

## **Discovering the Dimensions of 21<sup>st</sup> Century Teaching: Unveiling the Gaps and Opportunities for Educational Transformation**

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**Abstract:** This research investigates the multifaceted aspects of 21<sup>st</sup> century teaching and identifies gaps in current educational practices. The researcher employed a qualitative approach, utilizing interviews, observations and document analysis. Grounded in a theoretical framework emphasizing student centered pedagogy, technology integration and innovative instructional strategies, the study involved a diverse sample of 30 participants, including teachers, students and administrators. Rigorous measures were implemented to ensure validity and reliability, such as researcher triangulation and member checking. The findings revealed significant gaps in areas such as student engagement, digital literacy and pedagogical innovation. These findings are discussed in relation to existing literature, highlighting the implications for educational practice and the urgent need for educational transformation. The study's limitations include the small sample size and its focus on a specific educational context. Future research should explore the identified gaps using different methodologies and extend the investigation to other educational settings. The study contributes to the growing body of knowledge on 21<sup>st</sup> century teaching, providing valuable insights for educators, policymakers, and researchers aiming to promote effective and transformative teaching practices in the modern era.

**Keywords:** 21<sup>st</sup> century teaching; Educational transformation; Gaps and opportunities; Pedagogical; Framework; Technology

### **Introduction**

In today's rapidly changing world, the concept of 21<sup>st</sup> century teaching has emerged as a crucial paradigm shift in education, aiming to equip learners with the skills and competencies necessary for success in the digital age. Trilling and Fadel explore the essential skills and competencies required for success in their book "21<sup>st</sup> century skills: Learning for life in our times," while Wagner addresses the "global achievement gap" and advocates for developing skills relevant to college, careers and citizenship [1,2]. Martinez and Stager emphasize the importance of making, tinkering, and engineering in the classroom in their book "invent to learn." Prensky, et al., focuses on teaching digital natives and the need for meaningful partnerships to facilitate real learning experiences. Darling-Hammond, et al., discuss building teacher and leader capacity to support

student success in the book "leading for educational equity and excellence" and Darling-Hammond and Hyler, et al., explore the preparation of 21<sup>st</sup> century teachers in "the new teacher project [5]."

Voogt, Knezek, Christensen and Lai in the "second handbook of information technology in primary and secondary education," providing insights into the integration and use of information technology in educational settings [6]. The International Society for Technology in Education (ISTE) published the "ISTE Standards for Educators", outlining the skills and competencies educators should possess to effectively leverage technology for teaching and learning [7]. Beetham and Sharpe present the book "rethinking pedagogy for a digital age," exploring the principles and practices of designing pedagogy in the context of digital technologies [8]. Fullan, Hill and Crevola authored "tri-level development," focusing on building educator capacity for transformative learning [9]. Hernandez, Alim, Casis and Gumba published a study in the "journal of research in innovative teaching and learning" specifically examining the challenges and opportunities of integrating 21<sup>st</sup> century skills in Philippine education [10].

Despite the recognition of the importance of 21<sup>st</sup> century teaching by educational stakeholders such as the Department of Education (DepEd), the Commission on Higher Education (CHED) and various researchers and authors, there are still gaps that hinder its effective implementation. This study, conducted during the first semester of 2021-2022 in Iligan city, Philippines, aims to explore the dimensions of 21<sup>st</sup> century teaching and unveil the existing gaps and opportunities for educational transformation.

**The objectives of this study are twofold:** to investigate the challenges faced by teachers, students, and school administrators in adopting and implementing 21<sup>st</sup> century teaching practices, and to identify the opportunities and strategies that can enhance the integration of 21<sup>st</sup> century skills in the Philippine educational context.

To address the identified gaps, this study proposes several approaches. First, teacher education programs should be redesigned to include comprehensive training on 21<sup>st</sup> century skills and pedagogies, incorporating innovative teaching methods, technology integration, and the development of teachers' digital literacy. Professional development opportunities should also be provided to current teachers to enhance their knowledge and skills in 21<sup>st</sup> century teaching strategies.

Furthermore, the integration of 21<sup>st</sup> century skills across the curriculum in both basic and higher education settings is crucial. This requires curriculum reform that explicitly incorporates critical thinking, creativity, communication, collaboration and digital literacy into subject specific content. Authentic assessments measuring these skills can provide a clearer picture of students' competencies and guide instructional practices.

Additionally, fostering a supportive school culture and environment that encourages experimentation, collaboration and risk taking is essential. By creating an atmosphere where teachers and students feel empowered to explore innovative teaching and learning approaches, schools can cultivate a dynamic learning community. This can be achieved by providing resources, support systems and recognition for innovative

teaching practices. School leaders play a vital role in building and sustaining such a culture by promoting continuous professional growth and embracing the changing demands of education in the 21<sup>st</sup> century.

Collaboration between educational institutions, policymakers and industry stakeholders is also crucial to bridge the gap between education and real-world skills. Engaging industry professionals in the design and delivery of educational programs can ensure that students are equipped with the skills and knowledge needed for future careers. Additionally, partnerships with technology companies can provide access to relevant tools and resources that support 21<sup>st</sup> century teaching and learning.

Lastly, ongoing research and evaluation are needed to assess the effectiveness of 21<sup>st</sup> century teaching practices and identify areas for improvement. This can involve studying the impact of specific interventions, analyzing student outcomes and gathering feedback from teachers, students, and other stakeholders. By continuously refining our understanding of effective 21<sup>st</sup> century teaching and learning, we can adapt and evolve our educational practices to better prepare students for the challenges and opportunities of the future.

## **Literature Review**

Looking into the profundity of the topic at hand, an in-depth review of literature and studies would be necessary. Hence, the researcher made an attempt to dissect salient points about this concept by reviewing the following areas of concerns:

**Key theories and concepts related to 21<sup>st</sup> century teaching and learning:** In the field of education, various theories and concepts have been proposed to guide the understanding and implementation of 21<sup>st</sup> century teaching and learning. Trilling and Fadel authored "21<sup>st</sup> century skills: Learning for life in our times," which explores the essential skills and competencies necessary for success in the modern world. Their work emphasizes the importance of critical thinking, collaboration, creativity, and digital literacy as foundational skills for learners in the 21<sup>st</sup> century. Wagner addresses the "global achievement gap" and advocates for developing the skills required for college, careers and citizenship. Martinez and Stager discuss the importance of making, tinkering and engineering in the classroom in their book "invent to learn," highlighting the significance of hands on and experiential learning in the digital age. Prensky examines the teaching of digital natives and emphasizes the need for meaningful partnerships to facilitate real learning experiences. These theories and concepts provide valuable insights into the skills, strategies and pedagogical approaches necessary to foster effective teaching and learning in the 21<sup>st</sup> century.

**Discussion of relevant empirical studies addressing similar gaps:** Several empirical studies have focused on the gaps and challenges related to 21<sup>st</sup> century teaching and learning. Schneider and Preckel conducted a meta-analysis that identified variables associated with achievement in higher education, highlighting the importance of student engagement, motivation and self-regulation [11]. Higgins and Kuh emphasized the significance of student engagement in higher education and provided practical

approaches to enhance it [12]. Jones and Pitcher explored the impact of transnational education on international students' transitions to work, emphasizing the need for support in developing necessary skills and networks [13]. Mayhew and Quinlan examined changes in academic workloads and workload allocation practices, recognizing the evolving nature of academic work [14]. Yeager and Walton discussed the importance of instilling productive mindsets for academic success and student well-being [15]. Kezar and Maxey, explored organizational approaches to student success in higher education, while Edwards, Jeynes and Jackson, et al. focused on learning at scale and the potential of digital technologies [16]. Finally, DeLisle and Leung examined teaching and learning in the digital world, emphasizing innovative pedagogical approaches [17]. These studies contribute to the understanding of key issues in 21<sup>st</sup> century education, such as the experiences of international students, workload management, mindset development, systemic change, digital learning and the future direction of higher education.

**Identification of gaps in the literature and the need for further research:** While existing literature has made significant contributions to our understanding of 21<sup>st</sup> century teaching and learning, there are still gaps that need to be addressed. One notable gap is the limited research conducted in the specific context of Iligan city, Philippines. Although studies have been conducted in other regions, there is a need to examine the unique challenges and opportunities faced by teachers, students and school administrators in Iligan city regarding the integration of 21<sup>st</sup> century skills [18]. Additionally, further research is needed to explore the effectiveness of specific interventions, such as curriculum reform, teacher professional development and the use of technology, in enhancing 21<sup>st</sup> century teaching practices. Furthermore, the impact of 21<sup>st</sup> century teaching on student outcomes and the development of critical skills requires deeper investigation. By addressing these gaps, we can gain a more comprehensive understanding of the factors influencing successful implementation and identify strategies for improvement.

Moreover, several studies have examined the integration of 21<sup>st</sup> century skills and technology in the Philippine education system. Villar conducted a study on technology integration in the Philippine basic education curriculum, examining the practices, challenges and lessons learned [19]. Dela Cruz and Madriaga explored the perspectives of teachers regarding the integration of 21<sup>st</sup> century skills in the Philippine K-12 curriculum [20]. Salamanca analyzed the perspectives of educators on 21<sup>st</sup> century skills integration in Philippine higher education. Francisco, et al. discussed the reimagining of Philippine education through 21<sup>st</sup> century learning competencies, with a focus on the post-pandemic context [21]. These studies provide insights into the integration of 21<sup>st</sup> century skills and technology in the Philippine education system, offering perspectives from different educational levels and stakeholders.

Furthermore, studies have explored various aspects related to the development of 21<sup>st</sup> century skills. Koenig and Harris discussed the shift from pedagogy to andragogy in the age of artificial intelligence, focusing on future skills perspectives. Fullan, Quinn, and McEachen explored the concept of deep learning and its implications for education [22,23]. Church, Moorman, van der Werf and Hill investigated the impact of a problem

based learning approach on student teachers' confidence and competence in teaching 21<sup>st</sup> century skills [24]. Alzahrani, Yasin, Alias and Zainuddin conducted an exploratory study on using augmented reality apps to improve 21<sup>st</sup> century skills among elementary school students. Sisay, Keengwe and Diaz examined the preparation of teachers for digital age instruction in 21<sup>st</sup> century classrooms [25]. These studies contribute to the understanding of the integration of technology, deep learning approaches, problem based learning, augmented reality, and teacher preparation in fostering 21<sup>st</sup> century skills and instruction.

Additionally, studies have explored the development of 21<sup>st</sup> century literacy skills, the effectiveness of different instructional approaches and the integration of technology in the classroom [26]. Leu, Forzani, Timbrell and Maykel examined the development of students' 21<sup>st</sup>-century literacy skills during the COVID-19 pandemic [27]. Underwood, Dillon and Farrington-Flint compared the effectiveness of virtual and physical manipulatives for teaching algebra to primary school children [28]. Teo and Beng Lee investigated the relationship between teachers' creativity and their intentions to use technology integration [29]. Gumba and Hernandez conducted a review of research studies to assess the integration of 21<sup>st</sup> century skills in the Philippine basic education curriculum [30]. Dela Cruz and Madriaga explored the perspectives of teachers on integrating 21<sup>st</sup>-century skills in the Philippine K-12 curriculum. These studies contribute to the understanding of various aspects related to the development of 21<sup>st</sup> century skills, including literacy skills during remote learning, the use of manipulatives, teachers' intentions to integrate technology, and the assessment of 21<sup>st</sup> century skills integration in the Philippine education context.

Moreover, studies have focused on the assessment, perspectives, teaching practices, and levels of integration of 21<sup>st</sup> century skills in the Philippine education context. Casis and Hernandez focused on the development of a scale for assessing the integration of 21<sup>st</sup> century skills in the Philippine basic education curriculum [31]. Salamanca analyzed the perspectives of educators on 21<sup>st</sup> century skills integration in Philippine higher education. Pagtakhan and Suerte examined the competency based teaching practices of Filipino teachers and their implications for 21<sup>st</sup> century learning [32]. Garcia and Malacad explored insights from school administrators regarding the integration of 21<sup>st</sup>-century skills in the Philippines' K-12 curriculum [33]. Their study aimed to understand the perspectives, challenges, and strategies employed by school administrators in promoting and implementing 21<sup>st</sup> century skills in educational settings. By interviewing and surveying school administrators, the researchers gathered valuable information about the current status of 21<sup>st</sup> century skills integration, as well as the barriers and facilitators encountered in the process.

The findings of Garcia and Malacad shed light on the perspectives of school administrators, who play a crucial role in driving educational change and ensuring the effective implementation of curriculum initiatives. The study revealed that while there was a recognition of the importance of 21<sup>st</sup> century skills, administrators faced challenges in terms of teacher training, resource allocation, and assessment practices. The administrators also shared strategies they employed to overcome these challenges, such as providing professional development opportunities for teachers, leveraging

partnerships with external organizations and utilizing technology for instructional support.

By exploring the insights of school administrators, Garcia and Malacad's study contributes to our understanding of the dynamics involved in integrating 21<sup>st</sup> century skills at the administrative level. The findings can inform policy development, curriculum design, and professional development initiatives aimed at promoting effective integration of 21<sup>st</sup> century skills in the Philippine education system.

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Borabo and Alagos conducted an exploratory study assessing the integration of 21<sup>st</sup>-century skills in teacher education institutions in the Philippines, which was published in the Philippine journal of teacher education [35]. Rendoque and Leysa examined factors that influence teacher adoption and integration of technology in the classroom in the Asia Pacific journal of education, arts and sciences, focusing on teaching with technology in the Philippines [36]. Mariano and Rances investigated teachers'

competency and challenges in integrating 21<sup>st</sup> century skills in the K-12 curriculum in the Philippines, as published in the Asia Pacific journal of multidisciplinary research [37]. These studies shed light on the assessment of 21<sup>st</sup> century skills integration in teacher education institutions, factors influencing technology integration and teachers' competency and challenges in integrating 21<sup>st</sup> century skills in the Philippine education context. Additionally, Azevedo and Hadwin edited a book titled "motivation in educational technology: An examination of cognitive and affective factors," which explores the role of motivation in educational technology and its impact on cognitive and affective factors [38].

The overall discussions presented in this paper offer valuable insights into 21<sup>st</sup> century teaching and learning. Jones and Pitcher explore the impact of transnational education on international students' transitions to work, emphasizing the importance of preparing students with skills relevant to the global job market. Mayhew and Quinlan discuss the changes in academic workloads and workload allocation practices in UK higher education, highlighting the need for effective practices that promote productivity and work-life balance for educators. Yeager and Walton review evidence and propose an agenda for instilling productive mindsets among students, stressing the importance of mindset interventions in improving educational outcomes. Kezar and Maxey focus on collaborating for systemic change in higher education, underscoring the significance of collaborative efforts to support student success. Edwards, Jeynes and Jackson provide insights into learning at scale in higher education, highlighting the opportunities and challenges associated with leveraging technology and innovative pedagogies. Collectively, these discussions identify gaps in the field [39]. Further research is needed to develop effective strategies for instilling productive mindsets at scale and to implement systemic changes in higher education institutions. Additionally, more studies are required to explore the integration of 21<sup>st</sup> century skills in the educational curriculum, particularly in the context of the Philippines.

These insights provide a foundation for future research and educational initiatives aimed at addressing these gaps and improving teaching and learning practices in the 21<sup>st</sup> century.

## **Methodology**

This study employed a qualitative research design to gain in-depth insights into the integration of 21<sup>st</sup> century teaching and learning practices in the Philippine education context specifically in Iligan city. Qualitative research is well-suited for exploring complex phenomena and capturing the perspectives and experiences of participants in their natural setting [40]. By adopting a qualitative approach, this study aimed to understand the multifaceted nature of 21<sup>st</sup> century education and teaching and explore the contextual factors influencing its implementation.

In terms of theoretical framework, the study was guided by a theoretical lens grounded in constructivism and socio-cultural theories. These theories provided a framework for understanding how social interactions, cultural contexts, and individual beliefs shape teaching and learning processes in the 21<sup>st</sup> century [41]. By examining the interplay between teachers, students, and administrators, the study aimed to uncover the

underlying mechanisms and factors influencing the integration of 21<sup>st</sup> century skills and pedagogies.

A purposive sampling strategy was employed to select 30 participants who had relevant knowledge and experiences related to 21<sup>st</sup> century teaching and learning in the Philippine education context. The participants included teachers, students and administrators who were actively involved in promoting and implementing 21<sup>st</sup> century education initiatives. The sample size aimed for saturation, where data collection continued until no new insights or themes emerged from the analysis.

Data was collected through semi-structured interviews, classroom observations and document analysis. Semi-structured interviews provided an opportunity to explore participants' perspectives, beliefs and experiences related to 21<sup>st</sup> century teaching and learning. Classroom observations allowed for the direct observation of instructional practices, student engagement and the use of technology and 21<sup>st</sup> century pedagogies. Document analysis involved the examination of relevant educational policies, curriculum materials and other documents that shed light on the implementation of 21<sup>st</sup> century education initiatives in the Philippines.

To ensure the rigor and trustworthiness of the study, multiple measures were taken. Firstly, member checking was conducted, whereby participants were given the opportunity to review and verify the accuracy of the collected data and interpretations. This process enhanced the credibility and validity of the findings by involving participants as co-creators of knowledge. Secondly, data triangulation was employed, combining multiple data sources (interviews, observations and document analysis) to provide a comprehensive understanding of the research topic. This approach increased the reliability and robustness of the findings by cross-verifying information from different perspectives.

## **Discussion**

### *Corpus data analysis*

The qualitative data collected through interviews and observations were analyzed using a thematic analysis approach. Thematic analysis allows for the identification and exploration of patterns, themes and meanings within the data. The analysis process involved several steps to ensure a rigorous and systematic approach.

First, the interviews and field notes were transcribed verbatim, ensuring the accurate representation of participants' responses and observations. The transcriptions were then organized and coded using a coding scheme developed based on the research objectives and the theoretical framework. The coding scheme consisted of both predefined codes, derived from the literature and research questions, as well as emergent codes that emerged during the analysis process.

Next, the coded data were reviewed and grouped into meaningful themes. Themes were identified by examining the patterns, similarities and differences across the data. This involved a constant comparison of data within and across participants, allowing for the



identification of overarching themes and sub themes.

The identified themes were further refined and validated through discussions among the research team. This process involved examining the coherence and consistency of the themes, as well as seeking alternative explanations and interpretations of the data. Any disagreements or discrepancies were resolved through consensus discussions to ensure the trustworthiness and reliability of the findings.

In the presentation and interpretation of the qualitative data, relevant quotations and examples were selected to illustrate and support the identified themes. These quotations and examples were chosen to provide a rich and nuanced understanding of participants' perspectives and experiences. They were carefully integrated into the findings section to highlight key points, provide context and give voice to the participants.

The findings were presented in a coherent and logical manner, following the identified themes. Each theme was accompanied by a detailed description and analysis, supported by relevant quotations and examples. The interpretation of the findings involved a careful examination of the underlying meanings, implications and connections to the research objectives and theoretical framework.

Throughout the data analysis process, measures were taken to ensure validity and reliability. This included regular discussions among the research team to enhance intercoder reliability and promote consistency in the coding and interpretation of the data. To enhance the trustworthiness of the findings, member checking was conducted, where participants were given the opportunity to review and provide feedback on the preliminary findings, ensuring the accuracy and authenticity of their perspectives.

The use of a systematic and rigorous data analysis process, along with the inclusion of quotations and examples, allowed for a comprehensive and nuanced exploration of the qualitative data. The findings provided rich insights into the experiences, perspectives, and themes identified in the study.

### *Interview result*

In this study, the researcher delves into the perspectives, beliefs and experiences of 30 participants, including teachers, students and school administrators, to gain insights into the challenges and opportunities associated with adopting and implementing 21<sup>st</sup> century teaching practices within the Philippine specifically in Iligan city educational context. Through in-depth interviews and open-ended questionnaires, participants shared their diverse viewpoints, which were distilled into representative direct quotations that encapsulated the views of the 30 participants. These direct quotations provide a glimpse into the rich tapestry of perspectives and experiences shared by the participants:

Participant 3, a teacher, reflected on the transformative potential of technology, stating, 'Integrating technology in the classroom has revolutionized the learning experience. It facilitates collaboration and makes the content more engaging and interactive'. Participant 18, an administrator, emphasized the need for equal access to technology,

mentioning that, 'We need to address the digital divide to ensure that all students have equal access to technology. This will promote equity and bridge the gap in educational opportunities'. Participant 22, a student, underscored the significance of developing critical thinking and problem solving skills, expressing, 'I believe that developing critical thinking and problem solving skills is essential for our future. We should have more projects and hands-on activities that challenge us to think outside the box'. Participant 26, another teacher, recognized the value of striking a balance between traditional and innovative teaching methods, noting, 'While incorporating 21<sup>st</sup> century skills is important, we also need to strike a balance with foundational knowledge. It's about finding the right blend of traditional and innovative teaching methods'. Participant 29, a student, emphasized the role of teachers in nurturing 21<sup>st</sup> century skills, stating, 'The role of teachers is crucial in fostering 21<sup>st</sup> century skills. They need to guide us, provide feedback and create a supportive environment that encourages exploration and creativity'. This result is akin to the findings of Francisco.

These direct quotations, representing the perspectives of participant 3, 18, 22, 26 and 29, were among the most salient statements made by the 30 participants. They provide meaningful insights into the challenges and opportunities related to 21<sup>st</sup> century teaching and learning in the Philippine educational context. These voices illustrate the benefits of technology integration, the importance of equitable access to resources, the value of critical thinking and problem solving skills, the balance between traditional and innovative methods and the role of teachers in fostering 21<sup>st</sup> century skills. Collectively, these real-life narratives shed light on the multifaceted nature of 21<sup>st</sup> century teaching and learning, underscoring the need for systemic changes, targeted professional development and collaborative efforts to enhance the integration of 21<sup>st</sup> century skills in the Philippine education system.

Overall, analyzing the data collected from the participants' perspectives, beliefs, and experiences revealed notable patterns, themes, and meanings. A prominent pattern emerged regarding the transformative potential of technology in education, as participants highlighted how integrating technology revolutionized the learning experience, fostering collaboration and making content more engaging and interactive. Another pattern centered around the recognition of the digital divide and the need for equitable access to technology, emphasizing the importance of addressing this divide to bridge the gap in educational opportunities.

The theme of 21<sup>st</sup> century skills was significant, with participants stressing the cultivation of critical thinking, problem solving, creativity and collaboration as essential for future success. Striking a balance between traditional and innovative teaching methods emerged as another theme, acknowledging the enduring value of foundational knowledge while embracing new instructional approaches. Additionally, the theme of teacher guidance and support underscored the crucial role of educators in fostering 21<sup>st</sup> century skills through guidance, feedback, and creating a supportive environment. These patterns, themes and meanings highlight the potential for educational transformation by integrating technology and developing essential skills while emphasizing equity, inclusivity and a holistic approach to education. They provide valuable insights for educational stakeholders seeking to enhance teaching and learning

in the Philippine educational context.

### *Classroom observation and document analysis*

In addition to the participant perspectives, classroom observations and document analysis were conducted to further explore the challenges and opportunities related to the adoption and implementation of 21<sup>st</sup> century teaching practices in the Philippine educational context. Through classroom observations, the researcher gained valuable insights into the actual integration of 21<sup>st</sup> century skills within the classroom environment. These observations revealed patterns of instructional strategies, student engagement levels and the utilization of technology in teaching and learning. The document analysis, which involved reviewing curriculum frameworks, instructional materials and assessment practices, provided a deeper understanding of the extent to which 21<sup>st</sup> century skills were formally addressed within the educational system. By combining the findings from participant perspectives, classroom observations, and document analysis, a comprehensive picture emerged, highlighting the alignment (or lack thereof) between policy intentions and classroom realities. This holistic approach allowed for a more nuanced understanding of the challenges faced by teachers, students, and school administrators in integrating 21<sup>st</sup> century teaching practices, as well as the potential strategies and opportunities to enhance the integration of 21<sup>st</sup> century skills in the local context.

### *Findings*

The main findings of this study shed light on the identified gaps in 21<sup>st</sup> century teaching and learning and provide valuable insights for further understanding and improvement. Firstly, the data revealed that a significant gap exists in the integration of 21<sup>st</sup> century skills and digital technologies in the educational curriculum, particularly in the context of the Philippines. Participants highlighted the limited emphasis on skills such as critical thinking, creativity, communication, and collaboration in the current curriculum. This finding aligns with previous literature that emphasizes the need for a more comprehensive integration of 21<sup>st</sup> century skills to prepare students for the demands of the modern world.

Furthermore, the study identified a gap in teacher preparedness and professional development for integrating 21<sup>st</sup> century skills in their instructional practices. Teachers expressed the need for more training and support in pedagogical strategies that foster creativity, critical thinking, and technology integration. These findings resonate with the literature on teacher adoption and integration of technology and highlight the importance of providing ongoing professional development opportunities to enhance teachers' competencies in 21<sup>st</sup> century instruction.

Additionally, the findings underscored the importance of a supportive school culture and environment that promotes experimentation, collaboration and risk taking. Participants reported that the current educational system tends to prioritize rote memorization and standardized assessments, hindering students' opportunities for authentic learning experiences. This finding aligns with the literature on student engagement and motivation and highlights the need for a shift towards student-centered approaches that foster active engagement and critical thinking.

The discussion of the findings in relation to existing literature reveals both consistencies and gaps. While previous studies have emphasized the importance of 21<sup>st</sup> century skills integration, teacher professional development, and student engagement, this study provides context specific insights that contribute to the existing body of knowledge. The findings align with the broader literature on 21<sup>st</sup> century teaching and learning, reinforcing the significance of addressing these gaps in educational practice.

The implications of these findings are substantial. Firstly, they call for a curriculum revision that prioritizes the integration of 21<sup>st</sup> century skills and digital technologies across all educational levels. This requires a systematic approach that involves curriculum developers, policymakers, and educational stakeholders. Secondly, the findings highlight the urgent need for targeted teacher professional development programs that equip educators with the pedagogical knowledge and skills necessary for effective integration of 21<sup>st</sup> century skills. Providing ongoing support and resources for teachers can significantly enhance their instructional practices and positively impact student learning outcomes [42-45].

Moreover, the findings emphasize the importance of creating a conducive school culture that fosters student engagement, collaboration and creativity. This requires changes in assessment practices, instructional strategies, and school policies to promote a learner-centered approach (ISTE Standards for Educators) [46]. Finally, the study findings have broader implications for educational policymakers and institutions, highlighting the need for systemic changes in education to align with the demands of the 21<sup>st</sup> century.

Taking all these points together, it is safe to assume that, addressing the significant gaps in student engagement, digital literacy, and pedagogical innovation requires a multifaceted approach [47]. To enhance student engagement, student centered and interactive teaching methods should be incorporated, such as project-based learning, collaborative activities and hands-on experiences that stimulate critical thinking. Targeted professional development programs for teachers can address digital literacy gaps by enhancing their digital skills and competencies, including the effective use of educational technology tools and resources, while ensuring equitable access to technology for all students. Promoting pedagogical innovation can be achieved through ongoing teacher professional development that promotes innovative teaching approaches, provides training on integrating 21<sup>st</sup> century skills into the curriculum and encourages collaboration and peer learning [48].

Reviewing and revising curriculum frameworks and educational policies to explicitly address 21<sup>st</sup> century skills will provide guidance and support for their integration, including clear learning outcomes and assessment guidelines [49]. Collaboration among stakeholders, including industry professionals, organizations, parents and the wider community, is crucial in fostering real-world learning experiences, mentorship opportunities, and community support for digital literacy initiatives and innovative pedagogical practices. By implementing these strategies, the significant gaps in student engagement, digital literacy and pedagogical innovation can be effectively addressed, leading to an enhanced integration of 21<sup>st</sup> century teaching practices and the

development of students' skills and competencies for success in the digital age [50].

Overall, the findings contribute to the understanding of the identified gaps in 21<sup>st</sup> century teaching and learning. They provide valuable insights that can inform curriculum development, teacher professional development initiatives and school policies [51]. By addressing these gaps and implementing the recommended changes, educational stakeholders can create a more inclusive and responsive educational system that prepares students for the challenges and opportunities of the 21<sup>st</sup> century [52].

## **Conclusion**

The present study examined various aspects of 21<sup>st</sup> century teaching and learning in the context of education. Through a qualitative research design and data analysis process, we explored the experiences and perspectives of teachers, students, and administrators, aiming to address the identified gaps in the literature.

The key findings of this study shed light on several important aspects. Firstly, it was evident that there is a need for enhanced support in developing 21<sup>st</sup> century skills among students, such as critical thinking, problem-solving and digital literacy. Teachers, students, and administrators all acknowledged the significance of these skills in preparing students for the demands of the modern world. Moreover, fostering a supportive school culture and environment that encourages experimentation, collaboration, and risk taking emerged as crucial factors in promoting 21<sup>st</sup> century learning. By creating an atmosphere that values innovation and provides opportunities for active student engagement, educational institutions can better prepare students for the challenges and opportunities of the future.

In relation to existing literature, our findings align with previous research that emphasizes the importance of student engagement, mindset development, digital integration, support for international students, workload management, and systemic approaches to promoting success in 21<sup>st</sup> century education. The insights gained from this study contribute to the existing body of knowledge by providing specific perspectives and experiences from our research context. By building upon these findings, future studies can further explore and validate the identified gaps, using different research methodologies or investigating the topic in diverse educational contexts.

It is important to acknowledge the limitations of this study. Firstly, the qualitative nature of the research design limits the generalizability of the findings to a broader population. The sample size, although representative, was limited to 30 participants from a specific educational institution, which may affect the transferability of the results to other settings. Additionally, as with any qualitative research, there is a potential for researcher bias, although efforts were made to mitigate this through rigorous data analysis and member checking.

In conclusion, this study provides valuable insights into 21<sup>st</sup> century teaching and learning, highlighting the importance of developing essential skills, fostering a supportive school culture, and leveraging digital technologies. The findings underscore

the need for ongoing research and initiatives aimed at addressing the identified gaps and improving educational practices in the 21<sup>st</sup> century. By considering the recommendations for future research, expanding the study to other related areas and exploring diverse methodologies and contexts, we can continue to advance our understanding and implementation of effective strategies for 21<sup>st</sup> century education. Ultimately, by equipping students with the necessary skills and creating conducive learning environments, we can prepare them to thrive in an ever evolving world.

## **Recommendations**

To further advance our understanding of 21<sup>st</sup> century teaching and learning, there are several recommendations for future research. Firstly, conducting longitudinal studies would be valuable to examine the long-term effects of 21<sup>st</sup> century teaching and learning approaches on student outcomes. This would provide insights into the sustainability and effectiveness of these approaches over time. Additionally, further investigations are needed to identify specific strategies and interventions that effectively promote student engagement, motivation and self-regulation in 21<sup>st</sup> century classrooms. Understanding these factors would contribute to the development of evidence based practices that support students' learning and skill development.

In terms of methodology, future studies could adopt mixed-methods approaches to gain a comprehensive understanding of the complex dynamics and interactions between various factors influencing the effectiveness of 21<sup>st</sup> century education. By combining qualitative and quantitative methods, researchers can provide a more nuanced understanding of the phenomena under investigation. Furthermore, conducting comparative studies across different educational contexts, such as rural, urban, and international settings, would shed light on context specific challenges and opportunities in implementing 21<sup>st</sup> century teaching and learning practices. This approach would enable the identification of strategies that are effective across diverse educational settings.

Opportunities for expanding research to other related areas also exist. For example, investigating the role of parental involvement and support in fostering 21<sup>st</sup> century skills development in students would provide insights into the importance of collaboration between home and school environments. Additionally, exploring the impact of interdisciplinary and project-based learning approaches on students' acquisition of 21<sup>st</sup> century skills would advance our understanding of innovative pedagogical practices. Furthermore, studying the relationship between 21<sup>st</sup>-century teaching and learning approaches and students' social-emotional development and well-being would contribute to a holistic understanding of educational outcomes. Examining the influence of cultural and linguistic diversity on the integration and effectiveness of 21<sup>st</sup> century education practices is also essential for promoting inclusive education. Finally, investigating the role of assessment and feedback in promoting and evaluating students' mastery of 21<sup>st</sup> century skills would provide valuable insights into effective evaluation practices.

By addressing these recommendations, future research can further deepen our

understanding of 21<sup>st</sup> century teaching and learning. Bridging existing gaps in the literature and exploring new avenues for investigation will contribute to the advancement of educational practices and the promotion of student success in the modern era.

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