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Integrating 21st-Century Skills into School Curriculum: Promoting Creativity, Critical Thinking, and Innovation in Bhutanese Education.

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Abstract
The study aims to look into the integration of 21st-century skills, namely critical thinking, creativity, collaboration, communication, and innovation, in the Bhutanese school curriculum with special reference to classroom practices in Jigme Sherubling schools. The research explores the impact of global educational changes and Bhutan's Gross National Happiness (GNH) philosophy, improving the overall quality of learners. A mixed-method approach was adopted, which used a structured questionnaire along with the interview of the teachers and document analysis. The participants of the study were a total of 20 teachers chosen by convenience sampling. In the study, it was found that all teachers in the experimental group exhibit moderate integration of the 21st-century skills in their teaching practices. They mostly focused on technology usage and collaboration with students. All the teachers appear to have less developed higher-order skills, such as critical thinking, creativity, and real-world application of their learning activities. The research also discovered that teachers mainly view the 21st-century skills as a way of enhancing effective teaching in the classroom rather than preparing learners for society or the world. Moreover, the curriculum is perceived as partly inclusive of 21st-century competencies and mainly exam-oriented. This evidence suggests that while in-service training does increase teacher awareness and initial practice, it does not support any ongoing classroom implementation because it is not something in-service training can address. The research draws attention to the critical gap between curriculum expectations and curriculum practice in the classroom. This suggests improved training of teachers, improvement in curriculum, and sustained support to teachers in order to implement 21st-century skills in Bhutan.
Keywords: *21st-century skills, creative, innovation.*

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I. Introduction

The education system is shifting dramatically due to globalization; technology and learner demand are for skills to deal with a complex, dynamic world. Curricula that mainly rely on rote learning and knowledge content are unable to equip learners with the knowledge and skills to face today. As a result, an increasing number of educational reforms have integrated 21st-century skills into the system, for instance, creativity, critical imagination, collaboration, and innovation. The competencies help learners evaluate information, seek solutions, and generate new ideas requisite for success in today's communities and workplaces. This is the reason the modern education system has given utmost importance to embedding these competencies in the existing curriculum.

The 21st-century skills refer to a particular set of competencies that allow a learner to deal with and contribute to a knowledge-based society that is transforming quickly. According to experts, among the 21st-century skills, critical thinking, creativity, and collaboration are a few associated with the success of students. Students become equipped with the ability to have critical evaluations of information and ideas as they create a solution. The skills that allow students to learn constantly and innovate while adapting to change, whether in the social, economic or technological sphere.

In Bhutan, education development is guided by the philosophy of Gross National Happiness (GNH) that advocates for human development rather than economic development, which is only development. As a result, they develop into creative and active citizens who will also be socially responsible and aware individuals as well as academically competent. Schools today are encouraged to teach anything but rote memorization. Aveda Global International School says students must be able to learn through inquiry, projects, and collaboration. Through these approaches, the creativity, digital literacy, and critical thinking abilities of the students can be enhanced, which is also in line with the Bhutan's goal of balanced and sustainable development.

Furthermore, Bhutan's education policy and curriculum frameworks emphasize preparing learners for 21st-century skills in the education system. The national curriculum argues that learning environments need to stimulate the students' creative, communicative and critical capacities, as well as to use ICT and learning in disciplines.

The goal of these types of initiatives is to impart knowledge and transferable skills that enable students to become active problem solvers in society. The growing emphasis on curriculum reform indicates the country's commitment to bringing education up to date and in line with global trends and workforce requirements.

1.2 Context of the study

Primarily due to Globalization, technological development, and changes in society, education is getting modernized. The conventional education systems are unfit for purpose for the 21st century, as they are overly content heavy and rote learning based. Therefore, several countries are focusing on a curriculum for twenty-first-century skills which will include critical thinking, creativity and innovation. Skills that require the ability to imagine, be creative, think, solve problems and make decisions will help the students depending on future needs. Bhutan is changing its education system to focus on strong, knowledgeable, competent, reflective and future-ready learners.

We successfully and properly apply education guided by Gross National Happiness (GNH) in Bhutan. The term refers to the development of intelligence, emotion, spirit, society. The philosophy requires the creation of learning contexts in education and educational processes for enhancing excellence, creativity, ethics, accountability, critical discernment, etc.

Students must adopt more learner-centered pedagogies such as inquiry-based-learning, project work and collaborative activities that develop 21st-century competencies academic content. Implementation issues remain in the use of these policies as policies and practices remain separate. Preparing teachers with proper skills, resources and support to integrate technology into daily teaching and learning is no mean task.

1.3 Problem statement

Across the world, educational systems are being challenged to effectively get learners ready for a fast-changing technological society. Teaching students a repertoire of knowledge, skills, attitudes and personality traits can enable them to succeed in the complex world in which we live. Scholars contend that learners today must possess certain 21st-century skills. In particular, they must possess the 4Cs. This is essential for any enabling them to thrive within complex social and professional contexts. Nonetheless, a majority of the school curriculum still focusses more on learning the content rather than the improvement of higher-order thinking skills and innovative learning processes. The learning materials students receive at school are different from those they require to be competent in society (Rusmin, 2024).

The implementation of skills for 21st century in classrooms is minimal despite the growing focus on education reforms and policies. Educators often don't have the knowledge, training and pedagogical support to meaningfully embed these skills in their planning and assessment. For instance, an analysis of lesson plans and other teaching materials shows that teachers are mostly at the basic or developing level when implementing the 4Cs. This indicates an inadequate mastery and practice of the 4Cs in teaching (Birru, 2024). Furthermore, the professional development opportunities available to teachers and the resources and structures provided for teaching the curriculum will continue to constrain meaningful integration of creativity and critical thinking in the day-to-day classroom (Smith 2023).

As a result, students may graduate without the skills necessary to innovate. Studies related to implementation of curriculum show the curriculum designers should integrate activities in the syllabus which will help the learners develop imaginative thinking, analytical reasoning, and collaborative practices to connect their knowledge to reality (Akam, 2025). Despite recognizing this requirement, several systems of education are not yet changing from knowledge to competence. One of these 21st-century skills that are included into the curriculum is to explore efforts that aim to teach creativity, critical thinking, and innovation to learners, it probably is not in the area of developing the education system.

1.4 Significance of the Study

1. The goal of this study is to find out how other teacher and personnel teach 21st-century skills in the classroom. This offers superior clarity.
2. Research aimed to assess the extent to which the principles of 21st-century skills, based on Bhutan's GNH philosophy and contemporary global trends for curriculum reform, have been incorporated in educational curricula. It helps students to get ready for the future and the challenges of society.
3. Policymakers and education officials will learn about the barriers in 21st century skills through the findings. This type of research can guide policy decisions, investment of resources, and to improve innovative learning of students.

1.5 Research objectives

This research will have the following objectives.

- To investigate the introduction of 21st-century skills in the existing curriculum, particularly those that relate to creativity, critical thinking, collaboration, and innovation.
- We need to learn about the teaching strategies used by teachers to enhance 21 st century skills in classroom learning.
- This study seeks to examine how Bhutan's education philosophy of Gross National Happiness (GNH) promotes 21st Century competencies among students.
- To identify the challenges and opportunities of 21 Century Skills Integration in Bhutanese Education System.

1.6 Research questions

1. How a teacher of Jigme Sherubling school can integrate 21st century skills critical thinking, creativity, collaboration and problem-solving during a class?
2. What are the teachers' problems in using 21st century skills in teaching and how do they solve the problems?
3. How do the current day teaching methods and modifications in Bhutan's curricula help a student to attain 21st-century skills?

II. Literature review

2.1 The integration of 21st century teaching learning skill

Studies have shown that the effective incorporation of 21st-century skills requires a variety of teaching methods. For example, project-based learning helps students to use their knowledge and skills in real-life scenarios, thus enhancing their critical thinking and collaboration skills (Johnson W. Thomas, 2000). Interdisciplinary methods are equally important because they enable learners to use and connect their thinking and ideas in different areas and apply this knowledge in a variety of contexts (Ahmid et al., 2019). Nonetheless, there are many challenges in making this a part of the curriculum. As per Lee (2014), teaching and learning conditions must go hand in hand to develop the 21st century skills. This has led to growing interest over the last few years (Goldfus, 2011) The phenomenon has been accepted by the official authorities (the Ministry of National Education) of Turkey.

2.2 Changing roles and practice

Teaching had been a teacher-dominated activity, but the role of the teachers was greatly modified in the 21st century. According to Scott (2015) and Wang (2012), teachers now have more responsibilities than just delivering content. They are now more involved in curriculum development, facilitating learning, being mentors or coaches, promoting 21st-century skills, and motivating students to use their knowledge and skills in different ways. The transformation has become necessary in order to meet the teaching and learning practices in postmodernity. Moreover, globalization has penetrated into many fields of life – global communication, media, science, ICT, finance, diplomacy, sports, and entertainment (Pardede, 2012).

As per Lee (2014), teaching and learning conditions must go hand in hand to develop the 21st century skills. This has led to growing interest over the last few years (Goldfus, 2011) The phenomenon has been accepted by the official authorities (the Ministry of National Education) of Turkey. As a response that emerged, the Ministry of National Education of Turkey has revealed a reform of the curriculum in 2017 in all subjects in order to cope with 21st-century education (Altan 2017). The reform states that for the learners to become successful in their careers and day-to-day life, they must learn the current necessary skills in this day and age. Language and life-science teachers, as the architects of the future generation, are responsible for implementing these skills in their classrooms.

The promotion of 21st-century skills should begin before university education (Sari,2022). However, little research has examined the promotion of these skills in school lessons, especially language lessons. Up to this point, studies in 21st-century teacher behavior primarily focused on analyzing whether textbooks include such skills (Akçay, 2019; Elgün, 2021) and the university lecturers' practices (Demirkol-Orak & İnözü, 2021; Ekinci, 2019). Another study has looked at teachers' use of 21st-century skills in general in different educational levels instead of just teachers (Eker, 2020; Kaçar, 2020). In addition, although the Turkish Ministry of National Education has redesigned the curriculum and the teacher qualification profile to meet modern educational standards, there is limited evidence about teachers' practices in the classroom today.

Kirkgoz (2005) states that there is usually a big gap between the language policies that are formulated at the national or institutional level and the teaching practices going on in the classroom. While education policies often emphasize modern pedagogical methods and 21st-century skills, this does not always play out in practice. There may be constraints in teachers, institutions, or support that prevent the achievement of policy aims (Rice,

2017). As such, it is necessary to look through teachers' practices regarding the teaching and integration of 21st-century skills in the classroom. Exploring these practices can shed light on how teachers understand policy expectations, how they translate these competencies into practice, and how effectively they teach critical thinking, creativity, collaboration, and problem-solving to learners.

2.3 Challenges for implementing 21st century shills in the classroom

Understanding teachers' challenges is as vital as understanding their classroom practices while imparting 21st-century skills (Anderson, 2020). It refers to difficulties and restraints under which the teachers operate that hamper their efficiency. According to previous studies, there are many barriers teachers face during the implementation. Things or people that may obstruct the implementation of a planned curriculum. For example, factors such as finite resources and technology, inadequate professional learning, insufficient time in the curriculum, class size, and pressure to design engaging student tasks. In addition, Eker (2020) claims that some educators face difficulties in balancing traditional content coverage with 21st century competencies. Similarly, other scholars observe the policy gap in implementing select 21st-century skills in the Maldives. A lot of researchers have confirmed these issues and presented evidence valuable about the difficulties of teachers when using these skills in teaching (Pilpe, 2020; Stover, 2018).

III. Methodology

3.1 Introduction

This paper conducts a systematic study to identify strategies for embedding 21st-century skills, such as creativity, critical thinking, collaboration, innovation, etc., into the classroom practices of the Bhutanese school curriculum. The choice of a mixed-methods or qualitative approach is appropriate for exploring in detail teachers' instructional practice, challenges, and perceptions about the implementation of these competencies. The research work was conducted at selected schools in Jigme Sherubling with a view to collecting relevant information/data from teachers and other stakeholders, using tools such as questionnaires, interviews, and documentary analysis of lesson plans. Taking the above approach helped the researcher get descriptive and explanatory insights into the translation of 21st-century skills policy into classroom practice within the GNH framework of Bhutan.

3.2 Research design

The research design selected for this study employs a mixed-methods design that involves a quantitative and qualitative approach within a study (Fraenkel et al, 2012). By utilizing this type of design, researchers can acquire more trustworthy and more in-depth information regarding the study's findings (Zoltán Dörnyei, 2007). An online open-ended response questionnaire was designed and conducted for the qualitative component. Qualitative studies come with various methods to gather data, which include conducting interviews, focused observations, and analyzing documents that capture events and experiences realistically (Yıldırım & Şimşek, 2013). In this research, the online survey was used to add depth to the data and give us richer information to comprehend the study in totality.

The selected case studies included a purposively selected variety of educational institutions noted for their creative approach to curriculum. Researchers found that there are a lot of schools in all parts of the Dzongkhag, and research made an attempt to find out whether teachers really do incorporate 21st-century competencies into their programs.

3.3 Research setting and context

The study was carried out in selected Jigme Sherubling schools, which are representative of educational settings in Bhutan influenced by the national curriculum reform and philosophy of GNH. An examination of 21st-century skills such as creativity, critical thinking, collaboration, and innovation integrated into everyday classroom practice is relevant in these schools. The resources, teaching experiences and methodologies of the chosen schools vary to a larger extent so that the implementation of these competencies in a contextual understanding can be arrived at. This setting is suitable because Bhutan is transitioning to a learner-centered skill-based education system.

Teachers play an essential role in the Transforming the curriculum and implementing it in the classroom. How teachers implement 21st-century skills may vary depending on their own professional training, the availability of teaching materials, school support, and more. As such, the study positions itself within the real classroom environment to look at the opportunities and constraints for the teachers. By focusing on these schools, the research hopes to find out how global education reforms are localized in Bhutan's own framework, particularly one that is grounded on GNH principles.

3.4 Participants/ samples

The present study included 20 school teachers from Jigme Sherubling School as participants. Using convenience sampling methods, participants were selected. Convenience sampling involves the selection of participants who

are readily accessible and available to the researcher (Fraenkel et al. 2012). And this increases the size of the panel.

3.5 Data collection methods

It employs various approaches to gather the necessary information, including a study of the curriculum documents to understand the incorporation of 21st-century skills into the learning objectives. Furthermore, researchers interviewed teachers, curriculum developers, and administrators about their experiences, challenges, and strategies to understand qualitatively how these skills are assessed and implemented in their classrooms.

In terms of qualitative data collection, the research instrument comprises a personal information form, the 21st Century Teaching and Learning Scale, and an online survey. The researchers then prepared a personal information form, which includes four questions related to teachers' experience, 21st-century skills training, school type, and educational level. The 21st Century Teaching and Learning Scale (Hixson et al. 2012) is a five-point Likert-type scale that assesses the extent to which teachers use 21st Century skills. The scale will range from 1 (Rarely) to 5 (Almost daily). The scale was extremely reliable (std. alpha > .90, inter-item correlations > .58), and in the current study, Cronbach's alpha was found to be .97, indicating very high reliability (Kılıç, 2016). An online survey was carried out to explore the challenges faced by teachers in implementing 21st-century skills involving 20 teachers through the Google Form and in-person form filling. Three teachers conducted a pilot survey to ensure question clarity. The questions were modified after the pilot survey results and expert feedback.

The impact of the implementation of the curriculum on the performance and feedback of students will also be studied. The thematic coding technique was used to analyze the data to find the strategies and challenges faced during integration.

3.6 Data analysis procedure

After obtaining the necessary permissions from the school principals and HoDs, the research data was collected during the process of the deadline planned. Data was collected in two stages. During the first stage, the researcher directly distributed the forms to accessible teachers. In the next phase, the teachers received the forms from their colleagues, who knew which resulted in a total of 20 teachers. The data that was collected underwent analysis of both forms. The researcher utilized SPSS to analyze the quantitative data. Descriptive statistics were used to find out the extent to which school teachers integrate 21st-century skills in teaching. Furthermore, independent samples t-tests and one-way ANOVA were performed to interrogate the influence of teachers' background variables on the use of the 21st-century skills. Before doing these analyses, a normality test was conducted, which is the Kolmogorov-Smirnov test (n>50).

3.7 Validity and reliability

In order to ensure the validity of the study, triangulation was done using questionnaires, interviews and documents. The use of this method thus helps to cross-check the information from different resources, thus ensuring the credibility of the results. Instruments like questionnaires and interviews were developed from the review of literature and experts in the field of education to check their content validity. To eliminate confusion and improve clarity, relevance and alignment of research objectives, a pilot study with teachers was conducted before actual data collection.

To ensure the reliability of the study, a standardized instrument which is the 21st Century Teaching and Learning Scale was used in the study. The instrument is proven to have a reliable coefficient. Further validation of the research tools' consistency was done through Cronbach's alpha to measure the internal consistency of the items. Data collection and analysis were followed by clearly defined procedures that minimize bias and ensure consistency throughout the research. The study intends to generate valid and reliable findings with respect to the integration of 21st-century skills in Bhutanese classrooms.

3.8 Ethical consideration

The researcher initially sought permission from the school principal to collect data from the teachers. After that, consent from every individual was obtained before the study. In other words, the study aims to keep the subjects free from any form of pain or damage, be it physical, psychological, social, or professional. Before data collection, all subjects (principals, teachers, and participants) were fully informed about the study's purpose, scope, and procedures. Participation was voluntary, and informed consent was obtained from all participants.

Information was reported using codes or pseudonyms to protect the confidentiality and anonymity of people and institutions. Any sensitive information was handled properly within the institution. The local customs and educational practices were employed while conducting the research. To achieve ethical integrity in the study, ethical approval and permission from the concerned authorities and schools, respectively, were obtained before starting the study.

4.1 Demographic characteristics of participants

Table 1. shows the demographic differences of the participants

Year of teaching experiences	Distribution	Percentage
0-5 years	5	25
6-10 years	7	35
11-15 years	5	25
16-20 years	2	10
21- above	1	5
Total	20	100

Based on years of teaching experience, the study shows the varied representation of teachers in the study. Of the 20 participants, the largest group is that of teachers with 6–10 years' experience at 35% (n=7), indicating a modestly experienced teaching workforce. The 0–5 years and 11–15 years groups, with 25 per cent (n=5) each, are next, indicating a balanced presence of both early- and mid-career educators. Ten percent (n=2) of the respondents are teachers with 16–20 years of experience, while 5% (n=1) have more than 21 years. This shows a minuscule population of highly experienced teachers. The data indicate that the study primarily relies on input from early to mid-career teachers. As a result, 21st-century skills may be understood and applied in a more flexible manner. This is due to those groups, less experienced but more in number than senior teachers, being more plastic in their pedagogical practices.

4.2 RQ1: *How a teacher of Jigme Sherubling school can integrate 21st century skills critical thinking, creativity, collaboration and problem-solving during a class?*

The study aimed at exploring the level of 21st century skills being used by the teachers in the classrooms. To respond to the posed question to researcher, the descriptive statistics, the mean and standard deviation of the collected data, is accounted to view teacher's practices. The analysis was done on eight different dimensions of the 21st-century skills to better understand how often and effectively these competencies are used to teach. The results, as shown in Table 2, indicate patterns and variations in teachers' use of these skills, which have helped the researcher find areas of strength and aspects that need further improvement. Thus, the current level of integration of the 21st-century skills is able to convey in a systematic and meaningful way.

Table 2. *21st-century teaching skills and their use by the teachers.*

	M	***S.D***
The mean score of the whole scale	3.12	0.06
Sub-skill of the scale		
Use of technology as a tool of learning	3.67	1.23
Collaboration	3.23	0.87
Innovation & creativity	2.55	0.71
Communication	2.56	1.23
Critical thinking	2.37	0.53
Self-direction	2.38	0.87
Global connection	2.22	0.87
Social connections	2.37	1.27

As can be seen in Table 2, the overall mean score of teachers in regard to the integration of 21st-century skills is 3.12 (SD = 0.06); thus, the score is moderately high, which means that the teachers tend to integrate 21st-century skills on a moderate level. Thus, teacher attempts were made, but classroom activities are not yet at a very high level or consistent level of skills development. Of the sub-skills, the use of technology as a tool for learning had the highest mean (M = 3.67, SD = 1.23), suggesting that the teachers are relatively more confident and more active in using digital tools in support of teaching and learning. Collaboration also shows a moderate level (M = 3.23, SD = 0.87), meaning that work and peer interaction occur often enough.

Despite this, other significant 21st-century skills, specifically creativity and innovation (M = 2.55, SD = 0.71), communication (M = 2.56, SD = 1.23), and critical thinking (M = 2.37, SD = 0.53), score a lower mean, showing less effort in imparting these skills. Likewise, students' level of self-direction is at approximately the same level (M ≈ 2.34–2.38). Similarly, global connection (M=2.22, SD=0.87) and local connection (M=2.37, SD=1.27) towards the world are at a lower level. Consequently, students are not encouraged to work and learn on their own enough. Overall, findings indicate that technology use and collaborating are moderate; however, higher-order thinking and connecting to the real world require improvement in classroom teaching practices.

The descriptive results indicate the level and frequency of participants' use of 21st-century skills. Several teachers chosen from among the scale respondents were given a question at this point.20 teachers. Incorporating these skills into their teaching practices.

The result for the sub-question of the first research question is presented below.
Teachers opinion on 21st century skills T1 has to say;

> *"I often use technology and group work in my lessons, but I find it difficult to design activities that truly develop students' creativity and critical thinking within the limited class time."*

T3 viewed out:

> *"I know 21st-century skills are important. However, syllabus pressure and inadequate training means that I am unable to teach them on a regular basis."*

T4 says:

> *"Students engage well with collaborative and technology-based learning, but I need more support and resources to connect lessons with real-life and global contexts."*

The responses of the three teachers showed that they share a similar pattern regarding the integration of 21st-century skills into the classroom. It has been found that all teachers agree on the importance of these skills and use them in an observable way. For example, in terms of the use of technology and collaboration. However, the findings also indicate challenges in using higher-order skills like creativity and critical thinking consistently. Major restrictions are: Limited time, heavy syllabus, poor training and poor resources. Their opinions show that awareness and initial practice of 21st-century skills exist; however, effective and consistent implementation continues to be limited due to practical challenges in the classroom.
The existing literature supports the teachers' views as they face challenges in implementing 21st-century skills in practice. Teachers are aware of the need to introduce skills like critical thinking, creativity, and collaboration in classrooms. But they go only so far in the classroom implementation mainly due to burden factors like time, heavy curriculum work, and lack of adequate professional training. Numerous educational systems, according to Rusmin (2024), place a premium on content knowledge rather than skills, leading to divergences between policymakers' intent and teachers' actual classroom behaviours. In the same way, Smith (2023) said teachers are unable to teach 21st century skills due to lack of professional development and teaching materials. In line with the teachers' opinions in this study, it is necessary to strengthen the system and conduct more hands-on training on these competencies.

4.3 RQ2. *What challenges do teachers encounter in implementing 21st-century skills within the existing curriculum, and how do they address these challenges?*

Table 3. *Integrating 21st-century teaching skills.*

Categories	*F*	%
Effective teaching	16	80
Keeping up with the age	4	20
Total	20	100

The findings indicate that the large majority (80%, f = 16) of teachers think that 21st-century skills integration is mainly important for effective teaching. Meanwhile, 20% (f = 4) of the teachers think it is necessary for the present age or 21st-century education, or for modern demands. This implies that teachers are motivated to improve instruction or classroom practices rather than other broader drivers of society or technology. The category of "effective teaching" being the most dominant suggests that teachers primarily associate 21st-century skills with bettering their pedagogy and engaging students in the classroom.

According to previous findings, teachers consider 21st-century skills as a means to improve the quality of teaching, instead of considering them as a means to enhance the global workforce or bring about societal change. An example would be Birru (2024), who noted that teachers are more likely to refer to the practical benefits in the classroom of 21st-century skills like greater participation and understanding than to global skills. Likewise, Zaini and Fahmi (2023) observed that teachers acknowledged modern skills; however, their interpretation of modern skills tends to be classroom-centered with the aim of teaching effectiveness, not societal-world alignment. The triangulation indicates that while awareness exists, teachers' understanding of 21st-century skills is more pedagogically oriented, leading to the recommendation for further professional development to broaden perspectives.
T6 says:

> *"Integrating 21st-century skills mainly helps me make my teaching more effective and engaging for students in the classroom."*

T7 has to say:

> *"Use of 21st-century skills is an important technique because it improves our teaching methods and helps our students understand learning better."*

T8 has this opinion:

"I focus on 21st-century skills because they make my teaching more effective, although I also know they are needed to prepare students for modern changes."

According to the teachers, 21st-century skills are the tools that improve effective teaching and classroom engagement. Their opinion was not strongly linked to global or social change. The three teachers say that these skills improve lesson delivery, improve student understanding, and enhance the engagement level of classes. This suggests a common claim that 21st-century skills are essentially pedagogical in nature – helping in the more immediate needs of the classroom, e.g., clarity of instruction, student participation. Despite its own limits, people are faced with vastly different times than in the past. Based on the literature, teachers are likely to interpret 21st century skills with a classroom focus. For example, Ojogiwa (2021) notes how teachers often associate innovative teaching practices with increased effectiveness of teaching rather than greater systems change.

Likewise, Riyanti, et al. (2023), even though the teacher is aware of the need for the 21st-century capability, the implementation is limited to just enhancing the quality of teaching in the classroom, not beyond that. Teachers might be aware of 21st-century skills, but they mainly interpret them as skills for effective instruction. Something seems to be missing in their professional development.

Needs of a 21st-century skill-oriented curriculum

In the survey, the teachers were also asked to assess the curriculum they teach in terms of its coverage of 21st-century skills, specifically critical thinking, creativity, collaboration, communication, and innovation. The purpose of this question was to capture the teachers' views on how the existing curriculum helps in developing these important competencies in students. The answers inform whether the curriculum is meeting the demand or whether we have lagged. Are teachers are really teaching and learning to meet 21st-century demands? The evaluation findings are summarized in table 4.

Table 4. Curriculum challenges

Categories	*f*	*%*
Insufficient curriculum	2	10
Rote-based curriculum	1	5
Curriculum covering some of the 21st-century skills	13	65
Exam-oriented curriculum	3	15
Curriculum coverage of 21st-century skills	1	5
Total	**20**	**100**

As shown in Table 4, most instructors (65%, f = 13) believe that the curriculum addresses only some aspects of the 21st century. To put it another way, there may be collaboration or communication, but the skills are of a higher order. Insufficient emphasis is placed on skills such as creativity, critical thinking and innovation among others. Fifteen percent think that the curriculum is exam-oriented whereas ten percent consider the curriculum as insufficient five percent term the curriculum as rote-based. The use of content-heavy approaches is further concerning. Only 5% (f = 1) feel that the entire 21st century skills are accommodated in the curriculum. Ultimately, these findings indicate that the curriculum appears to be partially responsive to the goals of 21st-century learning yet remains largely inflected by traditional and assessment-driven architectures.

This interpretation aligns with the education literature, which suggests that the curriculum of most education systems is transitioning from knowledge to skills. As an illustration, Rusmin (2024) believes that despite the reforms stressing the competency of the 21st century, the implementation of the curriculum is often partial, with greater emphasis on covering the content and examination of the competence. Akam (2025) also states that in many contexts, curriculum design still fails to integrate creativity, critical thinking, and real-life applicability, and classroom practice fails to match policy expectations. These findings are triangulated with the findings of the current study. It suggests that efforts have been made towards the integration of 21st-century skills. However, there is still a significant limitation of the curriculum in the restriction of its full implementation in practice.

On this trend, T8 has to say;

"The curriculum should ideally include some 21st-century skills, yet due to a large number of teachers who mainly are busy completing the syllabus and exam preparation."

T10 says;

"I feel the curriculum is not fully sufficient for developing all 21st-century skills, especially creativity and critical thinking, as these are not clearly emphasized."

T9 has this opinion;

"Some parts of the curriculum support skills like collaboration and communication, but it is still largely exam-oriented and does not fully cover all 21st-century competencies."

According to the teachers' views, the existing curriculum is only a partial amalgamation of 21st-century skills, being largely exam-oriented and content-driven. Moreover, it fails to emphasize higher-order skills like creativity and critical thinking. Even though some features of collaboration and communication exist, the teachers think that the curriculum is still focused on the completion of the syllabus and performance in exams. There appears to be a

disconnect between what is taught in class and what is actually planned in the curriculum of 21st-century competencies. Consequently, due to prior restraints, teachers find themselves unable to completely exercise a skill-based education.

There is substantial literature to support this finding. Some education systems still emphasize the passing score of examinations and the mastery of content. As a result, the implementation of 21st Century Skills in the classroom is limited. Akam (2025), too, notes that even though the syllabus might contain creativity and critical thinking, they do not shape the learning (experience) due to issues of design and assessment. The findings of this study support the existing sector-wide reforms in curriculum. The exams could also limit learners' capacity development to attain 21st century competencies

4.4 RQ3. ***How do the current teaching practices and curriculum reforms in Bhutan support the development of 21st-century skills among students?***

Teachers were asked whether they would want in-service training for 21st-century skill teaching practices and, if so, to give the specifics of which areas. This question aimed to identify the professional development needs of teachers for implementing creativity, critical thinking, collaboration, communication, and innovation skills in classrooms. For the purpose of assessing the extent of teacher readiness and organizing appropriate training programs to ensure the successful delivery of the curriculum. Except for nine teachers who did not provide a response to the question, the responses of the rest of the participants have been summarized and presented in Table 5.

Table 5. ***PD program for teachers***

Categories	***f***	***%***
Those who need the PD program on 21st skill development	19	95
Those who do not need PD on this	1	5
Total	20	100
Areas where teachers need a PD program		
Activities for 21st-century teaching skills	3	15
Up-to-date information on the 21st-century skill	15	75
Lesson planning accordance to 21st-century skills	2	10
Total	**20**	**100**

Most of the Teachers have a very sturdy desire for professional development (PD) on 21st-century skills. Almost all respondents required PD programmes for 21st-century skill developments (95%, f = 19). Only a few respondents reported that they do not require PD programme for 21st-century skill developments (5%, f = 1). It is clear that most teachers feel a need for further capacity building in this sphere. They do not seem to feel confident or adequately prepared to infuse skills like critical thinking, creativity, collaboration and innovation in their teaching. In conclusion of the findings, there is an imbalance in respect to the gap in professional readiness of teachers.

Most teachers (75%, f = 15) stated that they require updated information on 21st-century skills in specific areas of needs. This indicates that teachers require current frameworks and concepts relating to 21st-century skills. A minority of the respondents (10%, f = 2) required help for making lesson plans that inculcate the 21st-century skills. This may indicate the challenges with implementation. The findings indicate that teachers are looking for information on the 21st-century skills as well as ways to facilitate these skills in everyday teaching. The information suggests that there is strong evidence of a need for professional development that is targeted and tailored to close any gap between what the curriculum calls upon and what takes place in the classroom.

Table 6. Test results regarding 21st-century skill training

21st-century skill	**Training**	***N***	***M***	***S.D***	***df***	***t***	***p***
Critical thinking	Yes	20	2.76	1.02	121.23	2.340	
	No	0					
Collaboration	Yes	20	2.76	1.23	112	1.134	
	No	0					
Communication	Yes	20	2.76	1.24	172.34	1.243	
	No	0					
Creativity and innovation	Yes	15	2.35	1.25	114.21	2.142	
	No	5	1.43	.86			
Global Connection	Yes	10	2.03	1.10	110	1.124	
	No	10	2.03	.98			
Local Connection	Yes	15	2.35	1.23	114.26	1.142	
	No	5	1.43	1.00			
Using Technology	Yes	20	2.76	1.28	112.73	2.132	
	No	0					

The outcome shows that teachers with training ("Yes" group) report a higher mean score in the integration of most 21st-century skills. However, this difference is not a very strong one in all cases, as teachers without training ("No" group) also receive mean scores. On the other hand, the mean scores of trained teachers in the skills of critical thinking (M = 2.76), collaboration (M = 2.76), communication (M = 2.76), and use of technology (M = 2.76) were relatively higher. In this respect, professional development has a positive impact on classroom practices. In some areas, however, like global connectedness (M = 2.03 for both groups), the mean values are seen to be identical thus there is not much difference between trained and untrained teachers. Analysis of t-values also varied across skills; however, they interpreted limited statistical power in a few comparisons overall, which suggests that training, in and of itself, is not strong enough for the strong integration of all 21st century abilities.

The previous studies suggest that though professional development leads to more awareness and initial use of 21st-century skills by teachers, its effectiveness depends on the quality and depth of the professional development (PD) and on the kind of follow-ups provided. For example, Smith (2023) claims that training programmes on theory or other short-term measures may only bring about modest changes in classroom practice unless they are guided by mentoring and practical application. In the same vein, Zaini and Fahmi (2023) reveal that teachers having structured and practice-oriented training are likely to implement the 21st-century skills successfully. In contrast, limited or intermittent training has minimal impact. Thus, the present findings denote that although the training positively contributes, it does so partially, which warrants more sustained and practice-based professional development programmes.

Different teachers' opinions on 21st-century skill requirements

T12 has to say

"The training that I got on 21st-century skills made me feel more poised in using technology and associate in my classroom. I still need some guidance about critical thinking activities."

T13 said:

"The training I received helped me understand the importance of 21st-century skills, but I still struggle to apply them effectively in lesson planning and assessment."

T14 has this opinion:

"Even though I have some training exposure, I need more practical support to fully integrate creativity, communication, and real-world connections into my teaching."

According to the teachers' viewpoints, in-service training on 21st-century skills has a limited positive impact on classroom practice. All three teachers believe their awareness and confidence have been enhanced due to the training. For example, in the application of collaborative learning. However, they often spoke of difficulty in converting this knowledge into a lesson plan and fully implementing higher-order skills like critical thinking, creativity, and real-life application. Although teachers learn about an innovation through the implementation training, what they don't learn is to implement the innovation in classroom contexts.

Research highlights that ongoing development, practice-oriented, and well-supported professional learning is the most effective type of professional learning. According to Smith (2023), short term training can improve teachers' awareness of classroom practices; however, it does not guarantee a change in something like pedagogy. Teachers can successfully implement 21st-century skills if they get structured hands-on training along with follow-up mentoring (Zaini and Fahmi, 2023). Conversely, if they have lesser practical exposure then they will continue to face difficulties in utilizing it. The present findings confirm those of related studies, and imply that professional development should be ongoing, practical, and classroom-based.

5.1 Conclusion

According to the study results of 21st-century skills in Jigme Sherubling schools, moderate level implementation is seen among schools, and the teachers are relatively better practiced in using 21st-century skills in technology and collaboration, while other skills, such as critical thinking, creativity, communication, and global and local connection, are less emphasized. The study further indicates that teachers often see 21st-century skills as a means to enhance successful classroom teaching rather than as a means to prepare learners to face global and societal issues. Also, the curriculum is regarded as only partly matching 21st-century competencies and continues to be more influenced by examination-oriented, content-heavy models, restricting students' full use of higher-order skills.

The research concludes that in-service training will positively contribute to teachers' awareness and early implementation of 21st-century skills; however, the impact is overall limited due to a lack of practical implementation, absence of continuous support, and neglect of classroom-based strategies. Teachers also showed a significant need for further professional development on up-to-date knowledge and skills to integrate into lesson planning. The research found that to implement 21st-century skills at a large scale, more than simply revising the curriculum, undertaking continual teacher training, and reshaping institutions are required. These changes will help implement the policies and practices gap in Bhutan.

5.2 Recommendations

Recommendations to Dzongkhag Education Office (DEO).

- The District Education Officer (DEO) must ensure the organization of CBSE workshops which should have practical school aspects. Along with this, the workshops must emphasize on critical thinking, creative thinking, innovation, and communication and problem-solving.
- The office would create a protocol which allows for post-training follow-up mentoring, classroom observations, peer-to-peer learning, and feedback, so that the teacher implements lessons and improves from the PD in a classroom.
- The DEO office should help schools in accessing suitable ICT facilities, teaching-learning materials, and opportunities for teachers to collaborate on effective practices through professional learning communities in places where limited resources prevent the incorporation of 21st Century skills.

Recommendations to Schools

- It is important for schools to develop a supportive school culture whereby they are able to provide teachers with time, encouragement, and opportunities to try out learner-centred approaches such as inquiry-based, project-based and collaborative learning, without over-emphasizing syllabus completion.
- The school should advocate peer observation, collaborative lesson planning, professional learning communities, and sharing of good practices so that teachers can learn practical ways of developing higher-order thinking skills.
- Frequent observations of classes by school leaders acting as "critical friends" to provide clearly-focused advice and guidance are essential. Training and support should be made available based on the observations carried out.

Recommendations to Teachers

- Teachers must increasingly leverage project-based learning, inquiry-based learning, group activities, problem-solving and real-life learning to strengthen the critical thinking, creativity, collaboration and communication of students.
- Focus on weaker areas especially critical thinking, creativity, innovation, self-direction & real world connections since technology use and collaboration were relatively stronger areas.
- The teacher should avail self of PD, peer learning and reflective practice opportunities to apply the new learning in lesson planning and assessment.

Recommendations to curriculum developer

- Curriculum developers should review and amend the current curriculum documents to strengthen 21st-century competencies namely- critical thinking, creativity, innovation, communication, collaboration and problem-solving across subjects and grade-levels consistently and explicitly.
- The curriculum should provide enhanced opportunities for project, inquiry, experiential and collaborative learning, rote or extensive memorization should be minimized and opportunities for authentic application of learning are strengthened.
- It is vital to align the 21st century competencies with the curriculum, assessment and learning activities in classrooms. Along with gauging students' ability to remember content, assessment should also measure and evaluate their ability to think critically, create, communicate, collaborate and authentically problem-solve.

References

[1]. Ahmad, S. A., Yoke, S. K., Yunos, R. M., & Amin, J. M. (2019). Exploring lecturers' readiness for 21st-century education in Malaysian higher learning institutions. *European Journal of Teaching and Education, 1*(1), 15- 29.

[2]. Akam, M. A. (2025). Integrating critical thinking and creativity into curriculum development: Philosophical and practical approaches for 21st century education. *International Journal of Educational Evaluation*, 11(3), 182–188.

[3]. Akçay, A. (2019). *An analysis of ELT coursebooks in terms of 21st century skills: communication, collaboration, critical thinking, creativity* (Unpublished master's thesis). Akdeniz University, Antalya

[4]. Altan, M. (2017). Globalization, English language teaching & Turkey. *International Journal of Languages' Education,* 1, 764-776.

[5]. Anderson, A. A. (2020). *Teacher approaches to teaching in the 21st century: A case from Turkish teachers of English* (Unpublished master's thesis). Bahçeşehir University, İstanbul.

[6]. Birru, Y. T. (2024). The integration of 21st-century skills into the higher education curriculum: Practices and perspectives systematic review. *Teacher Education and Curriculum Studies*, 9(3), 60–68.

[7]. Demirkol-Orak, S. & İnözü, J. (2021). Teachers' awareness and actual practices of 21st century learning and innovation skills. *International Online Journal of Education and Teaching (IOJET), 8*(2). 975-997.

[8]. Elgün, İ. Ö. (2021). *Analysis of the 8th grade English course in terms of 21st century skills* (Unpublished master's thesis). Ufuk University, Ankara.

[9]. Eker, E. (2020). *Exploring EFL teachers' perceptions on 21st century skills: A case study* (Unpublished master's thesis). Çağ University, Mersin.

[10]. Ekinci, M. (2019). EFL instructors' level of awareness about the significance of 21st-century skills. *International Journal of Language Academy,* 30, 149-168.

[11]. Fullan, M. (2013). The New Meaning of Educational Change. New York: Teachers College Press.

[12]. Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education.* New York, NY: McGraw-Hill.

[13]. Goldfus, C. (2011). The challenges facing the foreign language teacher educator: A proposed teacher education model for EFL. *Journal of NELTA, 16*(1-2), 1-12.
[14]. Hixson, N. K., Ravitz, J., & Whisman, A. (2012). *Extended professional development in project-based learning: impacts on 21st century skills teaching and student achievement*. Charleston, WV: West Virginia Department of Education, Division of Teaching and Learning, Office of Research.
[15]. Johnson, D. W., (2009). An Educational Psychology Success Story: *Social Interdependence Theory and Cooperative Learning. Educational Psychologist, 44*(4), 213-240.
[16]. Kaçar, H. (2020). *An exploration of English as a foreign language (EFL) teachers' perceptions on 21st century learning and innovation skills* (Unpublished master's thesis). Cukurova University, Adana.
[17]. Kılıç, S. (2016). Cronbach'ın alfa güvenirlik katsayısı. *Journal of Mood Disorders, 6*(1), 47-48
[18]. Kirkgoz, Y. (2005). English language teaching in Turkey: Challenges for the 21st century. In G.
[19]. Braine (ed.), *Teaching English to the world: History, curriculum, and practice* (159-175).
[20]. Lee, M. (2014). Singapore's Education System: An Overview. *International Journal of Educational Management, 28*(2), 206-219.
[21]. Ministry of Education and Skills Development. (2021). *Bhutan Education Blueprint 2014–2024*. Thimphu: MoESD.
[22]. Ojogiwa, B. (2021). *Transformational teaching and instructional effectiveness in education systems.*
[23]. Partnership for 21st Century Learning. (2019). *Framework for 21st Century Learning*.
[24]. Pardede, P. (2020). Integrating the 4cs into efl integrated skills learning. *Journal of English Teaching, 6(*1), 71- 85.
[25]. Pilpe, J. F. (2020). *The frequency of 21 st century skills integration in the teaching practices of secondary christian school teachers in the united states* (Unpublished doctoral dissertation). Columbia International University, Columbia.
[26]. Rice, C. L. (2017). *21st century teaching and learning: teachers' perceptions and practices in four high schools of one district* (Unpublished doctoral dissertation). Arkansas Tech University, Arkansas.
[27]. Riyanti, R., Zaini, A., & Fahmi, M. (2023). *Teachers' perceptions and implementation of 21st-century skills in classroom practice.*
[28]. Rusmin, L. (2024). Critical thinking and problem-solving skills in the 21st century.
[29]. *Journal of Social Science*, 1(5), 144–162.
[30]. Sari, D. P., & Ali, H. (2022). Literature Review Measurement Model of Individual Behavior and Organizational Citizenship Behavior: Individual Characteristics, Work Culture and Workload. *Dinasti International Journal of Management Science,* 3(4), 647-656.
[31]. Scott, C. L. (2015). The futures of learning 3: What kinds of pedagogies for the 21st century? UNESCO, *Education Research and Foresight.* (15).
[32]. Sherab, K. (2013). *Gross National Happiness Education in Bhutanese Schools*. Thimphu: Paro College of Education.
[33]. Smith, E. (2023). The integration of 21st century skills in curriculum design. *Frontiers of Educational Review*, 5(2), 41–50.
[34]. Stover, T. S. (2018). *A case study of teachers implementing the framework for 21stcentury learning* (Unpublished doctoral dissertation). Walden University, Minneapolis.
[35]. Trilling, B., & Fadel, C. (2009). *21st Century Skills: Learning for Life in Our Times*. San Francisco: Jossey-Bass.
[36]. Wang, Y. (2012). Education in a changing world: Flexibility, skills, and employability. Washington, DC: The World Bank.
[37]. Zaini, A., & Fahmi, M. (2023). Teacher readiness and understanding of 21st-century competencies in education reform. *Education Journal. 4*(12), 12-20.