learning.	4.05	0.67	Agree
5	PPT lessons should be supported by using white or green boards or charts and other interactive tools and learning activities.	4.19	0.76	Agree
	Average	4.33	0.55	Agree

slides. Therefore, it is even more important to understand what learners feel about tutors' teaching pedagogies and presentation skills while using PPT. Table 5 shows the students' perception of effective PPT use and pedagogy. Looking at the mean and standard deviation scores of all the items indicates that the respondents' general perception of effective PPT use and pedagogy is interactive, with more student engagement in discussion and activities and PPT lessons supported by other teaching-learning materials. For instance, item 3 scores the highest average mean of all the items (M=4.81; SD=0.215), followed by item 1. (M=4.64; SD=0.373), respectively. The result indicates that students look forward to having more opportunities to ask questions in PPT-based lessons to improve their learning or gain confidence. Further, students are of the view that tutors should be providing time in between for individual activities or group discussions and interactive activities to make PPT-based lessons more interactive and engaging.

The respondents indicated 'agree' with item 5 (PPT lessons should be supported by using white or green boards or charts and other interactive tools and learning activities) with mean and standard deviation scores (M=4.19; SD=0.76). This informs that using supportive tools such as whiteboard and interactive tools within PPT lessons and providing learning activities are perceived as fundamental for effective learning

by the student. In response to the question, "What are some of the possible ways you see to make PPT-based teaching-learning more interactive/student-centered?" R1 stated that "I think it should contain more of activity or discussion or activities to engage students, and I think PPT can be used as a tool to generate more discussion." Similarly, R3 expressed that "it would be good to have activities in between the PPT lesson so that even if the students miss out on the information from the PPT lesson, students can learn something from the group discussion and individual activities." Therefore, it is evident that providing enough opportunities for learners to ask questions, discuss and engage through individual and group activities can make PPT-based lessons more effective and student-centered.

It is crucial that all tutors reflect on the kind of pedagogy one uses during PPT-based teaching-learning as the PPT tool is used almost on a daily basis for teaching-learning. Konukman et al. (2010) state that the use of PPT for every lesson on a daily basis can increase the probability of teachers falling into a certain pattern of behaviour and habit. Therefore, there is a risk of tutors falling into habitual practices of lecturing every time while using the PPT tool, making teaching-learning less interactive or engaging for students. Elliott & Gordon (2006) affirms that If the PPT tool is used with the right pedagogy, it

can promote active learning, critical thinking, deep understanding and engaging discussion. Similarly, from the result, it is evident that students accept the use of the PPT tool as a very useful teaching-learning tool. However, the effectiveness of the tool is determined by the kind of interactive pedagogy used by the tutors. It was also reported that the tutor's knowledge and skills in PPT design and interactive features are also important.

6. Conclusions and recommendations

PPT tool is the most common ICT tool used for teaching-learning and presentation due to its user-friendly features and availability, and it is even becoming increasingly common. Deriving from the quantitative and qualitative data, the finding informs that respondents perceive the PPT tool as a very useful tool for teaching-learning. Further, they support the use of PPT as an effective teaching-learning tool at the university level or in schools if it is used effectively considering the design and teaching-learning pedagogy. It was revealed that the majority of the respondents are well aware of the opportunities and challenges associated with the use of PPT by their tutors. When it is used as a primary tool for teaching-learning by the tutors, it is important to be aware and skillful at gaining the best out of it in terms of achieving an effective teaching-learning experience and outcomes. Rather than viewing and using the PPT tool for the tutor/presenter's convenience, there is an increasing need to critically relook at the PPT tool from a learner/audience perspective whenever one decides to use it.

With the increasing emphasis on a learner-centered approach, collective knowledge building, and cultivating just and harmonious learning culture, the use of the PPT tool can still be made much more interactive, engaging and effective. There is also a need to establish an open communication space between tutors and learners to make the PPT tool an effective teaching-learning tool. From the finding, it is evident that both the tutors and learners

need to make PPT-based teaching-learning a collaborative approach and practice through open feedback systems and communication. For instance, some tutors may not feel the need to change the approach of PPT design and use unless they are suggested by learners to do so. However, as the study suggests, tutors need to be aware of what teaching strategies and skills might best work with the PPT tool, not always having to wait for students' feedback.

Based on the findings, the study recommends that colleges conduct skill development workshops or sessions on technical features and effective PPT designing and advanced interactive features for all the tutors in the colleges. The knowledge and skill development on the use of PPT tool can be conducted through need-based assessment and identifying the priority areas. The study also recommends the tutor include at least one or more specific interactive teaching-learning student activities in PPT-based lessons. It will be essential to review the teaching-learning strategies of PPT-based lessons by tutors to enhance active participation and engagement through increased use of interactive features, tools and other teaching-learning materials. And finally, the study recommends the establishment of a formal student's feedback system on tutors' PPT design, use, physical ambience and teaching pedagogy for effective teaching-learning.

The first limitation of the study is that study was confined only to one teacher education college under the Royal University of Bhutan and not across all the colleges of the Royal University of Bhutan. Hence, the findings cannot be generalized at the university level. The study does not include tutors across the disciplines as key participants in the study. Hence the findings were generated mostly from views & experiences shared by the students. The study could have also included observations of tutors using the PPT presentations as well to understand its use and effectiveness in teaching and learning. The lack of literature on the use of PPT presentations within the Bhutanese education context was another limitation.

References

- Abdellatif, Z. (2015). Exploring students' perceptions of using PowerPoint in enhancing their active participation in the EFL classroom: An action research study. *Journal of Literature, Languages and Linguistics*, 5, 36- 39.
- Adams, C. (2006). PowerPoint, habits of mind, and classroom culture. *Journal of Curriculum Studies*, 38(4), 389-411.
- Bellamy, K., & Mclean, D. (2014). Fundamentals of using PowerPoint. *Journal of Audio-visual Media in Medicine*, 25(4), 162–164.
- Bryant, S. M., & Hunton, J. (2000). The use of technology in the delivery of instruction: implications for accounting educators and education Researchers. *Issues in Accounting Education*, 15(1), 129-162.
- Bryman, A. (2016). *Social research methods*. Oxford University Press.
- Clark, J. (2008). PowerPoint and pedagogy: Maintaining student interest in university lectures, *College Teaching*, 56(1), 39-44.
- Corbeil, G. (2007). Can PowerPoint presentations effectively replace textbooks and blackboards for teaching grammar? Do students find them as an effective learning tool? *Computer Assisted Language Instruction Consortium Journal*, 24(3), 631-656.
- Cornwell, L. (2014). *What is the impact of PowerPoint lectures on learning? A brief review of research*. Fletcher Faculty Development Centre, Hagerstown Community College. Retrieved on 5th April 2023 from <http://www.hagerstowncc.edu/sites/default/files/documents/14-fletcher-powerpoint-research-review.pdf>.
- Cosgun Ögeyik, M. (2017). The effectiveness of PowerPoint presentation and conventional lecture on pedagogical content knowledge attainment. *Innovations in education and teaching international*, 54(5), 503-510.
- Creswell, J. (2012). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. Pearson Education, Inc.
- Elliott, S., & Gordon, M. (2006). Using PowerPoint to promote constructivist learning. *Educational Technology Magazine*, 46(4), 34-38.
- Jones, A. (2003). The use and abuse of PowerPoint in teaching and learning in the life sciences: A personal overview. *Journal of Technology Pedagogy and Education. Bioscience Education*, 2(1), 1-13.
- Jones, A.M. (2003). *The use and abuse of PowerPoint in teaching and learning in the life sciences: A personal overview*. Retrieved on 6th April 2023 from https://www.csun.edu/science/ref/presentation/powerpoint/powerpoint_use_abuse.pdf.
- Konukman, F., Rabinowitz, E., Kernodle, M., & McKethan, R. (2010). The effective use of PowerPoint to facilitate active learning. *Journal of Physical Education, Recreation & Dance*, 81(5), 12-16.
- Kumar, R. (2014). *Research methodology*. Sage Publications.
- Lari, F. (2014). The Impact of Using PowerPoint Presentations on Students' Learning and Motivation in Secondary Schools. *International Conference on Current Trends in ELT. Procedia - Social and Behavioral Sciences* 98 (2014), 1672 – 1677.
- Meibauer, G., & Aagaard, A. (2017). Teaching experience: How to make and use PowerPoint-Based interactive simulations for undergraduate IR teaching. *Journal of Political Science Education*, 14(1), 42-62.
- Nouri, H., & Shahid, A. (2005). The effect of PowerPoint presentations on student learning and attitudes. *Global perspectives on accounting education*, 2, 53.
- Park, Y., Artino, A., & Konge, L. (2019). The Positivism Paradigm of Research. *Academic Medicine*, 95(5), 690-694.
- Ryan, G. (2018). Introduction to positivism, interpretivism and critical theory. *Nurse researcher*, 25(4), 41-49.
- Smith, Y. (2016). College-based case studies in using PowerPoint effectively. *Journal of Information & Communications Technology in Education. Cogent Education*, 3(1), 1127745.
- Stepp-Greany, J. (2002). Student perceptions on language learning in a technological environment: Implications for the new millennium. *The Journal of Language Learning & Technology*, 6(1), 165-180.
- Szabo, A., & Hastings, N. (2000). Using IT in the undergraduate classroom: Should we replace the blackboard with PowerPoint? *Computers and Education*, 35, 175-187.
- Vicki, G., & David, K. (2009). Incorporating active learning with PowerPoint-Based lectures using content-based questions. *Journal of Teaching of Psychology*, 36(2), 134-139.
- Wanner, T. (2015). Enhancing student engagement and active learning through just-in-time teaching and the use of PowerPoint. *International Journal of Teaching and Learning in Higher Education*, 27 (1), 154-163.
- Sanja, V., & Zlata, T. (2020). Constructivism in visual art classes. *Centre for Educational Policy Studies Journal*, 10(4), 13-32.