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21st century skills: Teachers' integration in face-to-face instruction

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Abstract

This study sought to determine the extent of the teachers' integration of the 21st century skills in face-to-face instruction and the constraints encountered by the two hundred twelve (212) Grades 1 to 6 teacher-respondents in San Jose District, Division of Camarines Sur for SY 2022-2023. This study utilized the descriptive-correlational method of research. The descriptive method was used to describe the extent of the teachers' integration of the 21st century skills in face-to-face instruction along critical thinking, collaboration, communication, creativity, and use of technology and the constraints encountered by the teacher-respondents on the integration of the 21st century skills in face-to-face instruction. Correlational method was used to determine the significant agreement on the rank orders of the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents and the significant agreement on the rank orders of the constraints encountered among the different groups of respondents were determined. This study found that there is no significant agreement on the rank orders of the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents having the Coefficient of Concordance W and Chi Square (X^2) obtained for each indicator: Critical Thinking, 0.354 and 7.434 (p>0.05); Collaboration, 0.406 and 9.744 (p>0.05); Communication, 0.127 and 2.667 (p>0.05); Creativity, 0.611 and 14.664 (p>0.05); and Use of Technology, 0.159 and 3.339 (p>0.05). Also, on the test of significant agreement on the rank orders of the constraints encountered the Coefficient of Concordance W and Chi Square (X^2) obtained was: constraints encountered, 0.568 and 18.744 (p>0.05). Thus, the alternative hypothesis was rejected. With this, the formulated policy recommendations need to be adopted to successfully cope with the innovations, changes, and advancements of the educational system in the Philippines.

Keywords: 21st Century Skills; Face-to-Face Instruction; Policy Recommendations; Teachers' Integration

1. Introduction

The teaching and learning process in the field of education has changed radically over the past century. It can best be described as having evolved from the Agricultural Age to the Industrial Age and to the Information Age. Furthermore, due to the unprecedented disruptions caused by the greatest health crisis in over a century, educators and parents have been forced to rethink classic educational strategies. As face-to-face instruction resumes, teachers face the challenge of integrating 21st century skills into their teaching methodologies. These skills encompass a range of abilities, including critical thinking, collaboration, communication, creativity, and use of technology.

Truly, there is now a great demand for a massive 21st century shift in education yet there is a gap where educators are hanging on to the traditional viewpoint of schools, and others who are looking at the 21st century education and preparing learners for the digital world which takes huge part in face-to-face instruction in San Jose District. While children tend to be more flexible learners than adults, the teachers' integration of the 21st century skills in the face-to-face instruction should be taken into much consideration to a combination of factors including technical difficulties.

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The integration of the 21st century skills such as critical thinking, collaboration, creativity, communication, and use of technology in education is imperative as educators attempt to prepare 21st century learners for future jobs in a globally competitive and interactive digital workplace.

In response to this challenge, the Department of Education (DepEd) implemented in gradual stages the Republic Act 10533, also known as the "Enhanced Basic Education Act of 2013" which highlights the importance of developing 21st century skills among Filipino learners. The law mandates the integration of these skills into the curriculum and provides support for teachers to effectively teach them.

In addition, Republic Act 11469, also known as the "Bayanihan to Heal as One Act," is an emergency law that was enacted in response to the COVID-19 pandemic in the Philippines. It highlights the importance of adaptability, resilience, innovation, technology, and collaboration, which are all key components of a 21st century education.

Thus, Republic Act 11494, also known as the "Bayanihan to Recover as One Act," is important for education in the 21st century because it highlights the need to prioritize education and to support the development of skills and competencies that are essential for individuals to thrive in a rapidly changing world. It also recognizes the importance of addressing the digital divide and providing access to technology for learners and teachers. Additionally, the law emphasizes the need for reskilling and upskilling to enable individuals to adapt to changing job requirements and contribute to economic development. By providing support for these areas, the law aims to promote inclusive and sustainable development and prepare individuals for the demands of a rapidly changing world.

Hence, the school must aim of providing the best possible education for all learners. With this, Republic Act 9155 otherwise known as the "Governance of Basic Education Act of 2001" provides the framework of governance for basic education. It clearly states that the state will protect and promote the right of all citizens to quality basic education and to make education accessible to all by providing Filipino children a free and compulsory education in the elementary and secondary levels.

These government programs are the needs of every Filipino learner to have an educational system that empowers them for lifelong learning to meet the global challenges or enables them to be competent in all walks of life amidst the pandemic. This is one way of actualizing gracious life in the rapidly changing world. That is why, it is necessary that the country's educational system should respond effectively to the changing needs and conditions of the nation through a system of educational planning and evaluation to realize the government's goal.

In line with these, the San Jose District of the Division of Camarines Sur have the instinctive goal of providing the learner with the proper and apt curriculum, effective pedagogy, meaningful assessment, manageable resources and effective educators towards academic excellence. It is therefore very significant that teachers of San Jose District of the Division of Camarines Sur embrace and obediently inculcate in their minds the integration of the 21st century skills in face-to-face instruction as they meet the innovations and changes in the educational system of the Philippines that is really a big problem if they even do not have an idea on how to address it.

There were already several studies conducted by previous researchers which are related to this aim. Preliminary studies were conducted by Gonzales (2021) and Romanes and Veniegas (2018), which are closely similar to this study and aimed to determine the differences among generational groups of teachers in a public school district in their practice of the 21st century teaching-learning skills. On the other hand, the works of Zajda (2014), Hargreaves, Lieberman, Fullan & Hopkins (2014), Schleicher (2012), and Robinson & Aronica (2015) are mainly concentrated on the education of the present and the future generation. These previous researchers strongly recommend that there is a need to explore into the teachers' integration of the 21st century skills in face-to-face instruction in San Jose District, Division of Camarines Sur. Thus, this study specifically sought answers to the following questions:

- To what extent do the teachers integrate the 21st century skills in face-to-face instruction along:
  o Critical Thinking,
  o Collaboration,
  o Communication,
  o Creativity, and
  o Use of Technology?
- How significant is the agreement on the rank orders of the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents?
- What constraints were encountered by the teacher-respondents on the integration of the 21st century skills in face-to-face instruction?

- How significant is the agreement on the rank orders of the constraints encountered among the different groups of respondents?
- What policy recommendations can be generated based from the findings of the study?

This study hypothesized that the rank orders of the agreement of the teachers' integration of the 21st century skills in face-to-face instruction significantly agree among the different groups of respondents and the rank orders of the agreement on the constraints encountered significantly agree among the different groups of respondents.

The study on the integration of 21st century skills in face-to-face instruction in the San Jose district holds significant importance for educational stakeholders. It provides valuable insights that can inform educational policies, support targeted teacher professional development, enhance student outcomes, guide school improvement initiatives, and contribute to research and scholarship. By understanding how teachers in the San Jose district integrate 21st century skills, this study has the potential to improve the quality of education, equip students with essential skills for the future, and foster innovation and effectiveness in teaching practices.

This study was delimited to the Grades 1-6 and Kindergarten teachers were not considered in this study in San Jose District of the Division of Camarines Sur for the School Year 2022-2023.

Likewise, this study was delimited only to the five skills such as critical thinking, collaboration, communication, creativity, and use of technology.

2. Material and methods

2.1. Research Design

This study utilized the descriptive-correlational method of research. The descriptive method such as frequency count, rank order, weighted mean and percentages were used to describe the extent of the teachers' integration of the 21st century skills in face-to-face instruction along critical thinking, collaboration, communication, creativity, and use of technology and the constraints encountered by the teacher-respondents on the integration of the 21st century skills in face-to-face instruction. It is, likewise, correlational because the significant agreement on the rank orders of the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents and the significant agreement on the rank orders of the constraints encountered among the different groups of respondents were determined.

2.2. Sampling Technique

The sampling procedure used in this research was purposive sampling in the choice of schools in San Jose District of the Division of Camarines Sur.

Total enumeration was employed in the choice of Grades 1 to 6 teachers in the big school, medium schools, and small schools in San Jose District, Division of Camarines Sur.

2.3. Respondents of the Study

The respondents of this study were the Grade 1 to 6 teachers in San Jose District of the Division of Camarines Sur specifically in San Jose Central School, big school; Adiangao Elementary School, Calalahan Elementary School, Kinalansan Elementary School, Obias Pugay Elementary School, Sabang Elementary School, Salogon Elementary School, Tagas Elementary School, and Telegrafo Elementary School, medium schools; and Bagacay Elementary School, Bahay Elementary School, Calawit Elementary School, Camagong Elementary School, Catalotoan Elementary School, Clemente-Peña Elementary School, Danlog Elementary School, Dolo Elementary School, Mampirao Elementary School, Minoro Elementary School, Palale Elementary School, Tambangan Elementary School, and Tominawog Elementary School, small schools for School Year 2022-2023.

Table 1 The Respondents of the Study

Respondents		Grades 1&2		Grades 3&4		Grades 5&6		Total	
		No.	%	No.	%	No.	%	No.	%
Big School									
1.	San Jose Cen. Sch.	12	16	12	17	12	18	36	17
Medium Schools									
1.	Adiangao ES	4	5	3	4	2	3	9	4
2.	Calalahan ES	4	5	5	7	4	6	13	6
3.	Kinalansan ES	4	5	5	7	7	10	16	8
4.	Obias Pugay ES	4	5	4	6	3	4	11	5
5.	Sabang ES	6	8	5	7	4	6	15	7
6.	Salogon ES	6	8	6	8	6	9	18	8
7.	Tagas ES	4	5	3	4	2	3	9	4
8.	Telegrafo ES	4	5	4	6	4	6	12	6
Subtotal		36	35	35	34	32	31	103	48
Small Schools									
1.	Bagacay ES	2	3	2	3	2	3	6	3
2.	Bahay ES	2	3	2	3	1	1	5	2
3.	Calawit ES	2	3	2	3	2	3	6	3
4.	Camagong ES	2	3	2	3	2	3	6	3
5.	Catalotoan ES	1	1	2	3	1	1	4	2
6.	Clemente-Peña ES	2	3	2	3	2	3	6	3
7.	Danlog ES	2	3	2	3	2	3	6	3
8.	Dolo ES	2	3	2	3	2	3	6	3
8.	Mampirao ES	2	3	2	3	2	3	6	3
10.	Minoro ES	2	3	2	3	2	3	6	3
11.	Palale ES	2	3	1	1	1	1	6	2
12.	Tambangan ES	2	3	2	3	2	3	4	3
13.	Tominawog ES	2	3	2	3	2	3	6	3
Subtotal		25	34	25	34	23	31	74	35
GRAND TOTAL		73	100	72	100	67	100	212	100

2.4. Research Instrument

The main data gathering instrument of this study was a self-made questionnaire administered to the Grades 1 to 6 public elementary school teachers in the San Jose District of the Division of Camarines Sur during the School Year 2022-2023.

Table of Specifications. Table 2 shows the Table of Specifications. It was divided into two (2) parts: Part I. Extent of the Teachers' Integration of the 21st Century Skills in Face-to-Face Instruction and Part II. Constraints Encountered on the Integration of the 21st Century Skills in Face-to-Face Instruction.

Table 2 Table of Specifications

Content	No. of Items	Item Placement	Percentage (%)
Part I. Extent of the Teachers' Integration of the 21st Century Skills in Face-to-Face Instruction			
Critical Thinking	9	1-9	15
Collaboration	10	10-19	17
Communication	9	20-28	15
Creativity	10	29-38	17
Use of Technology	9	39-47	15
Subtotal	47		79
Part II. Constraints Encountered	13	48-60	21
GRAND TOTAL	60		100

To describe the mean scores for the extent of the teachers' integration of the 21st century skills in face-to-face instruction, the following range of means was used.

Table 3 Interpretation of the Extent of the Teachers' Integration of the 21st Century Skills

Range of Means	Interpretation
4.50 – 5.00	Very Much Evident (VME)
3.50 – 4.49	Much Evident (ME)
2.50 – 3.49	Evident (E)
1.50 – 2.49	Fairly Evident (FE)
1.00 – 1.49	Not at all (NAA)

To describe the mean scores for the constraints encountered, the following range of means was used.

Table 4 Interpretation of the Constraints Encountered

Range of Means	Interpretation
4.50 – 5.00	Very Much Evident (VME)
3.50 – 4.49	Much Serious (MS)
2.50 – 3.49	Serious (S)
1.50 – 2.49	Fairly Serious (FS)
1.00 – 1.49	Not Serious (NS)

2.5. Validity and Reliability of the Instrument

The framework in the questionnaire is the result of a careful review of the literature. Before the questionnaires were subjected to final run, it was subjected to language and content validation by five experts in educational research to ensure quality assurance of the conciseness and alignment of the indicators. Each gave comments and suggestions. The suggestions were reflected in the instrument for improvement. Suggestions and recommendations were included in the final questionnaire for the teacher-respondents to generously convey what they want for the formulation of the policy recommendations.

After finalizing the questionnaire, the dry run was done to test the effectiveness of the questionnaire, wherein ten (10) sets of questionnaires was produced and distributed to schools who were not part of the actual respondents. It was reported with excellent reliability (std. alpha > .90, inter-item correlations > .58); support for content validity based on the review of existing frameworks and measures.

The reliability of the questionnaire used was determined by means of Kuder Richardson Formula. Utilizing such formula with a mean of 4.18 and 5 as the highest scale and a standard deviation of 1.96, the reliability arrived at 0.921.

To test the significance of reliability, the t-test for correlation analysis was determined with the use of the formula (Siegel, 1988). The t-test yielded to 7.23 which highly exceeded the tabular t value with infinitum degree of freedom not only at 0.05 which is 1.645 but even at 0.09 levels which is 3.416. This enabled the researcher to state confidently that the instrument used in this study was highly reliable.

2.6. Statistical Treatment of the Data

To analyze, quantify and interpret the data, the following statistical tools were used:

Weighted Mean, frequency count, percentage and rank were used to find out the extent of the teachers' integration of the 21st century skills in face-to-face instruction along critical thinking, collaboration, communication, creativity, and use of technology and the constraints encountered by the teacher-respondents on the integration of the 21st century skills in face-to-face instruction.

Kendall Coefficient of Concordance (W) was employed in determining the significant agreement on the rank orders of the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents and the significant agreement on the rank orders of the constraints encountered among the different groups of respondents.

The appropriate X^2 test which is with the use of the Chi-square test was utilized to determine its significance of agreement. The significance level was set at 0.05.

3. Results and discussion

This chapter deals with the presentation, analysis, and interpretation of the data gathered in this study. This enables the researcher to interpret the data in order to answer the specific questions which this inquiry sought to answer.

3.1. The Extent of Teachers' Integration of the 21st Century

3.1.1. Skills in Face-to-Face Instruction

The integration of 21st century skills by teachers in face-to-face instruction can vary depending on several factors, such as their training, experience, and access to resources. However, it is generally recognized that the use of 21st century skills can enhance the learning experience and outcomes for learners.

The extent of the teachers' integration of the 21st century skills in face-to-face instruction along critical thinking, collaboration, communication, creativity, and use of technology are shown in Table 3 to Table 7.

Critical Thinking

The items/indicators rated "Much Evident" in descending order with an average weighted mean of 4.08 or "Much Evident" were: Compare information from different sources before completing a task or assignment, 4.21; Draw their own conclusions based on analysis of numbers, facts, or relevant information, 4.16; Summarize or create their own interpretation of what they have read or been taught, 4.14; Most learners have learned critical thinking skills while in my class, 4.07; Analyze competing arguments, perspectives or solutions to a problem, 4.05; Develop a persuasive argument based on supporting evidence or reasoning, 4.01; Ask deductive and higher order thinking skills questions, 4.01; and Try to solve complex problems or answer questions that have no single correct solution or answer, 3.97.

Summing up all, findings revealed that the teachers' integration of the 21st century skills in face-to-face instruction along critical thinking in Grades 1 and 2, 3 and 4, and 5 and 6 in San Jose District are much evident. It's worth noting that some indicators, such as "develop a persuasive argument based on supporting evidence or reasoning" and "try to solve complex problems or answer questions that have no single correct solution or answer," had lower scores across all

grade levels, indicating that these may be areas where there is room for improvement in promoting critical thinking skills in the classroom. The average scores across all grade levels are quite consistent. Thus according to Roekel, (n.d.) today's citizens must be active critical thinkers if they are to compare evidence, evaluate competing claims, and make sensible decisions. Today's 21st century families must sift through a vast array of information regarding financial, health, civic, even leisure activities to formulate plausible plans of action. The solutions to international problems, such as global warming, require highly developed critical thinking and problem-solving abilities. In everyday work, employees must employ critical thinking to better serve customers, develop better products, and continuously improve themselves within an ever-changing global economy.

Table 5 The Extent of Teachers' Integration of the 21st Century Skills in Face-to-Face Instruction along Critical Thinking

Indicators	Grades 1&2			Grades 3&4			Grades 5&6			AVERAGE		
	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank
1. Compare information from different sources before completing a task or assignment	4.18	ME	1.5	4.45	ME	2	4.00	ME	3	4.21	ME	1
2. Draw their own conclusions based on analysis of numbers, facts, or relevant information	4.14	ME	3	4.47	ME	1	3.86	ME	6	4.16	ME	2
3. Summarize or create their own interpretation of what they have read or been taught	4.18	ME	1.5	4.30	ME	4	3.93	ME	4	4.14	ME	3
4. Analyze competing arguments, perspectives or solutions to a problem	4.04	ME	5.5	4.33	ME	3	3.78	ME	7	4.05	ME	5
5. Develop a persuasive argument based on supporting evidence or reasoning	3.98	ME	8	4.18	ME	5	3.88	ME	5	4.01	ME	6.5
6. Try to solve complex problems or answer questions that have no single correct solution or answer	4.07	ME	4	4.12	ME	6	3.71	ME	8	3.97	ME	8
7. Ask deductive and higher order thinking skills questions	4.02	ME	7	3.97	ME	8	4.05	ME	2	4.01	ME	6.5
8. Most learners have learned critical thinking skills while in my class	4.04	ME	5.5	4.02	ME	7	4.15	ME	1	4.07	ME	4
AVERAGE	4.08	ME		4.23	ME		3.92	ME		4.08	ME	

Collaboration

The items/indicators rated "Much Evident" in descending order with an average weighted mean of 3.95 or "Much Evident" were: Work in pairs or small groups to complete a task together, 4.09; Work with other students to set goals and create a plan for their team even, 4.01; Give feedback to peers or assess other students' work, 3.97; Work as a team in brainstorming new ideas, 3.97; Most students have learned collaboration skills while in my class, 3.96; Create joint products using contributions from each student, 3.95; Present their group work to the class, teacher or others by sending videos or messages as a team, 3.93; Work as a team to incorporate feedback on group tasks or products, 3.88; and The examples and learning activities provided have been patterned towards teamwork/ collaboration, 3.81.

Summing up all, findings revealed that the extent of the teachers' integration of the 21st century skills in face-to-face instruction along collaboration in Grades 1 and 2, 3 and 4, and 5 and 6 in San Jose District are much evident. Overall, the data suggests that students in all grade levels are demonstrating satisfactory levels of teamwork and collaboration.

In terms of individual indicators, Grades 3&4 and 5&6 consistently score higher than Grades 1&2. This could suggest that older students are better equipped to work collaboratively, or that collaboration skills improve with age and experience. Overall, the data suggests that while students in all grade levels are demonstrating satisfactory levels of teamwork and collaboration, there may be room for improvement in certain areas, particularly in Grades 1 and 2. Thus according to Zajda, (2014) the education of the present and the future needs to set new goals, focusing on the development of an identity of a responsible and effective national and global citizenship in students, with all the knowledge, skills and attitudes that this requires. Interdependence is a notion that is increasingly discussed, as its importance and impact on contemporary human lives is currently being discovered.

Table 6 The Extent of Teachers' Integration of the 21st Century Skills in Face-to-Face Instruction along Collaboration

Indicators	Grades 1&2			Grades 3&4			Grades 5&6			AVERAGE		
	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank
1. Work in pairs or small groups to complete a task together	4.07	ME	1	4.20	ME	5	4.00	ME	1.5	4.09	ME	1
2. Work with other students to set goals and create a plan for their team even	3.82	ME	7.5	4.20	ME	5	4.00	ME	1.5	4.01	ME	2
3. Create joint products using contributions from each student	3.86	ME	4.5	4.27	ME	1.5	3.71	ME	6.5	3.95	ME	6
4. Present their group work to the class, teacher or others by sending videos or messages as a team	3.82	ME	7.5	4.27	ME	1.5	3.71	ME	6.5	3.93	ME	7
5. Work as a team to incorporate feedback on group tasks or products	3.86	ME	4.5	4.20	ME	5	3.57	ME	8	3.88	ME	8
6. Give feedback to peers or assess other students' work	3.86	ME	4.5	4.20	ME	5	3.86	ME	4	3.97	ME	3.5
7. Work as a team in brainstorming new ideas	3.86	ME	4.5	4.20	ME	5	3.86	ME	4	3.97	ME	3.5
8. Most students have learned collaboration skills while in my class	3.89	ME	2	4.13	ME	8	3.86	ME	4	3.96	ME	5
9. The examples and learning activities provided have been patterned towards teamwork/ collaboration.	3.80	ME	9	4.10	ME	9	3.53	ME	9	3.81	ME	9
AVERAGE	3.87	ME		4.20	ME		3.79	ME		3.95	ME	

Communication

The items/indicators rated "Much Evident" in descending order with an average weighted mean of 4.06 or "Much Evident" were: Prepare and deliver an oral presentation to the teacher or others, 4.13; Answer questions in front of an audience, 4.13; Convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.), 4.12; Structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs), 4.08; Most students have learned communication skills while in my class, 4.05; Decide how they will present their work or demonstrate their learning, 4.05; Allow learners to write essays, reflection papers and the like, 4.02; and Allow learners to convey their ideas orally and creatively, 3.94.

Summing up all, findings revealed that the extent of the teachers' integration of the 21st century skills in face-to-face instruction along communication in Grades 1 and 2, 3 and 4, and 5 and 6 in San Jose District are much evident. Overall, the average scores for all three grades levels are close to each other, indicating that communication skills are generally well-developed among learners in these grades. Thus, Hargreaves, Lieberman, Fullan & Hopkins, (2014) said that contemporary education has a new challenge to face, it must aim at the development of a generation of people who will be able to comprehend the aspects of interdependence and evolve within it, a generation of "systems citizens". Within these conditions, the 21st century gave birth to a new approach to the skills that are rendered essential for students to be able to experience academic and life success.

Table 7 The Extent of Teachers' Integration of the 21st Century Skills in Face-to-Face Instruction along Communication

Indicators	Grades 1&2			Grades 3&4			Grades 5&6			AVERAGE		
	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank
1. Structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs)	3.86	ME	8	4.25	ME	1	4.14	ME	3	4.08	ME	4
2. Convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.)	4.00	ME	6	4.20	ME	3	4.16	ME	2	4.12	ME	3
3. Prepare and deliver an oral presentation to the teacher or others	3.96	ME	7	4.22	ME	2	4.21	ME	1	4.13	ME	1
4. Answer questions in front of an audience	4.14	ME	4	4.12	ME	4	4.12	ME	4	4.13	ME	2
5. Decide how they will present their work or demonstrate their learning	4.04	ME	5	4.02	ME	6	4.08	ME	5	4.05	ME	6
6. Allow learners to write essays, reflection papers and the like.	4.21	ME	2	3.98	ME	7	3.86	ME	7	4.02	ME	7
7. Allow learners to convey their ideas orally and creatively.	4.25	ME	1	3.76	ME	8	3.80	ME	8	3.94	ME	8
8. Most students have learned communication skills while in my class	4.18	ME	3	4.08	ME	5	3.90	ME	6	4.05	ME	5
AVERAGE	4.08	ME		4.08	ME		4.03	ME		4.06	ME	

Creativity

The items/indicators rated "Much Evident" in descending order with an average weighted mean of 4.00 or "Much Evident" were: Allow the learners to create and make innovations based from specific competency even in distance learning, 4.15; Let the learners make outcomes and give specific rubrics for learning facilitators and teachers to rate, 4.10; Most learners have learned creativity and innovation skills while in my class, 4.07; Create an original product or performance to express their ideas, 4.06; Invent a solution to a complex, open-ended question or problem, 4.05; Test out different ideas and work to improve them, 3.97; Use idea creation techniques such as brainstorming or concept mapping, 3.93; Generate their own ideas about how to confront a problem or question, 3.89; and Learners are actively reacting/writing or utilizing other forms of self-expressions, 3.81.

Table 8 The Extent of Teachers' Integration of the 21st Century Skills in Face-to-Face Instruction along Creativity

Indicators	Grades 1&2			Grades 3&4			Grades 5&6			AVERAGE		
	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank
1. Use idea creation techniques such as brainstorming or concept mapping	4.00	ME	6.5	4.07	ME	7	3.71	ME	6.5	3.93	ME	7
2. Generate their own ideas about how to confront a problem or question	3.96	ME	8	4.13	ME	4.5	3.57	ME	8	3.89	ME	8
3. Test out different ideas and work to improve them	4.00	ME	6.5	4.07	ME	7	3.86	ME	3	3.97	ME	6
4. Invent a solution to a complex, open-ended question or problem	4.21	ME	1	4.07	ME	7	3.86	ME	3	4.05	ME	5
5. Create an original product or performance to express their ideas	4.18	ME	2.5	4.13	ME	4.5	3.86	ME	3	4.06	ME	4
6. Allow the learners to create and make innovations based from specific competency even in distance learning	4.18	ME	2.5	4.40	ME	2	3.86	ME	3	4.15	ME	1
7. Let the learners make outcomes and give specific rubrics for learning facilitators and teachers to rate	4.04	ME	5	4.40	ME	2	3.86	ME	3	4.10	ME	2
8. Most learners have learned creativity and innovation skills while in my class	4.11	ME	4	4.40	ME	2	3.71	ME	6.5	4.07	ME	3
9. Learners are actively reacting/writing or utilizing other forms of self-expressions	3.85	ME	9	4.05	ME	9	3.53	ME	9	3.81	ME	9
AVERAGE	4.06	ME		4.19	ME		3.76	ME		4.00	ME	

Summing up all, findings revealed that the extent of the teachers' integration of the 21st century skills in face-to-face instruction along creativity in Grades 1 and 2, 3 and 4, and 5 and 6 in San Jose District are much evident. Overall, the learners across all groups seem to have a good average level of creativity and innovation skills. They show strong abilities in certain areas and may need more guidance in others. Thus, according to the study conducted by N.H. Nie, and L. Erbring, (2014) the development in computer and internet technology in particular has over the years revolutionized all aspect of human activities. The integration of these technologies in socio-economic and political institutions is gradually making human interactions more and more dependent on these technological developments.

Use of Technology

The items/indicators rated "Much Evident" in descending order with an average weighted mean of 4.07 or "Much Evident" were: Select appropriate technology tools or resources for completing a task, 4.15; Use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.), 4.13; Use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.), 4.11; Evaluate the credibility and relevance of online resources, 4.09; Use technology or the Internet for self-instruction, 4.08; Use technology to keep track of their work on extended tasks or assignments, 4.07; Use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.), 4.03; and Use technology to interact directly with experts or members of local/global communities, 3.90.

Table 9 The Extent of Teachers' Integration of the 21st Century Skills in Face-to-Face Instruction along Use of Technology

Indicators	Grades 1&2			Grades 3&4			Grades 5&6			AVERAGE		
	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank
1. Use technology or the Internet for self-instruction	4.00	ME	7	4.05	ME	5	4.18	ME	1	4.08	ME	5
2. Select appropriate technology tools or resources for completing a task	4.10	ME	6	4.20	ME	2	4.16	ME	2	4.15	ME	1
3. Evaluate the credibility and relevance of online resources	3.98	ME	8	4.25	ME	1	4.05	ME	5	4.09	ME	4
4. Use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.)	4.14	ME	5	4.15	ME	3	4.10	ME	3	4.13	ME	2
5. Use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.)	4.24	ME	1	4.02	ME	6	4.08	ME	4	4.11	ME	3
6. Use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.)	4.21	ME	2	3.95	ME	7	3.92	ME	6	4.03	ME	7
7. Use technology to interact directly with experts or members of local/global communities	4.20	ME	3	3.75	ME	8	3.75	ME	8	3.90	ME	8
8. Use technology to keep track of their work on extended tasks or assignments	4.18	ME	4	4.12	ME	4	3.90	ME	7	4.07	ME	6
AVERAGE	4.13	ME		4.06	ME		4.02	ME		4.07	ME	

Summing up all, findings revealed that the extent of the teachers' integration of the 21st century skills in face-to-face instruction along use of technology in Grades 1 and 2, 3 and 4, and 5 and 6 in San Jose District are much evident. Based on the table, it appears that learners in Grades 5 and 6 have the highest average scores across all indicators. This suggests that these students have a higher level of proficiency in using technology for various purposes compared to students in Grades 1-4. Overall, these findings highlight the importance of providing students with opportunities to develop their technology skills across various contexts and to receive guidance in using technology effectively and responsibly. Thus, from the study conducted by L.D. Rosen, (2014) getting teachers to use technology and 21st century approach to teaching and learning as expected of the 21st century teachers in handling the educational process of the digital natives is critical in building 21st century learning environment. Having 21st century teachers is necessary in handling the 21st century learners who are characterized with: short attention spans, multitasking, and the desire for speed in communication and accessing information using digital technology; preference for problem-solving activities, social learning, and unrestricted freedom to the use of technology for learning.

3.2. The Summary of the Extent of the Integration of the 21st Century Skills in Face-to-Face Instruction

The summary of the extent of the teachers' integration of the 21st century skills in face-to-face instruction in San Jose District is revealed in **Table 10.**

It pointed out that the responses in Grades 1 and 2 ranged from 3.87 to 4.14; Grades 3 and 4, 4.06 to 4.23; and Grades 5 and 6, 3.76 to 4.03.

Along the different indicators on the extent of the teachers' integration of the 21st century skills in face-to-face instruction, the average weighted mean were: Grades 1 and 2, 4.04 or "Much Evident"; Grades 3 and 4, 4.15 or "Much Evident"; and Grades 5 and 6, 3.90 or "Much Evident".

Table 10 The Extent of Teachers' Integration of the 21st Century Skills in Face-to-Face Instruction

Indicators	Grades 1&2			Grades 3&4			Grades 5&6			AVERAGE		
	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank
1. Critical Thinking	4.08	ME	2.5	4.23	ME	1	3.92	ME	3	4.08	ME	1
2. Collaboration	3.87	ME	5	4.20	ME	2	3.79	ME	4	3.95	ME	5
3. Communication	4.08	ME	2.5	4.08	ME	4	4.03	ME	1	4.06	ME	3
4. Creativity	4.06	ME	4	4.19	ME	3	3.76	ME	5	4.00	ME	4
5. Use of Technology	4.13	ME	1	4.06	ME	5	4.02	ME	2	4.07	ME	2
AVERAGE	4.04	ME		4.15	ME		3.90	ME		4.03	ME	

The overall average of the weighted mean of the different types of school was 4.03 or "Much Evident". Critical Thinking remains a strength across all grade levels. This suggests that learners are able to analyze information and make informed decisions, which is an important skill for academic success and beyond. Communication is another strength across all grade levels. This indicates that learners are able to effectively express themselves and understand others, which is essential for building relationships and working collaboratively.

However, Collaboration and Creativity seem to be areas where students may need more support and encouragement. The Use of Technology is another strength across all grade levels. This suggests that learners are at ease using technology and may benefit from continued integration of technology into their learning experiences.

Overall, these grades can inform educators and teachers about areas where learners may need more support and guidance. By focusing on building skills in Collaboration and Creativity, educators can help students develop the social and creative skills necessary for success in the classroom and beyond. Thus, teachers' competencies have been broadening with respect to reform studies in education, development of teacher education, scientific results of educational science and other fields. **Kress, (2013)** pointed out that "the previous era had required an education for stability, the coming era requires an education for instability". Kress' ideas can explain why teachers' professional development should be redefined for sustainability.

3.3. The Test of Significant Agreement on the Rank Orders of the Teachers' Integration of the 21st Century in Face-to-Face Instruction

The Kendall Coefficient of Concordance W was availed to determine whether significant agreement exists on the rank orders of the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents in San Jose District of the Division of Camarines Sur.

Gauging from the data in Table 11, the summation of the squared deviation from the mean were: Critical Thinking, 134.00; Collaboration, 219.50; Communication, 48.00; Creativity, 330.00; and Use of Technology, 60.00 in terms of the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents. There were three number of groups namely Grades 1 and 2, 3 and 4, and 5 and 6. There were eight items for each indicator in Critical Thinking, Communication, and Use of Technology while nine items for each indicator in Collaboration and Creativity.

The Coefficient of Concordance W and Chi Square (X^2) obtained for each teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents were: Critical Thinking, 0.354 and 7.434 ($p>0.05$); Collaboration, 0.406 and 9.744 ($p>0.05$); Communication, 0.127 and 2.667 ($p>0.05$); Creativity, 0.611 and 14.664 ($p>0.05$); and Use of Technology, 0.159 and 3.339 ($p>0.05$).

Table 11 The Test of Significant Agreement on the Rank Orders of the Teachers' Integration of the 21st Century in Face-to-Face Instruction

INDICATORS	Critical Thinking	Collaboration	Communication	Creativity	Use of Technology
Summation of the squared deviation from the mean	134.00	219.50	48.00	330.00	60.00
No. of groups	3	3	3	3	3
No. of items	8	9	8	9	8
Coefficient of Concordance W	0.354	0.406	0.127	0.611	0.159
Computed X^2	7.434	9.744	2.667	14.664	3.339
Degree of Freedom	7	8	7	8	7
Tabular X^2 value					
0.05	14.07	15.51	14.07	15.51	14.07
0.025	16.62	18.17	16.62	18.17	16.62
0.01	18.48	20.09	18.48	20.09	18.48
0.005	20.28	21.95	20.28	21.95	20.28
0.001	24.32	26.12	24.32	26.12	24.32
Decision on the Alternative Hypothesis (H1)	Rejected	Rejected	Rejected	Rejected	Rejected
Significance of Agreement	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant

Scrutinizing the aforementioned data, it was very evident that the computed chi-square for critical thinking, collaboration, communication, creativity, and use of technology have not exceeded the tabular value even at 0.05 level of significance with the corresponding degrees of freedom which led the researcher to reject the alternative hypothesis that there is no significant agreement on the rank orders of the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents in San Jose District.

It was clearly manifested by the foregoing data that the respondents have different perspectives in terms of the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents which means that the teacher-respondents are not in agreement. The further implies that there is a need to establish a more standardized and objective approach to the assessment of learner performance in these indicators to minimize subjectivity and bias in the grading process.

Indeed, the abovementioned data made the researcher realized that the teachers' integration of the 21st century skills in face-to-face instruction among the different groups of respondents are much evident and should be taken into great account in order to ensure that teachers are well-equipped with the necessary skills and knowledge needed in the teaching and learning process. Thus, according to Birch & Ladd, (2013) a fundamental variable in the teaching learning framework is the teacher. A sound instructive framework can thrive if two conditions are effectively met. They are initially the consistent overhauling and refinement in learning and expertise of serving educators and the second one is the training of teachers to make them competent with the suiting abilities, competencies and uplifting mentality towards occupation. Competencies are particular and self-evident qualities or properties inexorable for instructing experts to make a persuading and learner favorable climate.

3.4. The Constraints Encountered on the Integration of the 21st Century Skills in Face-to-Face Instruction

All the twelve items/indicators rated "Much Serious" having an average weighted mean of 4.21. In descending order these were: Lack of adequate technological skills, 4.30; Little access to educational facilities prevents me from using it in teaching and preparing lessons, 4.29; Lack of pedagogical models on how to utilize the 21st century skills, 4.27; Higher

risk of exposure of teachers to COVID-19, 4.27; Ability of parents/guardians to take the role of learning facilitators, 4.27; Inapplicability of some classes using educational facilities, 4.25; Insufficient educational facilities relevant in the implementation of face-to-face classes, 4.27; School educational facilities are out of date and/or needing repair, 4.21; Teaching time are not enough to use the educational facilities, 4.21; Insufficient teacher training and technical support, 4.15; Unfunded mandates to carry out - energy use, maintenance, purchasing practices, 4.04; and Poor communication between teachers and stakeholders, 3.99.

Table 12 The Constraints Encountered on the Integration of the 21st Century Skills in Face-to-Face Instruction

Indicators	Grades 1&2			Grades 3&4			Grades 5&6			AVERAGE		
	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank	Wx	Int	Rank
1. Insufficient educational facilities relevant in the implementation of face-to-face classes	4.22	MS	9	4.25	MS	3.5	4.25	MS	6.5	4.24	MS	7
2. School educational facilities are out of date and/or needing repair	4.37	MS	2.5	4.18	MS	7	4.08	MS	9.5	4.21	MS	8.5
3. Lack of adequate technological skills	4.37	MS	2.5	4.27	MS	2	4.25	MS	6.5	4.30	MS	1
4. Lack of pedagogical models on how to utilize the 21st century skills	4.24	MS	7.5	4.20	MS	5.5	4.38	MS	2	4.27	MS	4
5. Insufficient teacher training and technical support	4.10	MS	10	4.14	MS	8	4.21	MS	8	4.15	MS	10
6. Teaching time are not enough to use the educational facilities	4.44	MS	1	4.11	MS	9	4.08	MS	9.5	4.21	MS	8.5
7. Inapplicability of some classes using educational facilities	4.27	MS	5.5	4.07	MS	10	4.42	MS	1	4.25	MS	6
8. Little access to educational facilities prevents me from using it in teaching and preparing lessons	4.27	MS	5.5	4.30	MS	1	4.29	MS	4.5	4.29	MS	2
9. Higher risk of exposure of teachers to COVID-19	4.24	MS	7.5	4.25	MS	3.5	4.33	MS	3	4.27	MS	4
10. Ability of parents/guardians to take the role of learning facilitators	4.31	MS	4	4.20	MS	5.5	4.29	MS	4.5	4.27	MS	4
11. Unfunded mandates to carry out - energy use, maintenance, purchasing practices	4.05	MS	11	4.03	MS	11	4.04	MS	11	4.04	MS	11
12. Poor communication between teachers and stakeholders	4.00	MS	12	3.98	MS	12	4.00	MS	12	3.99	MS	12
AVERAGE	4.24	MS		4.17	MS		4.22	MS		4.21	MS	

Summing up all, findings revealed that the constraints encountered by the teacher-respondents on the integration of the 21st century skills in face-to-face instruction is much serious. Overall, the average scores across all grades suggest that there is a need for improvement in several areas, including the availability of educational facilities, teacher training

and support, and the development of appropriate pedagogical models to effectively incorporate 21st century skills in the curriculum. Addressing these issues can help improve the quality of education and support student learning. According to **Curzon, (2013)** education which is based largely on teaching and learning process is the place where a teacher is teaching and a learner is learning in the formal system of education. A teachers' role is central based with regard to teaching and learning. On the other hand, Teachers and curriculum are two sources that provide education well. Therefore, teachers play an important role in educating people. The highest quality of education requires the teachers having the highest quality and skills in teaching. Teachers prepare good citizens for future in every country to develop knowledge, skills and other characteristics which are very basic, both at the professional and personal level. Therefore, the quality of education is very indispensable for this purpose. But teachers need techniques and skills in different ways for effective teaching and learning process and the desired outcomes.

3.5. The Test of Significant Agreement on the Rank Orders of the Constraints Encountered

The Kendall Coefficient of Concordance W was availed to determine whether significant agreement exists on the rank orders of the constraints encountered among the different groups of respondents in San Jose District of the Division of Camarines Sur.

Gauging from the data in Table 13, the summation of the squared deviation from the mean of the constraints encountered was 731.50. There were three number of groups namely Grades 1 and 2, 3 and 4, and 5 and 6. There were twelve items for the constraints encountered among the different groups of respondents in San Jose District of the Division of Camarines Sur.

Table 13 The Test of Significant Agreement on the Rank Orders of the Constraints Encountered

INDICATORS	Constraints Encountered
Summation of the squared deviation from the mean	731.50
No. of groups	3
No. of items	12
Coefficient of Concordance W	0.568
Computed X^2	18.744
Degree of Freedom	11
Tabular X^2 value	
0.05	19.68
0.025	22.62
0.01	24.72
0.005	26.76
0.001	31.26
Decision on the Alternative Hypothesis (H1)	Rejected
Significance of Agreement	Not Significant

The Coefficient of Concordance W and Chi Square (X^2) obtained for the constraints encountered was 0.568 and 18.744 ($p>0.05$).

Analyzing the aforementioned data, it was very evident that the computed chi-square for constraints encountered among the three groups of respondents have not exceeded the tabular value even at 0.05 level of significance with the corresponding degrees of freedom which led the researcher to reject the alternative hypothesis, indicating that there is no significant agreement existed on the rank orders of the constraints encountered among the different groups of respondents.

Indeed, the abovementioned data made the researcher realized that the respondents did not reach a consensus on the indicators of the constraints encountered. This result may be due to various factors, such as differences in perspectives, experiences, and backgrounds among the participants. Therefore, it is recommended to further investigate and discuss the discrepancies among the participants to identify the underlying causes of the differences and work towards achieving a more significant level of agreement.

Thus, teachers need an array of powerful tools that may help in transforming the present isolated teacher-centered and text-bound classrooms into rich, student-focused, interactive knowledge environments in order to meet the challenges and embrace the new technologies and appropriate tools for professional development. There has been a call to integrate preparedness content into the curriculum. According to Kagawa & Selby, (2014) and Valencia et al., **(2018)** basic education schools have realistically incorporated preparedness frameworks in their curriculum in recent years. In many countries like the Philippines, preparedness as a goal of education for young learners has been given attention.

3.6. Policy Recommendations

The following were the formulated based from the findings of the study:

- Schools Heads must strengthen efforts to improve communication between teachers, parents, and other stakeholders. This can be done through the use of technology, regular meetings, and other means of communication to ensure that expectations and feedback are communicated clearly.
- Department of Education should provide more resources to schools to ensure that they have complete and adequate facilities, equipment, and materials to support the teaching and learning process towards the integration of the 21st century skills in face-to-face instruction.
- Department of Education must provide educational technology training courses incorporating the needs of the teacher, both basic as well as pedagogical skills, which give the teachers the enhanced skills in pedagogical and technical use of the ICT-based learning, will help the teachers to integrate technology in their instructions specifically in teaching different learning areas.
- Department of Education, Seminar Providers, School Heads, Teachers, and other stakeholders should enhance their skills and know more on the teachers' integration of the 21st century skills in face-to-face instruction by providing, teaching, and guiding them.
- Department of Education and School Heads should develop and implement strategies to reduce the workload of teachers, such as providing support staff, reducing administrative tasks, and implementing technology to automate routine tasks.
- Teachers and Schools Heads must provide training and support for parents and guardians to help them take an active role in supporting their children's learning.
- Education Program Supervisors and School Heads should firmly implement the intensive monitoring and evaluation of teachers' job performance relevant to the integration of the 21st century skills in face-to-face instruction from the higher ranks, district supervisors, school heads, peers, and learners other than just mere self-assessment in order to assess as how professionally developed the teachers are.
- School Heads and Teachers must develop and implement strategies to address the diverse learning needs of students, including offering remedial reading programs and promoting a more inclusive and supportive learning environment.
- Department of Education should provide support and resources to schools to implement effective COVID-19 protocols and ensure the safety of teachers, learners, and parents. This includes providing funding for sanitation measures, PPE, and other necessary equipment.
- Department of Education Key Officials must provide trainings on Digitized Mode of Instruction to teachers and school heads to help them develop their competencies and skills needed in the implementation of the face-to-face classes.
- School Heads should foster a culture of continuous improvement by regularly reviewing and evaluating educational policies and practices, and implementing changes where necessary to improve the quality of education for all students.
- Teachers must enhance well-being through performance management and branding enabling personal growth, professional development, and work/life balance.

4. Conclusion

In conclusion, the findings of this research highlight several important aspects regarding the integration of 21st century skills in face-to-face instruction in San Jose District, Division of Camarines Sur. Firstly, it is evident that teachers have made significant efforts in integrating these skills into their instructional practices. However, it is worth noting that there is no consensus among different groups of respondents regarding the rank orders of integration, indicating a need for further collaboration and alignment. Additionally, the study reveals that the constraints faced by teachers in integrating 21st century skills are considered serious, emphasizing the importance of addressing these challenges to ensure effective implementation. Lastly, the research underscores the significance of policy recommendations to promote quality education and support the integration of 21st century skills. These findings contribute to the existing literature and provide valuable insights for educational stakeholders to enhance instructional practices, address constraints, and formulate policies that foster the holistic development of students in the San Jose District.

Compliance with ethical standards

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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