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Exploring Students' Perceptions and Experiences of Flipped Learning at Punakha Central School

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Abstract

The COVID-19 pandemic accelerated the adoption of innovative pedagogies globally, including in Bhutan, where the flipped classroom approach has emerged as a promising model for technology-enhanced learning. This mixed-methods study examined students' perceptions, engagement, and challenges related to the flipped classroom among Grades VIII to X students at Punakha Central School. Data were collected through surveys (n = 170) and follow-up interviews with 10 purposively selected students.

Findings revealed moderate acceptance and high neutrality, indicating that while students valued the flexibility, visual support, and collaborative opportunities offered by the flipped classroom (FC), they continued to prefer traditional face-to-face instruction for clearer understanding and teacher interaction. Challenges included limited teacher readiness**,** inconsistent digital resource quality**,** unequal access to technology**,** and distractions from mobile use. Despite these barriers, the flipped classroom was found to enhance students' technological skills, self-directed learning, and participation when effectively implemented.

The study concludes that the flipped classroom remains a developing yet viable pedagogical model within the Bhutanese context. To optimise its potential, systematic teacher training**,** structured digital content**,** and blended learning integration are essential. These findings offer practical implications for advancing digital pedagogy and fostering learner-centred approaches in Bhutanese secondary education.

Keywords: Flipped classroom, student perceptions, challenges, digital learning, bhutanese education, grades VIII–X, mixed-methods

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Introduction

The employment of pedagogical innovations through technology and in teaching-learning is becoming increasingly vital, even while traditional teaching methods remain highly valued (Bishop & Verleger, 2013; Critz & Knight, 2013). On one hand, traditional methods of teaching have been designed to teach students ready-made knowledge and students are regarded as passive learners. On the other hand, the rapid technological advancement in the world demands that students learn to search for new knowledge, analyse independently, and draw independent conclusions (Dzobo, 2023). Therefore, both methods are important to radically rethink and change classroom instruction to fit 21st century learners. While there is no one model, the core idea is to flip the common instructional approach: with teacher-created videos and interactive lessons, instruction that used to occur in class is now accessed at home, in advance. Class becomes the place to work through problems, advance concepts, and engage in collaborative learning. Most importantly, all aspects of instruction can be rethought to best maximise the limited learning resource time (Tucker, 2012).

Punakha Central School has 664 students from classes VII to XII. Students in grades XI and XII resides on campus and grade VII to X students are day-scholars. Among the two groups of students, online learning through the use of different social media apps is common for day-scholar students from classes VII to X as they have access to resources such as internet, smartphone, and computer. Teachers teaching these classes use both face-to-face and remote learning strategies such as flipped classroom approach. Studies elsewhere have shown that students like flipped classroom as it is more engaging than traditional classroom (e.g., Zainuddin & Attaran, 2016) However, to ascertain the effectiveness of such modern approach, it is imperative to study the perceptions of students to flipped classroom instruction.

Exploring students' perceptions of the flipped classroom approach has revealed numerous positive outcomes. Several studies report that flipped classroom are more engaging than traditional methods (Sreegiri et al., 2018), enhance student performance (Mohanty & Parida, 2016, and improve readiness for learning. They also promote active participation, accurate recall of information and more efficient teaching and learning processes (Yildirim,, 2017), Additionally, students demonstrated a positive attitude, felt more involved and engaged, and showed greater enthusiasm towards course activities (McNally et al., 2017). While students generally prefer in-person lectures over video-based instructions, they favour interactive classroom activities over conventional lectures (Bishop & Verleger, 2013).

However, the flipped classroom also has certain challenges. Research revealed some of the limitations such as students' lack of appreciation for the method, existing socio-economic inequalities, and the huge amount of effort required from teachers and students to make it work (e.g., Erdemir & Ekşi, 2020; Jurmey, et al., 2022; Simon & Nob, 2023). Furthermore, teachers expressed concerns about workload and limited applicability (Ruby, 2017).

While teachers incorporate both face-to-face and remote learning strategies on daily basis, student perceptions significantly impact its success. Understanding whether students in grades VIII to X find flipped classroom beneficial is essential, as this feedback will determine whether we need to continue using this instructional model.

Similarly, Tang (2013) asserts that a prerequisite for the successful implementation of the flipped classroom technique is the assessment of teachers', parents', and students' desire for the flipped classroom. This can be done by considering the attitude of parents and children toward certain learning traits. In addition, considering the significance of the issue and lack of research on students' perceptions of a flipped classroom instructional strategy in Punakha Central School, this study therefore investigated grades VIII to X students' perceptions and challenges to the implementation of the flipped learning approach in Punakha Central School as it has been observed that almost all the teachers teaching in classes VII to X use the flipped classroom strategy.

Research Questions

1. What are students' perceptions of the flipped classroom in supporting their learning?
2. What are the advantages and challenges of the flipped classroom according to the students?

Literature Review

Although the traditional lecture format is still the dominant pedagogical strategy used in classroom instruction, new pedagogies are emerging that seek to promote active participation in learning as well as to extend students' study time outside the classroom (Dzobo, 2023; Rehman, 2022). One of these teaching strategies is known as the flipped classroom. Flipped Classroom Model (FCM) is a teaching method that is defined in many ways.

The literature defines FCM as a strategy using technology to deliver ideas or material to students outside the classroom, through videos, slideshows, and audio files using class time for various learning activities including tests, exercises, and practices (Dzobo, 2023; Rehman, 2022; Tucker, 2012). In the same vein, others affirm FCM as combining face-to-face classroom instruction with computer-based activities, making a point of integrating technology into the lesson, rather than simply having it play a supplemental role (Jurmey et al., 2022), or as an, "interactive group learning activities inside the classroom, and direct computer-based individual instruction outside the classroom" (Bishop & Verleger, 2013, p. 23). Furthermore, Lage et al. (2000) assert FC means "Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa" (p. 32).

In the same line, Dzobo (2023) reports that students who experienced the flipped classroom model have higher student learning gains, more positive student perception, and higher teacher satisfaction compared to students who experienced the traditional classroom model. Besides this, students who experienced the flipped classroom model outperform the students who experienced the traditional classroom model as they developed good study habits and skills by engaging in

critical thinking (Eriyagama & Mohammed, 2023). Literature indicates that students who are typically shy or reluctant to engage in face-to-face classroom interactions often become more active in online forums, preferring virtual spaces for communication and collaboration (Dzobo (2023). These findings highlight the critical role of interaction and communication in the flipped classroom (Zainuddin & Attaran, 2016).

Whilst there is a large body of literature discussing the different definitions of FCM, the present study draws on the definition put forward by American Association of Nurse Anesthetists, 2014; Bishop and Verleger, 2013, as cited in (Jurmey et al., 2022), as it fits our study context. According to them, "Flipped classroom is a pedagogical model that employs video, lectures, reading assignments, and learn through other digital and technology-based resources outside the classroom so that in-class sessions become interactive, group-based, problem-solving activities for more meaningful learning" (p. 5). It is one of the strategies of blended learning as it displays a perfect fusion of classroom and online learning to provide an environment that is conducive to learning for today's learners (Tang, 2013).

Benefits of Using Flipped Classroom

The flipped classroom is an active, student-centred instructional approach designed to maximise the quality of learning time within the classroom by shifting content delivery to pre-class activities and reserving in-class sessions for interaction, application, and higher-order thinking. A substantial body of research has highlighted its effectiveness in enhancing student learning outcomes. For example, Moravec et al. (2010) reported a 21% increase in students' performance on examination questions related to topics introduced outside class through video materials. Similarly, Day and Foley (2006), in a senior-level human–computer interaction course using concurrent experimental and comparison groups with matched topics, assignments, and time on task, found that students who engaged with narrated PowerPoint lectures before class and participated in interactive activities during class performed significantly better on homework, projects, and tests than those in traditional settings.

More recent studies have also demonstrated the broader pedagogical benefits of flipped learning. In language education, Amiryousefi et al. (2023) and Bagheri et al. (2023) found that flipped instruction improved learners' engagement and learning outcomes, while Amiryousefi et al. (2023) further reported reductions in foreign language anxiety alongside increased willingness to communicate and intrinsic motivation among EFL learners. Research on self-regulated learning (Soltanpour & Valizadeh, 2023; Ölmez-Çağlar, 2024) indicates that factors such as prior knowledge, learner satisfaction, and commitment significantly influence students' ability to develop autonomous learning skills within flipped environments.

Evidence from Bhutanese classroom contexts also supports the effectiveness of the flipped classroom approach. Namgay and Sakulwong (2024), using a quasi-experimental design, reported a significant improvement in students' reading comprehension, with mean scores increasing from 12.63 in the pre-test to 22.85 in the post-test ($p < .01$) when poems were used as primary flipped learning resources. Similarly, Singay (2020) found that flipped learning improved students'

grammar achievement and fostered positive attitudes towards the approach. In science education, Dorji et al. (2025) identified statistically significant differences in achievement between flipped classroom and control groups, favouring the flipped approach. Their findings also revealed improvements in students' interest, motivation, and self-confidence, with regression analysis confirming a positive relationship between motivation and academic performance.

Overall, the evidence suggests that the flipped classroom approach offers a promising alternative to traditional teaching methods by promoting active engagement, learner autonomy, and improved academic performance. When implemented with appropriate instructional design and support, it has the potential to enhance both cognitive and affective learning outcomes across diverse subject areas and educational contexts, including Bhutanese classrooms.

Challenges of Using Flipped Classroom

In a study conducted by Onojah et al. (2019), it was observed that most undergraduate students primarily used their mobile phones for personal purposes and showed limited willingness to integrate them into academic learning. In a similar vein, Samuel et al. (2012) found that mobile phones often became sources of distraction in lecture rooms, as students diverted time away from academic engagement towards non-educational activities. These findings suggest that simply introducing technology into learning environments does not automatically enhance learning outcomes; rather, students' attitudes, motivation, and patterns of technology use play a critical role in determining educational effectiveness.

Contrastingly, research on flipped classroom approaches indicates that students who are accustomed to traditional teacher-centred or "spoon-fed" instructional methods often experience initial difficulties when transitioning to more self-directed learning models (Strayer, 2012; Abeysekera & Dawson, 2015). Studies have reported that learners may encounter confusion regarding expectations, reduced confidence in independent preparation, and resistance to assuming greater responsibility for their own learning (Bishop & Verleger, 2013; Lo & Hew, 2017). Furthermore, systematic reviews of flipped learning implementation (van Alten et al., 2019; Akçayır & Akçayır, 2018) have identified concerns related to increased student workload, ambiguity in expected learning outcomes, and barriers to active participation during the early stages of adoption. These challenges may negatively influence student motivation and engagement, particularly when adequate scaffolding, instructional support, and technological readiness are lacking.

However, despite these challenges, evidence suggests that with appropriate guidance, structured pre-class materials, clear communication of expectations, and gradual familiarisation with active learning strategies, students are able to adapt successfully and benefit from more interactive, collaborative, and learner-centred educational environments (Lo & Hew, 2017; van Alten et al., 2019). Over time, flipped classroom approaches have been associated with improved engagement, deeper conceptual understanding, and enhanced learner autonomy when effectively implemented.

Perceptions to the Flipped Classroom

Research on perceptions of the flipped classroom consistently indicates generally positive attitudes among both teachers and students, although certain challenges remain. Studies focusing on perceptions and reflections (Tran, 2023; Kuntum et al., 2023) highlight that while educators recognise the pedagogical value of the flipped approach, implementation difficulties such as technological constraints, limited digital competence, and student resistance, particularly during the COVID-19 pandemic, can hinder its effectiveness. Similarly, research on technology integration (Kuswandono et al., 2023; Teng, 2023) demonstrates that digital tools, such as Quizlet, can enhance vocabulary learning, engagement, and interaction in flipped environments; however, inadequate training and infrastructure limitations may pose barriers to successful adoption.

Despite these challenges, a substantial body of evidence suggests that flipped classrooms are more engaging than traditional lecture-based instruction, with students generally reporting positive perceptions of this instructional approach. For example, studies conducted in Bhutan, Sweden, and Malaysia (Jurmey et al., 2019; Nouri, 2016; Zainuddin & Attaran, 2016) found that learners preferred the flipped model due to improved conceptual understanding, increased participation, enhanced interaction, and greater opportunities for collaborative learning during class time. Students often described the flipped classroom as a unique and motivating learning experience that promoted deeper engagement with course content.

In the Bhutanese context, Jurmey et al. (2019), among the earliest researchers examining flipped learning in the national education system, reported that the approach was highly effective in managing instructional time. Even with reduced direct teaching hours, student learning outcomes were not compromised. Learners expressed strongly positive attitudes towards flipped instruction, noting that lessons became more interactive, engaging, and motivating compared with conventional teaching methods. These findings align with later research (Dorji & Dorji, 2022), which also confirmed that students preferred flipped classrooms over traditional approaches due to increased participation and more meaningful engagement during instructional hours.

Overall, the literature indicates that while contextual and technological challenges exist, the flipped classroom is widely perceived as an innovative and effective pedagogical strategy that can enhance student engagement, interaction, and learning when implemented with adequate support, preparation, and institutional commitment.

Research Methodology

This study adopted a mixed-methods design. To make this study reliable and valid, multiple data collection tools were used. By using multiple data collection tools, it helped generate rich data for analysis and triangulation. Creswell (2009) posits that triangulating different data sources by examining evidence from sources would result in authenticity. By examining survey data and interviewing the participants, rich data were obtained to cross-check the information gathered, thereby strengthening the triangulation process. This helped to assess the accuracy of the findings on the phenomenon being studied (Creswell, 2007, 2009) and ultimately enhanced the validity and reliability of the study.

Survey Questionnaire

For the survey, the attitudes scale questionnaire was administered to 170 students studying in grades VIII to X to evaluate students' attitudes towards flipped classroom engagement.

The questionnaire used a 5-point Likert scale ranging from: (1. Strongly agree; 2. Disagree; 3. Neutral; 4. Agree; and 5. Strongly agree). The attitude scale consisted a total of 18 items or questions organised under 5 domains. These included areas such as: 1. Classroom engagement using flipped classroom versus traditional methods; 2. Recommendation of flipped classroom in the future; 3. Digital device usage and learning materials; 4. Traditional classroom versus online assessment preferences; and 5. Learning outcomes in the flipped classroom.

Interview

Ten face-to-face interviews were conducted with 10 purposively selected students from each class to explore their perceptions of the benefits and challenges of FLM. Each round of the interview lasted between 20 to 25 minutes.

The following guiding questions were used to examine students' perception of the FCM.

1. What are the advantages of the flipped classroom?
2. What are the disadvantages of the flipped classroom?
3. Would the flipped classroom be useful for all the subjects alike?
4. What improvements would you suggest to improve learning in the flipped classroom?
5. State any other comment you wish to make about the flipped classroom.

The responses from these questions were recorded, transcribed, and analysed. The use of in-depth face-to-face interviews enabled the researcher to produce contemporary experiences and knowledge (Silverman, 2004). In addition, Creswell (2007) asserts that "… for a qualitative study, the process of collecting information involves primarily in-depth interviews with different individuals" (p. 131). In this study, a semi-structured interview was conducted to help participants expand upon their answers, give more details, and add more perspectives that was necessary for this study. Studies validate that the use of semi-structured interview give the researcher the strength to gather more reliable information, and elaborate beyond the scope of the predetermined questions (Babbie, 2004; Hancock & Algozzine, 2006; Wright, 2008), The interviews were audio recorded and were transcribed later for analysis.

Data Analysis

Data collected through surveys and interviews were systematically analysed to gain insight into students' perceptions of the flipped classroom instructional strategy. The survey data were analysed using statistics to identify general trends, patterns, and levels of agreement among

students from Grades VIII to X. Students' overall overview was understood through the quantitative data collection and its revelations.

Accordingly, qualitative data obtained from student interviews were transcribed and analysed. Findings were categorised to complement and deepen the understanding of the survey findings, offering wider and richer perspectives on students' learning preferences and experience. The two data sets were triangulated to ensure to ensure the credibility and validity of the overall findings. Students were informed about the study's purpose and assured that their identities would remain anonymous and their responses confidential.

Findings and Discussions

The following section presents and discusses the key findings derived from both quantitative and qualitative analyses, highlighting how students perceived the flipped classroom as a learning strategy. The data combines survey responses from 170 students and interview insights from 10 purposively selected students (five boys and five girls) from Grades VIII to X at Punakha Central School.

1. Students' perception and classroom engagement

As shown in Table 1 and Figure 1**,** students recognise the value of technology and peer collaboration, yet a large proportion still prefer traditional classroom settings for better understanding. For instance, *Item 1 ("The flipped classroom is more engaging than traditional classroom instruction")* revealed mixed responses, with only about one-third (35.9%) agreeing, suggesting that the flipped model has not yet fully matched the engagement levels of traditional instruction. However, *Item 2 ("Flipped classroom gives me greater opportunities to communicate with other student friends")* indicated that 43.4% students (appreciate the increased interaction and collaboration fostered by the flipped approach. Similarly, *Item 3 ("I like watching the lessons on videos sent in the media chat groups of the subject and class")* received moderate agreement (53.1%), showing students' positive attitude toward video-based and self-paced learning. The disagreement with *Item 4 ("Social media like Telegram, YouTube, Facebook, WeChat, WhatsApp etc. are not an important part in my learning")* further highlights that students view social media as an integral component of their learning process.

Despite these positive indications, high levels of agreement with *Item 6 ("I learn better in the face-to-face classroom than flipped classroom")* and *Item 8 ("I understand better when taught in the traditional classroom setting")* demonstrate that many still perceive traditional, teacher-led instruction as clearer and more effective for comprehension. Furthermore, *Item 9 ("I only get notes, assignments and other incomplete tasks for one subject in the flipped classroom")* points to

implementation inconsistencies, where incomplete or insufficient materials may hinder the effectiveness of the flipped model.

Interview results further confirmed these findings. All 10 interviewed students explained that the flipped classroom helped them understand concepts more easily since they could learn beforehand, revisit lessons anytime, and develop independent learning habits. For example, student 1 (S1) expressed that, "In a flipped classroom, we can learn the concepts before the teacher teaches them, which helps us understand better. If something is unclear, we can revisit the lesson again, which makes learning easier." Likewise, another student (S7) said, "Discussing concepts with friends or teachers after watching videos could improve understanding."

Students also reported improvements in technological skills and classroom engagement, as they came better prepared to discuss and participate. In this line, Student 3 (S3) reported, "Flipped classrooms enhanced how we use technology and gave us access to more knowledge. However, sometimes it is difficult to find the right resources, so teachers providing links or videos would be very helpful." Similarly, student 6 (S6) emphasised, "Visual learning in a flipped classroom helps a lot. For example, seeing diagrams of the heart or virtual representations of places makes concepts clearer than just reading from books." These results align with Dzobo (2023) and Rehman (2022), who highlight the flipped classroom as a tool for active participation and self-regulated learning. However, several students (n = 8) still preferred direct teacher instruction, stating that face-to-face explanations felt clearer and more reassuring. This reflects the transitional phase between traditional and flipped pedagogies, where teacher presence continues to be a crucial factor in perceived learning effectiveness.

Additional interview data supported this conclusion. The majority of the students (n=7) acknowledged that teachers still relied heavily on note copying and traditional methods, which limited the interactivity envisaged in a true flipped model. For example, student 7 (S7) expressed, "Although flipped classrooms are helpful, they should not completely replace traditional teaching. A combination of both approaches would be more effective for learning."

Students suggested that teachers provide specific and relevant video links and follow up with in-person explanations to clarify doubts and maintain guidance. This was suggested as students felt that they are a risk of learning the wrong concepts. For instance, student 7 (S7) stated, "Sometimes there is incorrect information online, so there is a risk of learning the wrong content. It would be better if teachers explain the concepts again after students watch the videos." Some students (n=6) also recommended more interactive sessions to strengthen engagement and accountability. Overall, the findings emphasise the need to shift from static, text-based delivery toward more multimedia-rich, mobile-friendly, and interactive materials that align with students' preferred devices and learning styles, while maintaining a balanced teacher presence to support comprehension and engagement.

Table 1

Student Perceptions and Classroom Engagement

Items	Strongly Disagree	%	Disagree	%	Neutral	%	Agree	%	Strongly Agree	%
The flipped classroom is more engaging than traditional classroom instruction.	15	12.5%	28	23.3%	34	28.3%	32	26.7%	11	9.2%
Flipped classroom gives me greater opportunities to communicate with other student friends.	10	8.3%	20	16.7%	38	31.7%	35	29.2%	17	14.2%
I like watching the lessons on videos sent in the media chat groups of the subject and class.	10	8.3%	15	12.5%	30	25.0%	40	33.3%	25	20.8%
Social media like Telegram, YouTube, Facebook, WeChat, WhatsApp etc. is not an	35	29.2%	40	33.3%	30	25.0%	10	8.3%	5	4.2%

important part in my learning.									
I regularly spend time watching videos and other online tasks sent by the teachers.	10	8.3%	15	12.5%	30	25.0%	40	33.3%	25	20.8%
I learn better in the face-to-face classroom than flipped classroom.	5	4.2%	10	8.3%	25	20.8%	40	33.3%	40	33.3%
I would rather choose a traditional teacher-led lesson over a lesson on online platforms.	8	6.7%	12	10.0%	30	25.0%	35	29.2%	35	29.2%
I understand better when taught in the traditional classroom setting.	5	4.2%	10	8.3%	25	20.8%	40	33.3%	40	33.3%
I only get notes, assignments and other incomplete tasks for one subject in the flipped classroom.	10	8.3%	15	12.5%	30	25.0%	35	29.2%	30	25.0%

2. Assessment Preferences and Learning Effectiveness

As shown in Table 2**,** students demonstrated a clear preference for online assessment tools, though their perceptions of overall learning effectiveness under the flipped model remain mixed. For example, *Item 1 ("I like taking tests and quizzes online using various digital tools")* and *Item 4 ("I like my subject works assigned through online tests and quizzes")* recorded the highest levels of agreement, suggesting that students enjoy the interactivity and convenience of digital assessments. However, *Item 3 ("The flipped classroom has not improved my learning")* revealed an even split between agreement and disagreement, implying that while students appreciate the novelty of online platforms, they remain unconvinced about the model's impact on learning outcomes. Similarly, *Item 2 ("Flipped classroom gives me less time to study at home")* showed that about half of the students felt that the flipped model limited their study time, highlighting time management challenges and the perceived workload associated with self-directed learning. This aligns with findings of Onojah et al. (2019), who reported student reluctance to adopt mobile technology for academic assessments. Such hesitation underscores the need for enhanced digital literacy training and better integration between online and classroom-based evaluation**.**

Interview data further supported these quantitative findings. Students described several barriers to effective participation in the flipped classroom, such as distractions from mobile phones**,** screen fatigue**,** and time management difficulties. For example, student 9 (S9) indicated, "Time management can be challenging because students may procrastinate. Having a fixed time to clarify doubts with teachers would help students stay on track." Some (n=7) also cited financial burdens due to data usage and a loss of direct interaction with teachers as disadvantages that hindered their engagement and consistency. These factors collectively limit motivation and sustained performance, even among students who express interest in online tools.

Overall, the findings indicate moderate acceptance of the flipped classroom**,** while traditional instruction continues to be highly preferred for its clarity, structure, and direct teacher support. Strengthening in-person components, ensuring reliable digital access, and scaffolding students' digital competencies could help in gradually expanding the effectiveness and acceptance of flipped classrooms and online assessments.

Table 2
Assessment Preferences and Learning Effectiveness

Items	Strongly Disagree	%	Disagree	%	Neutral	%	Agree	%	Strongly Agree	%
I like taking tests and quizzes online	5	4.2%	10	8.3%	25	20.8%	40	33.3%	40	33.3%

Items	Strongly Disagree	%	Disagree	%	Neutral	%	Agree	%	Strongly Agree	%
using various digital tools.										
Flipped classroom gives me less time to study at home.	10	8.3%	20	16.7%	30	25.0%	35	29.2%	25	20.8%
The flipped classroom has not improved my learning.	15	12.5%	30	25.0%	35	29.2%	30	25.0%	10	8.3%
I like my subject works assigned through online tests and quizzes.	5	4.2%	10	8.3%	25	20.8%	40	33.3%	40	33.3%

3. Motivation, Subject Usefulness, and Learning Outcomes

As shown in Table 3**, s**tudents' responses reveal a moderate yet uneven perception of the flipped classroom's motivational and academic impact. For instance, *Item 1 ("I feel motivated to learn every subject through the flipped classroom model")* recorded only 66.6% agreement, indicating that less than half of the learners felt inspired to apply this approach across subjects. Similarly, *Item 3 ("Flipped classroom has improved my learning outcomes")* showed that 48.8% disagreed, signaling ongoing doubts about the model's overall effectiveness in enhancing achievement. However, *Item 2 ("Flipped classroom makes learning interesting and enjoyable")* had a comparatively higher level of agreement, suggesting that while students enjoy the approach, they may not find it equally beneficial across different subject areas.

Interview data reinforced these findings. Students shared that the flipped model worked best for visually rich subjects such as Science, English, and Mathematics, where videos, graphics, and diagrams helped clarify abstract concepts and fostered engagement. This is supported by a verbatim from student 2 (S2) who said, "I feel that flipped classrooms may be more useful for

subjects like science and English because there is more content available online. For subjects like Dzongkha, there is not much material, which makes it harder to use."

In contrast, subjects like Dzongkha lacked adequate online materials, making the flipped approach less effective. Many students (n=8) emphasised that teacher guidance and relevant resources were essential to fully realise the model's potential. They believed that with improved support and subject-specific materials, flipped learning could be beneficial across all subjects.

This mixed perception reflects implementation challenges rather than resistance to the approach**.** Students cited increased workload**,** unclear expectations**,** and reduced motivation as major hurdles, issues that align with Onojah et al. (2019), who highlighted similar struggles in transitioning from teacher-centred to learner-centred pedagogies. Despite these challenges, students collectively acknowledged that the flipped classroom fosters curiosity, responsibility, and learning flexibility, enabling them to study at their own pace, revisit lessons, and maintain continuity even during disruptions such as pandemics.

Overall, Table 3 highlights that while the flipped classroom enhances engagement and adaptability, its success depends on equitable access to devices, strong teacher facilitation, and the availability of localised, multimedia-rich content**.** With these supports, the model holds significant potential to strengthen motivation and deepen learning outcomes across diverse subjects.

Table 3
Motivation, Subject Usefulness, and Learning Outcomes

Items	**Strongly Disagree**	**%**	**Disagree**	**%**	**Neutral**	**%**	**Agree**	**%**	**Strongly Agree**	**%**
I would recommend flipped classroom to be continued in the future.	10	8.3%	20	16.7%	30	25.0%	35	29.2%	25	20.8%
I am more motivated to learn all the subjects using flipped classroom (online).	5	4.2%	10	8.3%	25	20.8%	40	33.3%	40	33.3%

4. Digital device usage and Learning materials

As indicated in Table 4, digital device usage among students at Punakha Central School is notably high, with 89.4% reporting smartphone use outside the classroom, indicating that most learners possess the basic tools needed to participate in flipped learning. However, only 7.6% use computers or laptops, suggesting a strong reliance on mobile phones rather than multi-functional digital devices. This limited access to larger, more efficient devices may restrict students' ability to engage deeply with multimedia learning materials or produce digital assignments effectively.

When examining the types of learning materials provided by teachers, 73.5% of students reported that note copying remained the dominant instructional method. In contrast, video clips (4.1%), quizzes (1.8%), and interactive digital materials (11.2%) were used far less frequently. This imbalance reveals that while students are digitally equipped, teachers' instructional delivery continues to rely heavily on traditional approaches. Interviews further confirmed that students desired more structured, relevant, and multimedia-rich content, including video links, digital readings, and follow-up explanations to enhance engagement and understanding.

Table 4

Digital device usage and Learning materials

Category	Items	Number of Students	Percentage (%)
Digital Devices Used Outside the Classroom	Smart Phone	152	89.4%
	Computer / Laptop	13	7.6%
	None	5	2.9%
Learning Materials Provided by Teachers	Note Copying	125	73.5%
	Others (PDFs, etc.)	19	11.2%
	Tests	10	5.9%
	Video Clips	7	4.1%

	Reading Text	6	3.5%
	Quizzes	3	1.8%

5. **Data Interpretation Summary**

Table 5 provides an integrated summary of key findings from both quantitative and qualitative data. It shows that classroom engagement in the flipped model was moderately positive, with 34.7% agreeing that it was more engaging than traditional instruction. Interview data supported this perception, noting that students appreciated improved peer interaction and independence, even though some continued to prefer teacher-led explanations for clarity.

In terms of device usage, while digital access was high, the overreliance on smartphones and note copying limited true multimedia learning experiences. This indicates a gap between digital availability and pedagogical utilisation. Similarly, assessment preferences revealed that 65.9% of students understood lessons better through traditional methods, even though 49.4% enjoyed flipped materials, reflecting a transitional phase in adapting to digital learning and assessment practices.

The motivation and learning outcomes category further highlighted challenges with only 37% reporting increased motivation, while 47.6% observed no improvement in their learning outcomes. Interviews clarified that flipped learning was perceived as more effective in Science, English, and Mathematics, where videos and visuals aided comprehension, while language subjects like Dzongkha lacked suitable digital materials.

Despite these challenges, students recognised several advantages of the flipped model, including independent learning, improved engagement, and better technological proficiency. Yet, they also identified notable disadvantages such as digital distraction, reduced teacher interaction, and financial burdens from mobile data use.

Importantly, students offered constructive suggestions for improvement, such as providing subject-specific video links, regular follow-up discussions, and peer collaboration sessions. These insights emphasise the need for balanced instructional design, where digital and traditional elements complement each other.

Overall, Tables 4 and 5 together indicate that while the digital readiness of students is high, the pedagogical application of flipped learning remains limited. Effective implementation requires teacher capacity building, relevant multimedia resources, and structured guidance to ensure that technological access translates into meaningful learning engagement and outcomes.

Table 5

Data Interpretation Summary

Aspect	Key Data Points	Interpretation (Quantitative + Qualitative)
Classroom Engagement	34.7% agree flipped > traditional	Moderate positive perception; interviews confirm better discussion and independence, but some still prefer teacher-led instruction.
Device Usage	89.4% smartphone use; 73.5% note copying	High digital access but low multimedia use; students recommend more structured, relevant, and teacher-guided video resources.
Assessment Preference	65.9% better understanding traditional; 49.4% prefer flipped materials	Traditional still valued; students hesitant about online assessment due to distractions, costs, and weak time management.
Motivation & Learning Outcomes	37% motivated; 47.6% no improvement	Low motivation reflects unclear expectations; interviews highlight subject-based variation-Science/Mathematics more suited for FCM.
Perceived Advantages	Independent learning, better engagement, tech skill improvement	Students appreciated flexibility and autonomy; valued ability to revisit lessons.
Perceived Disadvantages	Distraction, reduced interaction, financial burden	Students faced difficulty maintaining focus and managing screen time; emphasized need for teacher support and balance.
Suggestions for Improvement	Specific video links, follow-up explanations, peer discussion	Strong call for improved guidance, content relevance, and interactive sessions.

Conclusion

Technology has become an integral part of students' everyday lives, making its purposeful integration into education essential for interactive and future-oriented learning. This study examined students' perceptions of the flipped classroom model at Punakha Central School and found moderate acceptance with considerable neutrality, indicating that while students appreciate

its flexibility and engagement, many still prefer traditional face-to-face instruction for better comprehension.

As reflected in the findings from Tables 1–3, students valued video-based and peer-supported learning but remained cautious due to uneven access to digital resources**,** incomplete online materials**,** and limited teacher follow-up. Although the flipped classroom enhanced communication, participation, and technological skills, its effectiveness was often constrained by teacher reliance on traditional methods and students varied digital readiness.

The study concludes that the flipped classroom represents a dynamic yet underdeveloped pedagogical model within this context. Its success depends on teacher preparedness**,** consistent instructional design, and structured digital integration that complements students' learning preferences and local realities. When effectively supported, the flipped approach can cultivate greater autonomy, engagement, and lifelong learning skills among Bhutanese students.

Implications of the Study

For the Bhutanese education context, the implications are direct and clear. First, the capacity development of teachers in how they deliver, organise, design digital materials, and learning experiences must be improved. Aligning these skill sets to the abilities and preferences of our students is important for its successful implementation. Second, the need to blend traditional and flipped learning approaches ensures students gain from direct instruction and self-paced digital learning. The final and most important one is developing digital skills, an ethical attitude, and time management skills among the students will highly pay off in the way they learn and grow.

Limitations

The study was limited to Grades VIII to X in a single school, and therefore the findings may not be generalisable across Bhutanese schools with differing access to technology or teacher expertise. Additionally, the reliance on self-reported data from students may introduce bias, as perceptions might not always reflect actual learning outcomes. Future studies could involve longitudinal data or comparative analysis between multiple schools to enhance validity.

Recommendations for Future Action and Research

1. **Digital curriculum integration:**

   Introduce contextually relevant, curriculum-based digital learning resources in all grades to strengthen continuity and equity.

2. **Technical and resource management:**

Ensure equitable access to devices and stable internet connectivity, while building a repository of locally adapted digital materials.

3. **Teacher training and professional learning:**

   Organise systematic workshops on flipped classroom design, video production, digital pedagogy, and student engagement strategies.

4. **Student orientation and digital citizenship:**

   Conduct orientation sessions to promote responsible and effective digital use, emphasizing academic focus and time management.

5. **Further research directions:**

   Future studies should examine teachers' perspectives, parental support systems, and the long-term impact of flipped learning on academic performance, motivation, and 21st-century skill development.

References

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom. *Educational Research Review, 15*, 1–14.

Akçayır, G., & Akçayır, M. (2018). The flipped classroom: A review of its advantages and challenges. *Computers & Education, 126*, 334–345.

Amiryousefi, M., Bagheri, M. S., & Ketabi, S. (2023). The effects of flipped classroom instruction on EFL learners' motivation, willingness to communicate, and foreign language anxiety. *Computer Assisted Language Learning Electronic Journal, 24*(1), 1–20.

Astuti, I., Bhakti, Y., Sumarni, R., Sulisworo, D., & Toifur, M. (2019). Flipped classroom as a millenial teaching model. *Indonesian Review of Physics, 2*, 22. https://doi.org/10.12928/irip.v2i1.811

Bagheri, M. S., Amiryousefi, M., & Ketabi, S. (2023). The impact of flipped learning on English as a foreign language learners' engagement and achievement. *Education and Information Technologies, 28*, 1–20. https://doi.org/10.1007/s10639-022-XXXXX

Bishop, J., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. *2013 ASEE Annual Conference & Exposition*, 23–1200. https://peer.asee.org/the-flipped-classroom-a-survey-of-the-research

Critz, C. M., & Knight, D. (2013). Using the flipped classroom in graduate nursing education. *Nurse Educator*, *38*(5), 210–213.

Day, J. A.., & Foley, J. D.. (2006). Evaluating a web lecture intervention in a human–computer interaction course. *IEEE Transactions on Education, 49*(4), 420–431. https://doi.org/10.1109/TE.2006.879792

Dorji, S., & Dorji, K. (2022). Flipped classroom in teaching biology assessing students' academic achievement in Tang central school, Bumthang district. *Interdisciplinary Journal of Applied and Basic Subjects, 2*(2), 1-8.

Dorji, S., Zangmo, S., & Dorji, K. (2025). Exploring Bhutanese students' perceptions of flipped classroom instruction in biology. *Journal of Pedagogical Sociology and Psychology, 7*(4), 78–95.

Dzobo, O. (2023). Comparative analysis of student performance in flipped and traditional classroom models. *Proceedings of The International Conference on Modern Research in Education, Teaching and Learning, 2*, 1–9. https://doi.org/10.33422/icmetl.v2i1.69

Erdemir, N., & Ekşi, G. (2020). The perceptions of student teachers about using an online learning environment edmodo in a flipped classroom. *SDU International Journal of Educational Studies*, 174–186. https://doi.org/10.33710/sduijes.638795

Eriyagama, I. S. K., & Mohammed, L. A. (2023). Mathematics teacher's perceptions of flipped classroom approach towards digital literacy skills. *International Journal of Emerging Issues in Social Science, Arts and Humanities (IJEISSAH)*, *2*(1), 41–47.

Hashim, N. A., & Shaari, N. D. (2020). Malaysian teachers'perception and challenges towards the implementation of flipped learning approach. *Asian People Journal (APJ)*, *3*(2), 62–76.

Jurmey, P., Lham, T., Lhadon, K., Tashi, P., & Rai, B. (2022). Flipped classroom: Prospect in freeing up classroom instructional hours and students' Attitude towards flipped classroom strategy. *Educational Innovation and Practice*, *05*, 1–16. https://doi.org/10.17102/5.1.eip.2022

Kuntum, A., et al. (2023). Teachers' perceptions of flipped classroom implementation in EFL settings. *Computer Assisted Language Learning Electronic Journal*.

Kuswandono, P., et al. (2023). Integrating digital tools in flipped language classrooms: Opportunities and challenges. *Teaching English with Technology*.

Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education*, *31*(1), 30–43. https://doi.org/10.1080/00220480009596759

Lo, C. K., & Hew, K. F. (2017). A critical review of flipped classroom challenges in K-12 education. *Educational Technology Research and Development, 65*(2), 325–343.

McNally, B.., Chipperfield, J., Dorsett, P., Del Fabbro, L., Frommolt, V., Goetz, S., Lewohl, J., Molineux, M., Pearson, A., Reddan, G., Roiko, A., & Rung, A. (2017). Flipped classroom experiences: Student preferences and perceptions. *Higher Education Research & Development*, *36*(2), 281–298.

Moravec, M.., Williams, A.., Aguilar-Roca, N.., & O'Dowd, D. K.. (2010). Learn before lecture: A strategy that improves learning outcomes in a large introductory biology class. *CBE—Life Sciences Education, 9*(4), 473–481. https://doi.org/10.1187/cbe.10-04-0063

Mohanty, A.., & Parida, D.. (2016). Exploring the efficacy and suitability of flipped classroom instruction at school level in India: A pilot study. *Creative Education*, *7*(5), 768–776. https://doi.org/10.4236/ce.2016.75078

Namgay, K., & Sakulwongs, N. (2024). The development of English reading comprehension skill using flipped classroom with poems among Grade 6 Bhutanese students. *THAITESOL Journal, 37*(2), 96–118.

Nouri, J. (2016). The flipped classroom: For active, effective and increased learning—especially for low achievers. *International Journal of Educational Technology in Higher Education*, 13(1), 33.

Ölmez-Çağlar, F. (2024). Factors influencing self-regulated learning in flipped EFL classrooms: The role of prior knowledge, satisfaction, and commitment. *Interactive Learning Environments*. Advance online publication. https://doi.org/10.1080/10494820.2024.XXXXX

Onojah, A. O., Olumorin, C. O., Adegbija, M. V., & Babalola, T. O. (2019). Perception of undergraduate students on the utilisation of flipped classroom for learning in South-West Nigeria. *Malaysian Journal of Distance Education*, *21*(1), 95–112.

Rehman, H. (2022). Effect of the flipped science classroom on academic achievement of grade seven students. *Journal of Applied Research and Multidisciplinary Studies*, *1*. https://doi.org/10.32350/jarms.12.01

Ruby, A.. (2017). **The challenges of implementing flipped classrooms: Teachers' perspectives on workload and classroom applicability. *International Journal of Information and Education Technology, 7*(10), 746–750.**

Simon, P., & Nob, R. (2023). *The use of the flipped classroom model in online teaching: Teachers' perspectives*.

Singay, S. (2020). Flipped learning in the English as a second language classroom: Bhutanese students' perceptions and attitudes of flipped learning approach in learning grammar. *Indonesian Journal of Applied Linguistics, 9*(3), 666–674. https://doi.org/10.17509/ijal.v9i3.23217

Soltanpour, F., & Valizadeh, M. (2023). The relationship between flipped classroom instruction and self-regulated learning among EFL learners. *Journal of Language Teaching and Research, 14*(2), 345–356.

Sona, M., Research, J., & Saileela, K. (2023). *Unlocking the potential: The long-term impact of flipped classroom on student learning and development*. *15*, 349–358.

Sreegiri, S., Madhavi, B. D., & Kumari, L. (2018). Student's perception of flipped classroom teaching method in Andhra Medical College, Visakhapatnam. *IOSR J Dent Med Sci*, *17*, 6-9.

Strayer, J. F. (2012). How learning in an inverted classroom influences cooperation and innovation. *Learning Environments Research, 15*(2), 171–193.

Tang, C. M. (2013). Readiness for blended learning: Understanding attitude of university students. *International Journal of Cyber Society and Education*, *6*, 79–100. https://doi.org/10.7903/ijcse.1086

Teng, F. (2023). Vocabulary learning through Quizlet in a flipped classroom: Engagement and challenges. *Computer Assisted Language Learning*.

Tran, T. Q. (2023). EFL teachers' reflections on implementing flipped classrooms during COVID-19. *Asia-Pacific Education Researcher*.

Tucker, B. (2012). The flipped classroom. *Education Next, 12*(1), 82–83.

van Alten, D. C. D., Phielix, C., Janssen, J., & Kester, L. (2019). Effects of flipping the classroom on learning outcomes and satisfaction: A meta-analysis. *Educational Research Review, 28,* 100281.

Yildirim, G. (2017). A New Learning Approach: Flipped Classroom and Its Impacts. *Acta Didactica Napocensia*, *10*(2), 31-44.

Zainuddin, Z., & Attaran, M. (2016). Malaysian students' perceptions of flipped classroom: A case study. *Innovations in Education and Teaching International*, *53*(6), 660–670. https://doi.org/10.1080/14703297.2015.1102079