

Pedagogical Content Knowledge Alignment with 21st Century Skills among Private Junior High Schools in Olongapo City, Zambales

Angelica M. Porcadilla, Emma C. Ventura

President Ramon Magsaysay State University, Iba Campus

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ABSTRACT

This study examined the alignment of Social Studies instruction with 21st-century skills and the Pedagogical Content Knowledge (PCK) of teachers in private junior high schools in Olongapo City, Zambales. Using a quantitative-descriptive design, data were gathered from 201 Grade 8 students and 30 Social Studies teachers across eight private schools through validated survey instruments. Descriptive statistics and non-parametric tests, including the Shapiro-Wilk Test, Mann-Whitney U Test, Kruskal-Wallis H Test, and Dunn's post hoc analysis with Bonferroni adjustment, were utilized to analyze the data. Findings revealed that teachers demonstrated a very high level of Pedagogical Content Knowledge, particularly in pedagogical strategies and curriculum design. Students also perceived Social Studies instruction as aligned with 21st-century skills, especially in critical thinking and collaboration. However, relatively lower ratings were observed in creativity, leadership, and collaborative innovation. Significant differences emerged in selected student demographic variables, while most teacher demographic variables showed no significant differences in PCK. Despite these positive findings, the study acknowledges limitations related to self-reported measures, the absence of classroom observations, and the limited scope of private schools within one city. In response to the findings, the study proposed the SS21 Program: Bridging Pedagogy and Practice, a structured intervention framework designed to strengthen Social Studies pedagogy, enhance curriculum alignment, and cultivate critical thinking, creativity, collaboration, and civic leadership among learners. The program includes targeted professional development sessions, collaborative learning initiatives, civic engagement activities, and assessment enhancement strategies for private junior high schools.

Keywords: Pedagogical Content Knowledge, Social Studies teaching, Curriculum alignment, 21st century skills.

INTRODUCTION

Pedagogical Content Knowledge (PCK) is recognized as a vital foundation for Social Studies teachers in developing 21st-century skills such as critical thinking, collaboration, and civic literacy. Defined as the knowledge teachers acquire over time about how to teach specific content effectively, Pedagogical Content Knowledge (PCK) ensures that teaching strategies, learning abilities, and assessment techniques are aligned to achieve intended educational outcomes.

Research from 2020 to 2025 highlights that strong Pedagogical Content Knowledge (PCK) enables schools to meet curricular goals, particularly during transitions to online and blended learning. However, studies also reveal challenges: misalignment occurs when teachers lack methods to teach higher-order skills, while inconsistent PCK levels hinder inquiry-based approaches. In ASEAN contexts, teachers face difficulties connecting pedagogy with curriculum requirements, with private institutions showing both autonomy and uneven practices.

In the Philippines, reforms such as K to 12 and the Philippine Qualifications Framework emphasize alignment, yet gaps persist between intended and effective curricula. Studies show variation in teachers' ability to adjust pedagogy for diverse learners, with moderate alignment found in Subic classrooms. Despite these reforms, studies continue to reveal gaps between intended curriculum goals and classroom implementation. While teachers demonstrate competence in instructional delivery, challenges remain in cultivating higher-order thinking, collaborative innovation, and authentic civic engagement among students. Existing Philippine studies on

Pedagogical Content Knowledge (PCK) and curriculum alignment have largely focused on public schools or broad educational contexts, with limited attention given to private junior high schools, particularly in Olongapo City.

Hence, this paper examined the Pedagogical Content Knowledge of Social Studies teachers and the extent of curriculum alignment with 21st-century skills in private junior high schools in Olongapo City, Zambales. Specifically, the study sought to determine teachers' level of PCK, assess students' perceptions of curriculum alignment, identify significant differences according to demographic variables, and propose a structured intervention program responsive to the identified instructional needs.

Limitations of the Study

This study is subject to several limitations that must be acknowledged. First, the study relied primarily on self-reported data from Social Studies teachers and student perceptions of classroom instruction. Although validated instruments were utilized, self-report measures may be influenced by social desirability bias and subjective interpretation. Second, the study did not include classroom observations, portfolio assessments, or direct measures of student performance that could have provided more objective evidence of curriculum alignment and teacher Pedagogical Content Knowledge. Third, the respondents were limited to private junior high schools in Olongapo City, Zambales. Consequently, the findings may not be fully generalizable to public schools or other educational contexts in the Philippines. Lastly, the study utilized a quantitative-descriptive design. While this design allowed for statistical analysis of patterns and differences, it did not capture the deeper experiences, perspectives, and contextual realities of teachers and students. Future studies may employ qualitative or mixed-method approaches to provide richer explanations regarding the observed gaps in creativity, collaboration, and civic engagement.

RESEARCH METHODOLOGY

This study used a quantitative-descriptive research design to assess how Social Studies instruction matches 21st-century skills based on Grade 8 students' assessment and the Pedagogical Content Knowledge (PCK) of Social Studies teachers in private high schools in Olongapo City. The researchers used a quantitative method because it allows the collection of numerical data systematically and test statistical differences and interpret outcomes in an unbiased manner (Creswell and Creswell, 2022; Punch and Oancea, 2021).

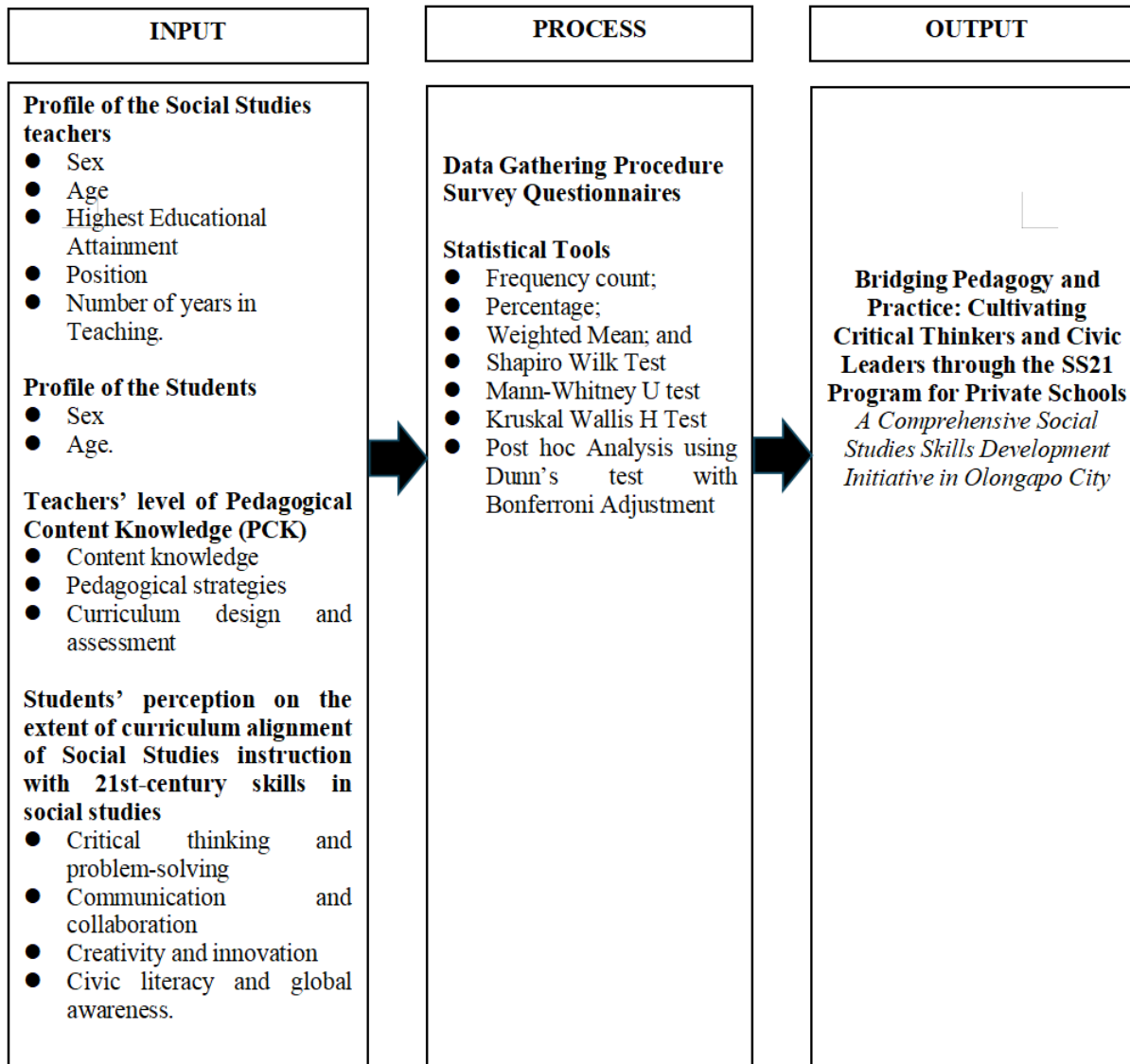
Research Design

Utilizing a quantitative-descriptive research design, the study employed survey instruments to gather data and applied Shapiro Wilk Test, Mann-Whitney U test, Kruskal Wallis H Test, and Post hoc Analysis using Dunn's test with Bonferroni Adjustment to determine significant differences among groups. Despite these limitations, the use of teacher self-assessment on Pedagogical Content Knowledge, alongside student perceptions of observable instructional practices related to 21st-century skills, provided a credible and complementary understanding of how Pedagogical Content Knowledge (PCK) was applied and aligned in Social Studies instruction.

Conceptual Framework

Alignment is a critical foundation for 21st-century education, ensuring coherence in standards, teaching, and assessment while fostering essential skills such as critical thinking, collaboration, creativity, and civic literacy (OECD, 2020; Taguma & Frid, 2024). In the Philippine context, reforms such as the K to 12 Basic Education Curriculum, DepEd Order No. 8, s. 2015, and the 2022 Shaping Papers emphasize the integration of learning outcomes with instructional practices to promote competency-based learning (Department of Education, 2022). The effectiveness of alignment, however, depends on teachers' Pedagogical Content Knowledge (PCK), which combines subject matter expertise, pedagogy, curriculum design, and assessment practices (Shulman, 1986; Nilsson & Karlsson, 2021). The Philippine Professional Standards for Teachers (PPST) further highlight the expectation that educators demonstrate advanced competence in both content and pedagogy to ensure meaningful curriculum implementation (Rogayan, 2022). In localized contexts such as private high schools in Olongapo City,

alignment and PCK are particularly significant during the transition from elementary to junior high school, where teachers must bridge curricular expectations with strategies that cultivate 21st-century skills. This study examined how PCK alignment in Social Studies teaching influences student learning outcomes, providing insights to strengthen instructional practices and professional development in private secondary education.



The study employed an Input–Process–Output framework. Inputs included teacher and student profiles, alongside two main constructs: teachers' Pedagogical Content Knowledge (PCK) and students' perceptions of curriculum alignment with 21st-century skills. Teacher profiles considered sex, age, educational attainment, position, and years of teaching, while student profiles included age and sex. PCK was examined in terms of content knowledge, pedagogical strategies, and curriculum design and assessment, while curriculum alignment was assessed through students' perceptions of critical thinking, communication, collaboration, creativity, innovation, civic literacy, and global awareness.

The process involved reviewing relevant literature, administering questionnaires to Grade 8 students and Social Studies teachers, and analyzing responses using statistical tools such as frequency count, percentage, weighted mean, Shapiro-Wilk Test, Mann-Whitney U Test, Kruskal-Wallis H Test, and Dunn's post hoc test with Bonferroni adjustment. These analyses identified levels, patterns, and significant differences across profile variables.

The output was the proposed program *Bridging Pedagogy and Practice: Cultivating Critical Thinkers and Civic Leaders through the SS21 Program for Private Schools*. This program provides a structured intervention that strengthens Social Studies pedagogy and equips students with 21st-century skills in private schools in Olongapo City.

Population and Sample

The respondents included in the study were Grade 8 learners and Social Studies teachers from private junior high schools in Olongapo City, Zambales. The basis for determining the number of student-respondents was the total population of 405 Grade 8 students enrolled in eight (8) private schools. The researcher applied Slovin's formula with a 5% margin of error and a 95% confidence level to calculate the required sample size since the population variance was not known. The computation yielded a total of 201 student-respondents.

To ensure fair representation of all schools, the researcher utilized a proportional allocation technique. This sampling process allowed the division of the sample size according to the number of students in each school. Moreover, the teacher-respondents consisted of 30 Social Studies teachers from the same private junior high schools. The inclusion of both students and teachers as research subjects provided a comprehensive picture of Social Studies instruction in private schools in Olongapo City, particularly in relation to the alignment of Pedagogical Content Knowledge (PCK) with 21st-century skills.

Data Collection Instrument

Two structured survey questionnaires were developed to measure (a) the level of Pedagogical Content Knowledge (PCK) among Social Studies teachers, and (b) the extent of curriculum alignment with 21st-century skills as perceived by Grade 8 students in private junior high schools in Olongapo City. Both instruments used four-point Likert scale items.

1. Demographic Profile: Teachers' information included sex, age, highest educational attainment, position, and total years of teaching while students' data only included sex and age.

2. Pedagogical Content Knowledge (PCK): First questionnaire was administered to Social Studies teachers. It is based on Shulman's PCK framework and contemporary studies of teacher knowledge. The three domains are Content Knowledge (CK), Pedagogical Strategies (PS), and Curriculum Design & Assessment (CDA). Responses were measured on a four-point Likert scale (4 – Strongly Agree, 3 – Agree, 2 – Disagree, 1 – Strongly Disagree).

3. 21st-Century Skills in Social Studies Instruction: Second questionnaire was administered to Grade 8 students. It was adapted from the P21 Framework, OECD Learning Compass 2030, and validated empirical studies. Its Four domains includes Critical Thinking & Problem-Solving, Communication & Collaboration, Creativity & Innovation, and Civic Literacy & Global Awareness. Responses were measured on a four-point Likert scale (4 – Very Great Extent, 3 – Great Extent, 2 – Some Extent, 1 – No Extent).

The instruments were validated by the researcher's adviser at PRMSU Graduate School to ensure appropriateness, consistency, and clarity. A pilot test was conducted among non-participating private school teachers and students in Olongapo City. Reliability was assessed using Cronbach's alpha, with coefficients ≥ 0.70 considered acceptable (Taber, 2018). Results indicated acceptable to strong reliability for the teacher questionnaire: Content Knowledge (α = Acceptable), Pedagogical Strategies (α = Good), and Curriculum Design & Assessment (α = Good). The student questionnaire demonstrated strong internal consistency across all domains: Critical Thinking & Problem-Solving (α = Good), Communication & Collaboration (α = Good), Creativity & Innovation (α = Good), and Civic Literacy & Global Awareness (α = Excellent). These findings confirm that both instruments are reliable tools for measuring PCK and curriculum alignment in Social Studies instruction.

Data Collection Procedure

The researcher wrote a formal letter addressed to the Schools Division Superintendent of Olongapo City to request permission to collect the necessary data for the study. The Superintendent response instructed the researcher that private schools had the authority to decide whether the study could proceed. The researcher prepared and submitted request letters to the heads of selected private junior high schools to obtain their assistance with survey questionnaire distribution. The researcher oversaw the entire process of questionnaire distribution and retrieval which took place during the fourth quarter of School Year 2025–2026.

Prior to answering, the respondents were given a clear explanation of the study's objectives and were allotted sufficient time to complete the instrument. Their participation was voluntary, and their responses were treated with the highest level of confidentiality. For ethical considerations, the respondents received a detailed briefing and key information about the purpose of the study before data collection. Informed consent was secured, ensuring that respondents willingly agreed to participate. To uphold anonymity, protect privacy, and avoid potential harm, all information was handled with strict confidentiality. The names and identities of the participants were not disclosed, in compliance with Republic Act No. 10173, otherwise known as the Data Privacy Act of 2012.

Data Analysis

After the completed questionnaires were collected, the data were tallied, encoded, and organized according to the objectives of the study. Both descriptive and inferential statistics were utilized in the analysis. Descriptive statistics included frequency, percentage, and weighted mean. Frequency was used to show the distribution of responses across all survey items, while percentage was computed to present the demographic profile of respondents in terms of sex, age, highest educational attainment, position, and years in teaching. Weighted mean was calculated to determine the overall level of Pedagogical Content Knowledge (PCK) as assessed by teachers and the overall extent of curriculum alignment with 21st-century skills as perceived by students.

Inferential statistics included the Shapiro-Wilk Test, Mann-Whitney U Test, Kruskal-Wallis H Test, and Dunn's post hoc test with Bonferroni adjustment. The Shapiro-Wilk Test was first applied to assess normality, revealing that most variables were not normally distributed ($p < .05$). Consequently, non-parametric methods were employed. The Mann-Whitney U Test was used to compare differences between two independent groups (e.g., sex, teacher position), while the Kruskal-Wallis H Test was applied to examine differences among three or more independent groups (e.g., age, educational attainment, years in teaching). When significant differences were found, Dunn's post hoc test with Bonferroni adjustment was conducted to identify specific group differences while controlling for Type I error.

Overall, the combination of descriptive and inferential statistics allowed the study to systematically describe respondent profiles, assess levels of PCK and curriculum alignment, and determine significant differences across groups. These analyses provided a comprehensive understanding of how Social Studies teachers' pedagogical knowledge and curriculum alignment influence the development of 21st-century skills among students.

RESULT AND DISCUSSION

The study involved 30 Social Studies teachers and 201 Grade 8 students from private junior high schools in Olongapo City. The teachers' demographic profile revealed that the majority were female (53.3%), within the age range of 21–25 years (56.7%), and predominantly held a bachelor's degree (63.3%). Most teachers occupied teaching positions without additional designations (66.7%) and had between one to five years of teaching experience (86.7%). For the student respondents, the distribution showed a slight majority of males (57.2%) compared to females (42.8%). In terms of age, nearly half were 14 years old (49.3%), followed by 13 years old (44.3%), with only a small proportion aged 15 (6.5%). These findings indicate that the teaching workforce in private junior high schools in Olongapo City is relatively young, early in their careers, and largely educated at the undergraduate level. Similarly, the student population is concentrated in the early adolescent stage, with balanced representation across sexes. This demographic context provides important insights into the study's analysis of Pedagogical Content Knowledge (PCK) and curriculum alignment with 21st-century skills, highlighting the formative stage of both teachers' professional development and students' skill acquisition.

The assessment of Social Studies teachers' Pedagogical Content Knowledge (PCK) revealed consistently high ratings across all dimensions. Among the three domains, **Pedagogical Strategies** obtained the highest weighted mean (3.71), interpreted as *Very High*, indicating strong competence in instructional approaches. This was followed by **Curriculum Design and Assessment** (3.69, *Very High*) and **Content Knowledge** (3.62, *Very High*). The composite mean score of 3.67 confirmed that overall PCK among teachers was at a *Very High* level. The findings suggest that teachers are confident in their ability to employ effective instructional approaches and design curriculum and assessments aligned with learning outcomes. This reflects their adaptability to modern teaching

practices and their commitment to fostering 21st-century skills. However, the slightly lower rating in content knowledge points to the need for continuous enrichment in deepening historical, civic, and global perspectives that underpin Social Studies education.

Table I Summary of the Level of Pedagogical Content Knowledge (PCK) as Assessed by Social Studies Teachers in Private Junior High Schools in Olongapo City, Zambales

	Dimensions	Weighted Mean	Rank	Descriptive Interpretation
1.	Content Knowledge	3.62	3	Very High
2.	Pedagogical Strategies	3.71	1	Very High
3.	Curriculum Design and Assessment	3.69	2	Very High
	Composite	3.67		Very High

Note. Legend: 3.25 – 4.00 = Very High, 2.50 – 3.24 = High, 1.75 – 2.49 = Low, 1.00 – 1.74 = Very Low.

Recent studies reinforce these results. Lyu (2021) emphasized that while teachers often excel in pedagogical strategies, gaps in content mastery can limit the depth of classroom discussions and critical inquiry, underscoring the importance of sustained professional development. Similarly, Vázquez-Bernal et al. (2022) highlighted that PCK development is a dynamic process shaped by reflective practice and collaboration. Their findings showed that teachers who actively integrate pedagogy with curriculum design foster stronger student engagement and higher-order thinking, but continuous training is essential to maintain robust subject knowledge.

In summary, the very high level of PCK among Social Studies teachers provides a strong foundation for effective instruction aligned with 21st-century skills. Teachers excel in pedagogical strategies and curriculum design, yet the slightly lower rating in content knowledge signals opportunities for further enrichment. These results justify the need for the proposed intervention Program, which builds on existing strengths while addressing gaps in complex problem-solving, leadership, and collaborative innovation.

Table II Summary of the Extent of Curriculum Alignment of Social Studies Instruction with 21st-Century Skills as Perceived by Grade 8 Students among Private Junior High Schools in Olongapo City, Zambales

	Dimensions	Weighted Mean	Rank	Descriptive Interpretation
1.	Critical Thinking and Problem Solving	3.10	3	Great Extent
2.	Communication and Collaboration	3.09	4	Great Extent
3.	Creativity and Innovation	3.11	1.5	Great Extent
4.	Civic Literacy and Global Awareness	3.11	1.5	Great Extent
	Composite	3.10		Great Extent

Note. Tied ranks indicate equal weighted mean values.

Students generally perceived Social Studies instruction as aligned with 21st-century skills to a great extent. Critical thinking and collaboration emerged as the strongest dimensions, indicating that classroom instruction encourages reasoning, discussion, teamwork, and participatory learning. These findings are consistent with the study of Crisolo, Camposano, and Rogayan (2021), which emphasized the significant role of Social Studies education in fostering critical thinking, collaboration, and civic engagement among learners. Similarly, Scoular (2020) explained that critical thinking and collaboration are among the most consistently integrated competencies within 21st-century curriculum frameworks.

However, creativity and innovation received comparatively lower ratings. This suggests that while students are exposed to collaborative and analytical tasks, opportunities for open-ended inquiry, design thinking, and innovative problem-solving may still be limited. Likewise, civic literacy and global awareness, although positively rated, indicate the need for more authentic civic engagement experiences beyond classroom discussions. These findings affirm the continuing need for instructional approaches that integrate project-based learning, inquiry-based activities, simulations, debates, and community-based tasks to strengthen the practical application of 21st-century competencies (Chong & Kong, 2022; Beghetto & Kaufman, 2017).

Table III Table of Significant Difference in Teacher's Level of Pedagogical Content Knowledge (PCK) According to Sex.

Variables	Sex	Md	U	z	Asymp. Sig	Conclusion
Content Knowledge	M	3.65	76.000	-1.511	.131	Not Significant
	F	3.60				
Pedagogical Strategies	M	3.85	81.000	-1.302	.193	Not Significant
	F	3.70				
Curriculum Design and Assessment	M	3.70	99.000	-.552	.581	Not Significant
	F	3.60				

Note. M = Male (n = 14); F = Female (n = 16); Md = Median.

Table III presents the non-significant results which suggest that male and female teachers possess similar levels of competence in content knowledge, pedagogical strategies, and curriculum design and assessment. This may be attributed to shared professional training, teaching experience, and access to professional development programs, which provide uniform opportunities for skill development across sexes. These results indicate that mastery of Pedagogical Content Knowledge is shaped more by professional exposure, teaching experience, and continuous learning rather than sex-at-birth differences. Moreover, inclusive professional development and gender-neutral approaches in teacher training likely contribute to equivalent competency among male and female Social Studies teachers. According to Darling-Hammond et al. (2017), professional preparation, continued training, and teaching experience have a greater impact on teacher effectiveness than demographic variables like gender. The conclusion that male and female teachers exhibit comparable PCK is supported by this. In a similar vein, Akiba & Liang (2016) discovered that having access to top-notch professional development programs greatly enhanced teachers' teaching methods for all genders, indicating that inclusive training options support consistent proficiency.

Table IV Table of Difference in Teacher's Level of Pedagogical Content Knowledge (PCK) According to Age

Variables	Category	n	Md	H	Asymp. Sig	Conclusion
Content Knowledge	21–25	17	3.60	2.471	.481	Not Significant
	26–30	11	3.90			
	31–35	1	3.60			
	35–40	1	3.50			
Pedagogical Strategies	21–25	17	3.70	4.662	.198	Not Significant
	26–30	11	3.90			
	31–35	1	3.90			
	35–40	1	3.40			
Curriculum Design and Assessment	21–25	17	3.60	6.596	.086	Not Significant
	26–30	11	3.80			
	31–35	1	4.00			
	35–40	1	3.10			

Note. df = 3; Md = Median.

Table IV shows the reveals the results of the Kruskal–Wallis H test, which examined differences in Social Studies teachers' Pedagogical Content Knowledge (PCK) across age groups. The analysis revealed the non-significant results indicate that Social Studies teachers, regardless of age group, show similar levels of competence in content knowledge, pedagogical strategies, and curriculum design and assessment. This similarity may be due to common professional training, access to ongoing education, and teaching experience, which provide consistent opportunities for skill development across different age groups. These findings suggest that mastery of Pedagogical Content Knowledge (PCK) is influenced more by professional exposure, continuous learning, and reflective practice than by the age of the teachers. Additionally, professional development programs and collaborative teaching initiatives likely maintain uniformity in PCK across various age groups. Conversely,

Skaalvik & Skaalvik (2015) observed that younger teachers occasionally express lower self-efficacy than their older colleagues, suggesting that even when real PCK levels are equal, perceptions of competence may differ. Furthermore, García & Weiss (2019) contended that although professional development lessens inequities, variations in teaching experience among age groups may still have an impact on classroom practices, especially with regard to instructional confidence and classroom control.

Table V Table of Significant Difference in Teacher's Level of Pedagogical Content Knowledge (PCK) According to Highest Educational Attainment

Variables	Category	n	Md	H	Asymp. Sig	Conclusion
Content Knowledge	Bachelor's Degree	19	3.60	1.516	.469	Not Significant
	With Master's Units	9	3.70			
	Master's Degree	2	3.70			
Pedagogical Strategies	Bachelor's Degree	19	3.70	.503	.778	Not Significant
	With Master's Units	9	3.90			
	Master's Degree	2	3.65			
Curriculum Design and Assessment	Bachelor's Degree	19	3.60	.289	.866	Not Significant
	With Master's Units	9	3.60			
	Master's Degree	2	3.75			

Note. df = 2; Md = Median.

Table V depicts the results of the Kruskal–Wallis H test, which examined differences in Social Studies teachers' Pedagogical Content Knowledge (PCK) according to their highest educational attainment. The analysis revealed non-significant results which suggest that Social Studies teachers' level of PCK does not vary significantly between those holding a Bachelor's degree, Master's units, or a Master's degree. This may be attributed to professional experience, continuous professional development, and institutional support, which provide consistent opportunities for developing PCK regardless of formal educational attainment. These results indicate that mastery of Pedagogical Content Knowledge is likely shaped more by teaching experience, engagement with pedagogical strategies, and ongoing reflective practice than by the highest degree earned. Varilla, Lazare, and Gregorious (2024) studied instructors' Technological, Pedagogical, and Content Knowledge (TPACK) in relation to characteristics such as gender, educational achievement, and age at Quezon City University. The findings confirmed that professional exposure and teaching experience are more important than formal degrees, as there were no discernible changes in PCK levels by educational attainment. The findings supported the notion that continuous professional development guarantees high-quality instruction across achievement levels by showing a strong correlation between PCK competency and classroom practices and teaching performance rather than formal qualifications.

Table VI Table of Significant Difference in Teacher's Level of Pedagogical Content Knowledge (PCK) According to Position

Variables	POS	Md	U	z	Asymp. Sig	Conclusion
Content Knowledge	T	3.60	51.000	-2.177	.030	Significant
	WOD	3.85				
Pedagogical Strategies	T	3.70	71.500	-1.267	.205	Not Significant
	WOD	3.90				
Curriculum Design and Assessment	T	3.60	87.000	-.584	.559	Not Significant
	WOD	3.75				

Note. POS = Position; T = Teacher (n = 20); WOD = with Other Designation (n = 10); Md = Median.

Table VI presents the results of the Mann–Whitney U test, which examined differences in Social Studies teachers' Pedagogical Content Knowledge (PCK) according to their position at the 5% significance level. The analysis revealed a significant difference in Content Knowledge between teachers (T, Md = 3.60) and those with other designations (WOD, Md = 3.85) ($U = 51.000$, $z = -2.177$, $p = .030$, $r = 0.39$). This result suggests that teachers

with additional roles or designations perceive themselves as more proficient in Social Studies content, which may reflect their exposure to leadership responsibilities, specialized training, or involvement in curriculum planning. The findings indicate that teachers with additional positions or designations may consider themselves as more proficient in Social Studies material as a result of exposure to curriculum leadership, mentoring, and specialized training. However, professional development and collaborative practice continue to be the most constant drivers of PCK proficiency for all teachers. On this note, schools should strike a balance between leadership responsibilities and chances for classroom practice to ensure that positional distinctions improve rather than hinder from educational efficiency.

In contrast, Pedagogical Strategies ($U = 71.500$, $z = -1.267$, $p = .205$, $r = 0.22$) and Curriculum Design and Assessment ($U = 87.000$, $z = -0.584$, $p = .559$, $r = 0.10$) showed no significant differences between positions. The effect sizes are small to negligible, suggesting that teachers' ability to employ instructional strategies or design assessments is similar regardless of whether they hold other designations (Tomczak & Tomczak, 2014; Field, 2018). This implies that professional expertise in pedagogy and curriculum design is consistently maintained across positions, likely due to shared training, collaborative practices, and school-wide instructional standards. Darling-Hammond et al. (2017) underlined that professional development and reflective practice shape pedagogical expertise and curriculum design skills more than positional disparities, lending support to the result that instructors in various roles display similar competences. The data show that, while position influences judgments of content understanding, pedagogical practices and curriculum design are constant across positions. This implies that inclusive professional development programs, collaborative practices, and school-wide teaching standards all contribute to the preservation of consistency in these areas.

Table VII Table of Significant Difference in Teacher's Level of Pedagogical Content Knowledge (PCK) According to Years in Teaching

Variables	Category	n	Md	H	Asymp. Sig	Conclusion
Content Knowledge	1–5	26	3.60	.359	.836	Not Significant
	6–10	3	3.70			
	11–15	1	3.50			
Pedagogical Strategies	1–5	26	3.70	2.700	.259	Not Significant
	6–10	3	3.80			
	11–15	1	3.40			
Curriculum Design and Assessment	1–5	26	3.60	3.776	.151	Not Significant
	6–10	3	3.90			
	11–15	1	3.10			

Note. $df = 2$; Md = Median.

Table VII presents the results of the Kruskal–Wallis H test, which examined differences in Social Studies teachers' Pedagogical Content Knowledge (PCK) according to their years in teaching. The analysis revealed no significant differences for Content Knowledge [$H(2) = 0.359$, $p = .836$, $\varepsilon^2 \approx .01$], Pedagogical Strategies [$H(2) = 2.700$, $p = .259$, $\varepsilon^2 \approx .06$], and Curriculum Design and Assessment [$H(2) = 3.776$, $p = .151$, $\varepsilon^2 \approx .08$] at the 5% significance level.

The non-significant results suggest that Social Studies teachers' level of Pedagogical Content Knowledge (PCK) does not vary significantly between those with 1–5, 6–10, or 11–15 years of teaching experience. This may imply that professional development programs, peer collaboration, and continuous learning opportunities contribute more substantially to teachers' pedagogical content knowledge than teaching tenure alone. These results indicate that mastery in Pedagogical Content Knowledge (PCK) can be achieved and maintained across different experience levels, highlighting the importance of ongoing reflective practices and engagement with innovative teaching strategies.

According to Varilla, Lazare, and Gregorious (2024), teachers' Technological Pedagogical Content Knowledge (TPACK) competencies were constant across teaching experience groups due to institutional training and collaborative practices that provided equitable possibilities for pedagogical development. Mastery of Pedagogical

Content Knowledge (PCK) is influenced more by professional exposure, continuous learning, and reflective practice than by teaching tenure. Professional development initiatives, peer collaboration, and school-wide instructional standards are likely to ensure Pedagogical Content Knowledge (PCK) consistency across experience levels.

Table VIII Table of Significant Difference in Students' Perceptions of the Extent of Curriculum Alignment to 21st-Century Skills in Social Studies According to Sex

Variables	Sex	Md	U	z	Asymp. Sig	Conclusion
Critical Thinking and Problem-Solving	M	3.00	3650.000	-3.182	.001	Significant
	F	3.20				
Communication and Collaboration	M	3.00	3501.000	-3.549	<.001	Significant
	F	3.10				
Creativity and Innovation	M	2.90	3302.500	-4.038	<.001	Significant
	F	3.40				
Civic Literacy and Global Awareness	M	3.00	3921.500	-2.517	.012	Significant
	F	3.10				

Note. M = Male (n = 115); F = Female (n = 86); Md = Median.

Table VIII the differences in students' perceptions of the extent of curriculum alignment to 21st-century skills in Social Studies according to sex at birth. The Mann–Whitney U test revealed significant differences between male and female students across all four domains, indicating that sex may influence how students perceive the effectiveness of Social Studies instruction in developing essential 21st-century competencies.

For Critical Thinking and Problem-Solving, female students (Md = 3.20) had a higher median score than male students (Md = 3.00), with the difference being statistically significant ($U = 3,650.000$, $z = -3.182$, $p = .001$, $r = 0.22$). This result suggests that female students perceive Social Studies instruction as slightly more effective in helping them analyze problems, identify cause-and-effect relationships, and propose evidence-based solutions. This result implies that instructional strategies emphasizing critical thinking may resonate differently across sexes, and teachers could use differentiated approaches to ensure male students are equally supported in developing these skills. The study proved that gender-based differences in student behavior caused female students to perform better than male students when they used writing assignments to develop critical thinking skills (Albarracín-Vivo et al., 2024).

In the domain of Communication and Collaboration, females (Md = 3.10) also scored higher than males (Md = 3.00), with a significant difference observed ($U = 3,501.000$, $z = -3.549$, $p < .001$, $r = 0.25$). The effect size indicates a small-to-moderate difference in perceptions, suggesting that female students may feel more confident and actively engaged in collaborative and communicative activities during Social Studies lessons. This result suggests that female students are more likely to participate in group discussions, provide constructive feedback, and share ideas effectively with peers. This result highlights the need for teachers to create strategies that equally encourage male students to participate in collaborative tasks, ensuring balanced engagement across all students.

Regarding Creativity and Innovation, female students (Md = 3.40) reported higher perceptions than males (Md = 2.90), with a statistically significant difference ($U = 3,302.500$, $z = -4.038$, $p < .001$, $r = 0.28$). This result suggests that female students feel more supported in producing original solutions, designing creative projects, and exploring alternative approaches to problem-solving within Social Studies. This implies that teachers should continue to design learning experiences that foster creativity while also implementing strategies to engage male students in innovative problem-solving opportunities. Dong and Zhu (2023) investigated creativity in design education and discovered that female students displayed greater interest in creative tasks and artifact perception than males. This is consistent with the findings that women were more encouraged to come up with unique solutions and consider other strategies. Furthermore, the results show that classroom culture and teaching strategies have a greater influence on creativity outcomes than gender alone, which makes instructional design crucial.

Lastly, for Civic Literacy and Global Awareness, female students ($Md = 3.10$) again had higher median scores than male students ($Md = 3.00$), with a significant difference ($U = 3,921.500$, $z = -2.517$, $p = .012$, $r = 0.17$). This result suggests that female students are slightly more aware of civic responsibilities, community involvement, and global issues in Social Studies lessons compared to male students. This emphasizes the importance of incorporating instructional strategies that equally promote civic engagement for all students, ensuring that male students also develop strong civic literacy and global competencies. In a similar vein, the UNESCO Global Education Monitoring Gender Report (2024) found that girls and young women are outperforming boys in literacy and civic-related competences, particularly in situations that emphasize global awareness and digital citizenship. Overall, instructional design is important since research has shown that teaching strategies and opportunities for active engagement have a greater influence on civic literacy and global awareness results than sex alone.

Table IX Table of Significant Difference in Students' Perceptions of the Extent of Curriculum Alignment to 21st-Century Skills in Social Studies According to Age

Variables	Category	n	Md	H	Asymp. Sig	Conclusion
Critical Thinking and Problem-Solving	13	89	3.00	8.633	.013	Significant
	14	99	3.00			
	15	13	3.50			
Communication and Collaboration	13	89	2.90	3.806	.149	Not Significant
	14	99	3.10			
	15	13	3.30			
Creativity and Innovation	13	89	3.00	3.968	.138	Not Significant
	14	99	3.10			
	15	13	3.40			
Civic Literacy and Global Awareness	13	89	3.00	4.494	.106	Not Significant
	14	99	3.00			
	15	13	3.60			

Note. $df = 2$; Md = Median.

Table IX depicts shows the results of the Kruskal–Wallis H test, which examined differences in students' perceptions of the extent of curriculum alignment to 21st-century skills in Social Studies across age groups at the 5% significance level. Median scores varied across age groups, with 15-year-old students reporting the highest median ($Md = 3.50$), followed by 14-year-olds ($Md = 3.00$) and 13-year-olds ($Md = 3.00$). The post hoc pairwise comparisons using Dunn's test with Bonferroni adjustment revealed a statistically significant difference between 13-year-old and 15-year-old students (adjusted $p = .011$). The significant difference suggests that older students perceive Social Studies instruction as more aligned with critical thinking and problem-solving skills compared to younger students. This result may reflect the influence of cognitive maturity, prior experience with problem-solving tasks, and greater exposure to complex Social Studies content as students progress in age. This indicates that, with age and cognitive development, older adolescents tend to recognize better instructional alignment with higher-order thinking skills, which may explain the observed differences. In the Philippine setting, Roque (2021) observed that older Social Studies students had greater confidence in critical thinking and problem solving, most likely due to increased exposure to complicated subject and assignments. This simply implies that as students grow older, they encounter increasingly complex Social Studies subject, which reinforces their view of curricular alignment with critical thinking.

In contrast, no significant differences were found for Communication and Collaboration [$H(2) = 3.806$, $p = .149$, $\varepsilon^2 \approx .02$], Creativity and Innovation [$H(2) = 3.968$, $p = .138$, $\varepsilon^2 \approx .02$], and Civic Literacy and Global Awareness [$H(2) = 4.494$, $p = .106$, $\varepsilon^2 \approx .02$] at the 5% significance level. The non-significant results suggest that students' perceptions of curriculum alignment in these domains are relatively consistent across different age groups. This

consistency indicates that opportunities for collaboration, creative expression, and civic learning are provided similarly to students of different ages. Standardized lesson structures, uniform curriculum objectives, and school-wide instructional practices may contribute to the relatively uniform perceptions observed across age groups. The findings of consistent perceptions were supported by the UNESCO (2024) which noted that civic literacy and collaborative learning opportunities are frequently implemented uniformly throughout grade levels in standardized curricula, resulting in consistent perceptions across students regardless of age. This entails that social studies curricula and teaching methods offer fair chances for cooperation, artistic expression, and civic involvement at all age levels. However, research suggests that diversified and experiential approaches may improve these areas even more, especially for older students who are prepared for more difficult assignments.

CONCLUSION

The study concludes that the Social Studies teaching workforce in private junior high schools in Olongapo City is predominantly young, early-career, and slightly female-dominated, with most teachers holding a bachelor's degree and some pursuing graduate studies. Teachers rated themselves at a *very high* level across all dimensions of Pedagogical Content Knowledge (PCK), demonstrating strong competence in contextualizing lessons, facilitating collaboration, integrating technology, and aligning instruction with curriculum standards. However, areas for professional growth were identified, particularly in updating instructional resources, simplifying abstract concepts, and providing timely, performance-based feedback. Moreover, Students perceived Social Studies instruction as largely aligned with 21st-century skills, especially in critical thinking and collaboration. Yet, creativity, leadership, and collaborative innovation were rated lower, revealing gaps in fostering these competencies. While students showed awareness of civic and global issues, fewer reported active engagement in civic activities, underscoring a persistent gap between knowledge and action. No significant differences in PCK were observed across teacher age groups or years of teaching experience, suggesting that pedagogical mastery can be attained and sustained regardless of tenure, with peer collaboration and professional development proving more influential. In contrast, significant differences emerged in students' perceptions of Social Studies instruction when grouped according to their demographic profiles.

Taken together, these findings highlight the need for targeted interventions to bridge the gap between pedagogy and practice. The proposed program seeks to cultivate students' critical thinking and civic leadership skills while enhancing teachers' instructional competence, thereby strengthening Social Studies education in private junior high schools in Olongapo City.

RECOMMENDATION

In view of the study's conclusions, it is recommended that private junior high schools in Olongapo City institutionalize mentoring and coaching programs to support early-career teachers in strengthening classroom management and instructional depth, while also encouraging those pursuing graduate studies to continue professional advancement. Schools should provide continuous training in advanced pedagogical strategies, technology integration, and curriculum alignment, complemented by recognition and incentives for exemplary practices to motivate teachers to sustain high standards of Pedagogical Content Knowledge (PCK). Furthermore, professional development workshops must also be organized to address areas of improvement, particularly in updating instructional resources, simplifying abstract concepts, and enhancing performance-based assessment and feedback techniques. To foster creativity, leadership, and collaborative innovation, teachers are encouraged to integrate project-based learning, design-thinking activities, and peer-led initiatives such as group research projects, debates, and simulations. In light of the gap between civic knowledge and civic action, schools should implement service-learning projects, participatory civic tasks, and school-community partnerships to provide students with meaningful opportunities for engagement in local and global issues. Additionally, sustained peer collaboration and intergenerational mentoring are likewise recommended to ensure consistent competency across teacher age groups, with younger teachers contributing innovative practices and older teachers sharing wisdom and experience. Collaborative learning communities and professional learning circles should be institutionalized as key drivers of teacher growth, prioritizing exposure to innovative practices over years of service. Finally, future research may conduct longitudinal studies to examine how teachers' PCK evolves with extended teaching experience and advanced educational attainment, while expanding the scope to include public schools and other regions to generate comparative insights into PCK and curriculum alignment with 21st-century skills.

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APPENDIX

PROPOSED INTERVENTION PLAN

Project Title:

Bridging Pedagogy and Practice: Cultivating Critical Thinkers and Civic Leaders through the SS21 Program for Private Schools

A Comprehensive Social Studies Skills Development Initiative in Olongapo City

Rationale

The study found that Social Studies teachers' Pedagogical Content Knowledge (PCK) is usually stable across demographic characteristics, with very minor variances among those with extra designations. Meanwhile, students saw Social Studies training as closely matched with 21st-century abilities like critical thinking, communication, cooperation, and creativity. Nonetheless, there are still significant deficiencies in collaborative innovation, leadership in team projects, and complicated problem-solving.

The planned SS21 Program aims to bridge the gap between pedagogy and practice by developing students' critical thinking and civic leadership skills while also providing teachers with improved instructional competency. The program's goal is to institutionalize innovative methods in social studies education through focused training, mentoring systems, student-centered activities, and division-wide collaboration. Furthermore, it establishes a long-term framework for research and assessment, ensuring that private schools in Olongapo City continue to meet the changing demands of 21st-century learning.

Objectives

- Enhance teachers' PCK through training and mentoring.
- Empower students with critical thinking, collaboration, creativity, and civic literacy skills.
- Support school heads in institutionalizing innovative instructional practices.
- Foster collaboration among private schools in Olongapo City.
- Provide evaluative data for future research on PCK and curriculum alignment.

Target Beneficiaries

- Social Studies teachers
- Learners in private junior high schools
- School heads and administrators
- Division Association of Private Schools – Olongapo City

ACTIVITY TITLE	ACTIVITIES	OUTPUT	INDICATOR	TIME FRAME	KEY PERSON	RESOURCES NEEDED	BUDGET ALLOCATION
Teacher Training Workshops on PCK	Conduct division-wide workshops on curriculum design, assessment strategies, and scaffolding techniques	Enhanced teacher competence in PCK	Number of workshops conducted; teacher evaluation scores	Quarter 1 to Quarter 2	Division Association, School Heads, Teacher Trainers	Training modules, venue, ICT tools	₱50,000

Student Leadership & Collaboration Training	Integrate leadership and collaboration workshops into Social Studies projects	Improved student confidence in communication and teamwork	Student participation rate; peer evaluation results	Quarter 2	Teachers, School Heads	Activity guides, materials, multimedia tools	₱30,000
Creativity & Innovation Fair	Organize a showcase of student outputs (role plays, posters, multimedia projects).	Student creative outputs shared and recognized	Number of outputs presented; student feedback	Quarter 3	Teachers, Learners, School Heads	Exhibition space, art supplies, ICT tools	₱40,000
Inter-School Civic Literacy Program	Conduct debates, model congresses, and community projects among private schools	Strengthened civic engagement among learners	Number of inter-school events; student performance in activities	Quarter 3 to Quarter 4	Division Association, School Heads, Teachers	Debate kits, community project materials	₱60,000
Mentoring System for Early-Career Teachers	Pair novice teachers with experienced mentors for continuous support	Sustained PCK growth across tenure levels	Number of mentoring pairs; feedback from mentees	Whole School Year	School Heads, Senior Teachers	Mentoring guidelines, monitoring tools	₱20,000
Program Research & Evaluation	Conduct surveys, classroom observations, and prepare evaluation reports	Data for continuous improvement and future studies	Research reports completed; recommendations generated	End of School Year	Researchers, Division Association of Private Schools	Survey tools, observation checklists	₱25,000

Total Budget Allocation: ₱225,000 (sourced from the grants provided by the Private Education Assistance Committee (PEAC) such as the ASPIRE program, and government assistance schemes under DepEd's GASTPE program (ESC, SHS Voucher, INSET).

Note: These are legitimate, recognized sources that private schools in Olongapo City can tap into)

Monitoring and Evaluation Matrix

ACTIVITY TITLE	MONITORING ACTIVITIES	INDICATORS	MEANS OF VERIFICATION (MOV)
Teacher Training Workshops on PCK	Track attendance; administer pre- and post-training assessments	≥80% of teachers show improved post-test scores; ≥90% attendance rate	Attendance sheets, assessment results, evaluation forms
Student Leadership & Collaboration Training	Observe group activities; collect peer/self-assessments	≥70% of students demonstrate improved peer evaluation scores; ≥80% participation in leadership activities	Observation notes, peer/self-assessment forms

Creativity & Innovation Fair	Document student outputs; gather feedback	At least 20 creative outputs presented; $\geq 80\%$ of students report satisfaction	Event reports, student feedback surveys, photos/videos
Inter-School Civic Literacy Program	Monitor participation in debates and projects	At least 3 inter-school activities conducted; $\geq 75\%$ of participants show improved civic literacy	Program reports, evaluation rubrics, attendance records
Mentoring System for Early-Career Teachers	Track mentor-mentee sessions; collect feedback	$\geq 80\%$ of mentees report improved confidence; $\geq 90\%$ of mentoring sessions completed	Mentoring logs, feedback forms, progress reports
Program Research & Evaluation	Conduct surveys, classroom observations, compile reports	Research report completed; ≥ 2 recommendations adopted by schools; $\geq 75\%$ of respondents confirm program effectiveness	Survey results, observation checklists, research reports

Note:

- The Department of Education's initiative to incorporate 21st-century skills into classroom learning aligns with the SS21 Program.
- It promotes civic literacy, critical thinking, and collaborative creativity, aligning with the United Nations Sustainable Development Goals (SDGs), specifically Goal 4 (Quality Education) and Goal 16 (Peace, Justice, and Strong Institutions).The mentoring system for early-career teachers ensures continuity of PCK development beyond the program's initial implementation.
- Annual activities, such as the Creativity and Innovation Fair and Civic Literacy Program, can be scaled across the division's private schools.
- The program's effectiveness relies on collaboration among teaching staff, school leaders, students, the Division Association of Private Schools, and external partners.
- Sponsorship opportunities from local civic organizations and corporate social responsibility initiatives can help support student-centered activities.
- The Monitoring and Evaluation Matrix guarantees responsibility and offers quantifiable measures of achievement.
- Annual evaluation reports will be a resource for future researchers and proof for ongoing development.