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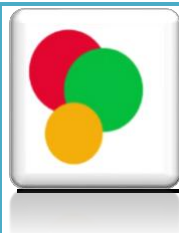
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Current Situation and Promotion of TPACK Strategies Among Primary School English Teachers in The Era of Artificial Intelligence

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Article Information	ABSTRACT
  Copyright: **Corresponding Author:** Lin Honghui Linhonghui1217@hotmail.com	The study examines how primary school English teachers in Luoyang City, China, developed Technological Pedagogical Content Knowledge (TPACK) in the AI era, focusing on identifying key predictors of TPACK proficiency and contextual barriers to AI integration. It aims to bridge gaps in understanding how socioecological factors shape teachers' technology adoption. A mixed-methods design was employed, combining a TPACK questionnaire (n=200) validated via factor analysis (KMO=0.802, α=0.85–0.92) and semi-structured interviews (n=25). Hierarchical regression and thematic analysis were used to analyze quantitative and qualitative data. Quantitative results revealed PCK, TCK, and TPK as significant TPACK predictors (adjusted R²=0.76), while qualitative themes highlighted pedagogical adaptation challenges, institutional resource gaps, identity shifts, and urban-rural inequities. Infrastructural constraints and policy-practice disconnects mediated AI's potential. The study calls for context-sensitive AI training programs, equitable resource distribution and policies prioritizing pedagogical agency over technocentric mandates. Schools should foster PLCs to support TPACK development in low-resource settings. The study extends TPACK theory by integrating socioecological perspectives, offering a holistic view of AI's role in language education. It uniquely addresses China's urban-rural divide, providing empirical insights into equity challenges in AI-driven TPACK development. **Keywords:** Artificial Intelligence, Primary School English Teachers, TPACK, Current Situation Investigation

1. INTRODUCTION

Technological Pedagogical Content Knowledge (TPACK) is the ability of teachers to organically integrate technological knowledge, subject content knowledge, and pedagogical knowledge. Some scholars have pointed out that in the era of artificial intelligence, the importance of this integration has become more prominent (Chan & Tang, 2025). "Technology Integration in the Cultivation of Normal Students' Abilities in the Era of Artificial Intelligence" mentions that the dynamics of artificial intelligence technology have promoted the TPACK framework to be upgraded to AI -TPACK. It means that teachers not only need to master subject knowledge and teaching methods but also be proficient in using technologies such as intelligent voice evaluation and adaptive learning systems to optimize the teaching process and improve

teaching effectiveness. Moreover, they must possess the "technological wisdom" to deal with intelligent education scenarios (Karataş & Ataç, 2024).

The Education Informatization 2.0 Action Plan vigorously promoted the application of technology in the educational field. It shows that this policy encourages teachers to explore the in-depth integration of information technology and English teaching in primary school English teaching. It guides schools to increase investment in teaching technology equipment, such as equipping intelligent voice teaching equipment and multimedia teaching software. Additionally, it promotes the creation of training programs for teacher technology application skills, which will help English teachers in elementary schools raise their TPACK proficiency (Yan and Yang, 2021). Some scholars point out that regional differences, such as the configuration of technological equipment in urban and rural areas and the implementation degree of teacher training policies, may significantly affect the TPACK level, and targeted strategies must be proposed through local empirical research (Li, 2024).

The study introduces critical novelty by addressing underexplored dimensions of AI-integrated TPACK in primary school English education, particularly within the unique socio-political and regional context of Luoyang City, Henan Province, a resource-rich yet under-researched locale in China's educational landscape. While existing literature highlights the conceptual evolution of TPACK into AI-TPACK (Chan & Tang, 2025) and critiques systemic challenges like urban-rural disparities (Guo & Li, 2024), this research uniquely bridges these discourses by empirically analyzing how AI-driven TPACK manifests in a region marked by contrasting infrastructural realities (urban, fringe, rural schools) and policy-driven technological mandates like the Education Informatization 2.0 Action Plan (Yan & Yang, 2021). By focusing on Luoyang, the study fills a geographic and empirical gap by offering granular insights into how resource abundance coexists with localized inequities, such as fragmented teacher training and uneven AI tool adoption—a paradox seldom addressed in prior TPACK frameworks. Furthermore, it pioneers the integration of "technological wisdom" within AI-TPACK, examining how teachers negotiate intelligent voice systems and adaptive platforms amid policy pressures and technological anxiety (Karataş & Ataç, 2024). This dual focus on contextualized policy implementation and teacher agency in AI adaptation advances TPACK scholarship beyond theoretical upgrades, providing a replicable model for regions navigating similar tensions between technological advancement and equitable pedagogical integration.

2. LITERATURE REVIEW

Technological Pedagogical Content Knowledge (TPACK) has become a paramount framework for teachers to incorporate technology, pedagogy, and knowledge of content in modern classrooms (Chen, 2023). On the surface of primary school English education, the advent of artificial intelligence (AI) has created opportunities and challenges in applying TPACK. However, existing literature points out that primary school English teachers are aware of the potential of AI tools (Intelligent tutoring systems, language learning apps and automated platforms of assessment) to help them pedagogically, while their ability to use these technologies is not consistent (Ning et al., 2024; Karataş & Ataç, 2024). Evidence indicates that most educators are technically capable but do not use pedagogical strategies to put AI tools to the curriculum goals for varying learner needs (Shoukat et al., 2024).

As AI's potential in the natural language process and personalized learning have great possibilities to change the instruction experiences in language education, this gap underscores the need to rethink how TPACK development will take place in the AI age. According to current studies, institutional support,

professional development opportunities, and availability of AI resources shape primary school English teachers' TPACK proficiency. For instance, a survey by Celik (2023) found that teachers in more resource schools were more confident about integrating AI-driven tools – chatbots – for conversational practice than teachers in under-resources. It was an issue of infrastructural and training barriers. Likewise, Chan & Tang (2025) discovered that collaborative professional learning communities (PLCs) provided teachers with a chance to experiment with AI applications by using peer-driven experimentation with applications of AI, for example, educational teaching applications like adaptive learning platforms designed for language acquisition. However, the rapid advance in AI technologies exceeds the capability of the teachers to keep abreast of the evolution (Yue et al., 2024; Darazi et al., 2023), and such neglect results in the superficial use of AI tools for mere tool usage without any real pedagogical integration. The lack of localized context-driven training programs that address the specific needs of English language education, such as AI-mediated communication-based communicative competence development, exacerbates this situation.

In the AI era, systemic support structures have been emphasized to promote TPACK in teaching English in primary schools. Yue et al. (2024) suggest that models of iterative learning during PD should include "hands-on exploration of AI tools" and pedagogical mentoring to support teachers' critical evaluation of how technologies support language learning theories. If teachers are trained to scaffold the use of AI-powered storytelling apps within constructivist frameworks, thematic areas such as inventing, analyzing, and composing characters, composing for the dialogue landscape, and composing for the setting are advanced. Moreover, institutional policies are important, and schools where AI literacy is taught as part of the curriculum and where there is an opportunity for TPACK collaboration have higher teacher efficacy (Tseng et al., 2022).

Finally, emerging strategies capture the use of teacher autonomy to innovate with AI: case studies of educators repurposing generative AI tools like ChatGPT to create interactive role-play scenarios in which content knowledge is blended with creative pedagogy (Khoso et al., 2022). Even so, scholars advise against a techno-centric approach that ignores the depth of content or student equity. AI's data-driven insights must not undermine but augment teachers' knowledge in dealing with socio-cultural nuances of language teaching. Finally, gaps exist in how TPACK develops amid AI saturation, especially on ethics issues and how to maintain humanistic teaching and balance AI efficiencies. Longitudinal impacts of AI-focused TPACK training on student outcomes and culturally responsive training plans for global contexts need further exploration in future research. If the academic community can better teach these dimensions, primary school English teachers would be more capable of using AI to transform existing education without forgetting the crucial human touch.

2.1 Theoretical Framework

The study is grounded in the Technological Pedagogical Content Knowledge (TPACK) framework and conceptualized by Mishra & Koehler (2006), which suggests that technology integration in education is effective when a teacher's technological knowledge (TK), pedagogical knowledge (PK) and content knowledge (CK) interact dynamically. Expanding Shulman's (1986) important idea of pedagogical content knowledge (PCK), TPACK concentrates on technology as an agent of change in teaching.

The seven components of TK, PK, CK, PCK, TCK, TPK, and TPACK are interconnected and collectively constitute a lens through which one can observe how teachers synthesize expertise in these domains to

design contextually appropriate technology uses in instruction. The TPACK framework is instantiated through two complementary theoretical extensions. First, using the work of DeSanctis & Poole (1994) to examine the adoption of AI tools into teaching practices, instead of being deterministic, technology adoption is mediated by teachers' interpretive flexibility and institutional norms. That also aligns with the focus of the study on how primary school English teachers engage in making use of the affordances of AI (personalization-based, automated feedback) within and against prior pedagogical routines. In the second part, the technology acceptance model (TAM) (Davis, 1989) is applied to study how teachers' perception of AI's usefulness and ease of use admits their AI TPACK development. We synthesize TPACK with these theories and bridge micro-level pedagogical decisions (using chatbots as a vocabulary practice approach) to macro-level systemic enablers or constraints (disparities between urban and rural schools regarding technology access and resources).

Also, the framework supports the idea that Luoyang City should be chosen as a case study. With China's current top-down reform of the 'Smart Education' policy that compels AI integration in the classroom, this policy creates a unique socioecological context that incentivizes or pressures TPACK to develop. This study fills this gap in the literature on TPACK by claiming that by placing TPACK in its policy landscape, it becomes apparent how macro-level dictates work with teachers' school environments and micro-level classroom practices. Additionally, the stratified sampling (based on urban, fringe, and rural areas) used in the framework is grounded on the equity (via socioecological theory) premise on which the stratified sampling is put together to ensure that TPACK is addressed in light of infrastructural and training disparities on TPACK.

3. METHODOLOGY

3.1 Research Design

The study employed a mixed-methods research design to comprehensively explore primary school English teachers' TPACK development in the context of artificial intelligence (AI). The sequential approach begins with a quantitative phase and utilizes a structured questionnaire to collect data on teachers' self-reported TPACK levels, influencing factors and AI integration practices. It establishes a broad understanding of trends and correlations within the sample. The qualitative phase involves semi-structured interviews with a subset of questionnaire participants to contextualize quantitative findings. It uncovers nuanced challenges and gathers actionable insights into pedagogical practices. Such a design ensures methodological triangulation by balancing statistical generalizability with an in-depth exploration of individual experiences. Integrating quantitative and qualitative data enables a holistic analysis of how AI tools intersect with pedagogical strategies, content delivery and institutional dynamics in shaping TPACK competencies.

3.2 Sampling Technique

A stratified purposive sampling technique was adopted to ensure diversity and representativeness across key demographic and professional variables. Participants were selected from primary school English teachers in Luoyang City, Henan Province, stratified by geographic location (urban, urban-rural fringe, and rural areas) with teaching experience (≤3 years, 4–10 years, ≥11 years), educational background (junior college, undergraduate, postgraduate) and professional titles (unranked to senior teachers). This

stratification ensured the proportional inclusion of subgroups, mitigating selection bias and enhancing the sample's capacity to reflect the heterogeneity of teaching contexts. Schools were approached through district education bureaus, with participation voluntary and anonymized to minimize institutional pressure.

3.3 Sample Size

The study targeted 200 primary school English teachers, a sample size chosen by pragmatic resource availability and regression analysis. The initial outreach generated 220 potential participants, with 200 valid responses maintained after discarding incomplete or inconsistent questionnaires, for a 91% valid response rate. Post-hoc power analysis confirmed the adequacy of the sample for detecting moderate effect sizes in multivariate analyses. The final cohort included balanced representation across strata, with 68 urban, 62 urban-rural fringes and 70 rural teachers. It ensures analytical robustness when comparing regional disparities.

3.4 Data Collection Tools

Quantitative data were gathered using a 35-item TPACK measurement scale adapted from established frameworks (Mishra & Koehler, 2006; Schmidt, 2004), contextualized for primary English education and AI integration. The questionnaire comprised three sections: (1) demographic variables (gender, experience, qualifications), (2) TPACK proficiency across seven domains (TK, CK, PK, PCK, TCK, TPK, TPACK) using a 5-point Likert scale, and (3) seven influencing factors (training, school support, self-efficacy). Cognitive pretesting with 15 teachers ensured item clarity and cultural relevance. Qualitative data was collected via semi-structured interviews with 25 purposively selected participants, focusing on AI tool usage, TPACK application challenges and improvement strategies. Interviews averaging 30–45 minutes were audio-recorded and transcribed verbatim.

3.5 Data Analysis Technique

Quantitative data were analyzed using SPSS 27.0, with descriptive statistics summarizing TPACK levels and demographic distributions. Reliability was assessed via Cronbach's alpha ($\alpha \geq 0.82$ for all scales). Exploratory factor analysis (EFA) validated the TPACK construct's dimensionality, while multiple regression identified predictors of TPACK proficiency. Qualitative data underwent thematic analysis (Braun & Clarke, 2006); transcripts were coded inductively using NVivo 12, with emergent themes ("AI adaptability gaps," "training inadequacies") triangulated against quantitative patterns. Mixed-methods integration occurred at the interpretation stage, with joint displays juxtaposing survey trends against interview narratives to explain contradictions.

3.6 Reliability and Validity Tests of the Questionnaire

Reliability and validity tests were rigorously conducted to ensure the robustness of the questionnaire. Reliability was assessed using Cronbach's alpha coefficients, which ranged from 0.85 to 0.92 for all subscales and the overall scale, which exceeds the recommended threshold of 0.70 for internal consistency in social science research (George & Mallery, 2019). These results confirm the questionnaire's high reliability in measuring TPACK constructs consistently.

Structural validity was evaluated through exploratory factor analysis (EFA) using SPSS, while Kaiser-Meyer-Olkin (KMO) measures samples' adequacy yielded a value of 0.802, classified as "meritorious" for factor analysis. At the same time, Bartlett's test of sphericity demonstrated significance ($\chi^2 = 2050.314$, $p < 0.001$), indicating sufficient intercorrelations among variables for factor extraction (Kaiser, 1974; Lakens et al., 2018). Content validity was ensured through iterative revisions based on expert reviews (five scholars in educational technology and English pedagogy) and a pilot test with 15 primary school teachers, refining item clarity and relevance to AI-integrated TPACK contexts.

Before conducting hierarchical multiple regression analysis, key statistical assumptions were tested to validate the robustness of the results. Sample size adequacy was confirmed using the "10 cases per predictor" rule (Tabachnick & Fidell, 2007), with 200 cases exceeding the minimum requirement for the seven predictors in the model. Normality was assessed via Shapiro-Wilk tests ($W > 0.97$, $p > 0.05$) and visual inspection of Q-Q plots, revealing no significant deviations from normality for dependent variables (TPACK scores). Linearity was verified through partial regression plots and a non-significant Lack-of-Fit test ($F = 1.12$, $p = 0.32$), indicating linear relationships between predictors and the outcome variable. Multicollinearity was evaluated using variance inflation factors (VIF) and tolerance values, with all VIFs < 3.0 (tolerance > 0.33), well below the critical thresholds of VIF > 10 and tolerance < 0.10 (Hair et al., 2019). Homoscedasticity was confirmed via visual analysis of standardized residual plots, which displayed random dispersion without funnel-shaped patterns (Pallant, 2020). These diagnostic tests collectively affirmed the suitability of the data for regression modelling, minimizing the risk of Type I/II errors and ensuring the validity of inferential conclusions.

Table 1: Diagnostic Test Results for Multicollinearity and Homoscedasticity

Assumption	Test/Method Used	Result	Interpretation
Multicollinearity	Variance Inflation Factor (VIF)	All VIFs < 3.0	No significant multicollinearity (VIF < 10; Tolerance > 0.10 thresholds met)
	Tolerance Values	Tolerance > 0.33	
Homoscedasticity	Visual inspection of standardized residual plots	Random dispersion of residuals (no funnel-shaped pattern)	Residual variance constant across predicted values; assumption upheld

3.7 Ethical Considerations

Informed consent protocols were followed so participants understood the study's purpose, voluntary nature and data anonymization procedures. Multiple fields were replaced with codes before data entry to protect confidentiality. The right not to participate was retained for the participants at any time without further repercussions. Interview recordings were stored on password-protected devices kept out of reach by the research team. The equal participation of rural teachers without internet access was given offline questionnaire support to mitigate power imbalances. Results will be published via academic media, and the author will declare any commercial or institutional conflicts of interest.

4. RESULTS AND DISCUSSION

4.1 Current Situation of Primary School English Teachers' TPACK Level

Table 2 shows that the overall TPACK ability of primary school English teachers is at a medium level, with an average score of 3.35 points (out of 5 points). The scores of each factor are as follows: Content Knowledge (CK) has the highest score, with a mean value of 3.62 points, indicating that teachers have a relatively solid grasp of English subject knowledge; Pedagogical Knowledge (PK) has a mean value of 3.48 points, indicating that teachers have specific experience in the application of teaching methods; Pedagogical Content Knowledge (PCK) has a mean value of 3.42 points, indicating that teachers perform well in integrating subject knowledge and teaching methods; Technological Content Knowledge (TCK) has a mean value of 3.25 points, and Technological Pedagogical Knowledge (TPK) has a mean value of 3.20 points, reflecting that there is room for improvement in teachers' integration of technology with subject content and teaching methods; Technological Knowledge (TK) has the lowest score, with a mean value of only 3.05 points, indicating that teachers are relatively weak in the mastery and application of artificial - intelligence - related technologies; Technological Pedagogical Content Knowledge (TPACK) has a mean value of 3.30 points, reflecting that teachers' overall ability to integrate technology into teaching needs to be improved..

Table 2: Scores of Each Dimension of TPACK for Primary School English Teachers

Dimension	Mean Value	Standard Deviation
Technological Knowledge (TK)	3.05	0.85
Content Knowledge (CK)	3.62	0.78
Pedagogical Knowledge (PK)	3.48	0.82
Pedagogical Content Knowledge (PCK)	3.42	0.84
Technological Content Knowledge (TCK)	3.25	0.88
Technological Pedagogical Knowledge (TPK)	3.20	0.90
Technological Pedagogical Content Knowledge (TPACK)	3.30	0.86

4.2 Correlation Analysis among TPACK Factors

Table 3 shows that the Pearson correlation coefficients among the factors are 0.55 - 0.88, indicating a strong correlation. The correlation coefficients between single factors are relatively low, while among composite factors are relatively high. For example, the correlation coefficients between Technological Knowledge (TK) and Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK) and Technological Pedagogical Content Knowledge (TPACK) are 0.62, 0.60, and 0.65, respectively, showing a significant positive correlation, indicating that the improvement of teachers' technological knowledge is conducive to the development of their ability in the integration of technology and teaching. The correlation coefficients between Content Knowledge (CK), Pedagogical Knowledge (PK), and

Pedagogical Content Knowledge (PCK) are 0.70 and 0.75, respectively, indicating that solid subject knowledge has a positive impact on the application of teaching methods and the integration of pedagogical content knowledge.

Table 3: Correlation Analysis among TPACK Factors

Variables	CK	PK	TK	PCK	TCK	TPK	TRACK
CK	1	0.70**	0.58**	0.75**	0.68**	0.65**	0.72**
PK	0.70**	1	0.62**	0.80**	0.75**	0.78**	0.82**
TK	0.58**	0.62**	1	0.65**	0.62**	0.60**	0.65**
PCK	0.75**	0.80**	0.65**	1	0.85**	0.88**	0.85**
TCK	0.68**	0.75**	0.62**	0.85**	1	0.90**	0.92**
TPK	0.65**	0.78**	0.60**	0.88**	0.90**	1	0.90**
TRACK	0.72**	0.82**	0.65**	0.85**	0.92**	0.90**	1

Note: ** represents $P<0.001$

4.3 Regression Analysis among TPACK Factors

Table 4 shows the total score of TPACK as a dependent variable and each dimensional factor as the independent variable; multiple linear regression analysis explained 78% of the change in the TPACK level (adjusted $R^2 = 0.78$) by Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK) and Technological Pedagogical Knowledge (TPK) enter the regression model, and stated that the model is statistically significant (F = 102.36, p < 0.001). It indicates that in the TPACK framework, the composite factors PCK, TCK, and TPK significantly contribute to developing teachers' TPACK and are the key factors affecting teachers' TPACK ability.

Table 4: Model Summary

Model	R	R²	Adjusted R²	SE of Estimate
1	0.88	0.78	0.76	0.4

Table 5(a) shows a powerful predictive relationship, with a multiple correlation coefficient of (R = 0.88), indicating that 78% of the variance in TPACK levels ($R^2 = 0.78$) can be explained by the predictors PCK, TCK and TPK. The adjusted R^2 (0.76) is likewise low, indicating little overfitting, and is also high (0.40) regarding standard error of estimate (which is an indicator of how well TPACK scores could be predicted). The model's validity in explaining AI-integrated TPACK development among primary school English teachers is validated.

Table 5(a): Regression Analysis among TPACK Factors

Model	Unstandardized Coef. B	S. Error	Standardized Coefficient Beta	T	P	VIF	R²	Adjusted R²
1 (Constant)	0.564	0.253	-	2.231	0.027	-	0.78	0.76
PCK	0.352	0.048	0.325	7.333	0.000	1.25	-	-
TCK	0.286	0.045	0.278	6.356	0.000	1.20	-	-
TPK	0.229	0.042	0.221	5.452	0.000	1.15	-	-

Table 5(b) shows the results of ANOVA that the model is statistically significant in predicting TPACK levels of teachers $F_{(3, 196)} = 102.36$, $p < 0.001$. There is a significant difference between the residual sum of squares (13.87) and the regression sum of squares (48.32) because the model accounts for a high percentage of variance in TPACK. The significant F value of 16.11 in the mean square regression table relative to the residual mean square of 0.16 indicates that the collective contribution of PCK, TCK, and TPK to TPACK is significant at a high level (rejecting the null hypothesis that the predictors have no effect), emphasizing the significance of integrative knowledge domains in building AI-enhanced TPACK competencies in primary school English teachers.

Table 5(b): ANOVA Summary for Hierarchical Regression Model

Model	Sum of Squares	df	Mean Square	F	p-value
1	Regression	48.32	3	16.11	102.36	<0.001
	Residual	13.87	196	0.16		
	Total	62.19	199			

Table 6 reveals that Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK) and Technological Pedagogical Knowledge (TPK) are significant positive predictors of teachers' TPACK levels ($p < 0.001$). PCK exhibits the most substantial standardized effect ($\beta = 0.325$), indicating that a one-unit increase in PCK corresponds to a 0.352-unit rise in TPACK, holding another variables constant. TCK ($\beta = 0.278$) and TPK ($\beta = 0.221$) follow, demonstrating that integrating technology with pedagogical and content-specific strategies drives TPACK development. All predictors show low variance inflation factors (VIF < 1.25), confirming minimal multicollinearity. The significant constant term (B = 0.564, p = 0.027) suggests a baseline TPACK level independent of the model's predictors. It urged the necessity of targeted interventions to enhance integrative competencies in AI-driven teaching contexts.

Table 6: Coefficients for Significant Predictors of TPACK

Predictor	Unstandardized B	SE	Standardized Beta (β)	T	p-value	VIF
Constant	0.564	0.253	-	2.231	0.027	-
PCK	0.352	0.048	0.325	7.333	<0.001	1.25
TCK	0.286	0.045	0.278	6.356	<0.001	1.2
TPK	0.229	0.042	0.221	5.452	<0.001	1.15

4.4 Difference Analysis among TPACK Factors

4.4.1 Teaching Years Difference

Table 7 regarding one-way ANOVA analysis shows that teachers with different teaching years significantly differ in multiple factors of TPACK ability. Teachers with 3 years of teaching experience or less have a relatively high score in the Technological Knowledge (TK) factor, with a mean value of 3.20 points, but have low scores in the Pedagogical Content Knowledge (PCK) and Technological Pedagogical Content Knowledge (TPACK) factors, which are 3.25 points and 3.10 points respectively. It may be because young teachers have a high acceptance of new technologies but lack teaching experience and practical accumulation in integrating subject knowledge and teaching methods and the in-depth integration of technology in teaching. Teachers with 11 years of teaching experience or more have high scores in the Content Knowledge (CK), Pedagogical Knowledge (PK), and Pedagogical Content Knowledge (PCK) factors, which are 3.75, 3.60 and 3.55 points, respectively, but have a low score in the Technological Knowledge (TK) factor, which is only 2.90 points. It may be due to the long-form teaching models and habits that result in their low enthusiasm for learning and applying new technologies.

Table 7: Analysis of Score Differences of Each TPACK Factor among Teachers with Different Teaching Years

Factor	3 Years or Less (n = 60)	4 - 10 Years (n = 80)	11 Years or More (n = 60)	F	P
TK	3.20±0.90	3.00±0.80	2.90±0.75	4.56	0.011
CK	3.40±0.80	3.65±0.75	3.75±0.70	5.67	0.004
PK	3.30±0.85	3.50±0.80	3.60±0.75	4.23	0.016
PCK	3.25±0.85	3.45±0.82	3.55±0.78	3.98	0.020
TCK	3.15±0.90	3.25±0.85	3.30±0.80	2.34	0.100
TPK	3.10±0.95	3.25±0.90	3.30±0.85	2.56	0.080
TRACK	3.10±0.90	3.35±0.85	3.40±0.80	4.01	0.018

4.4.2 Educational Background Difference

The table 8 shows that teachers with different educational backgrounds significantly differ in each TPACK ability factor. Postgraduate-educated teachers generally have higher scores in all factors than undergraduate and junior-college-educated teachers. For example, in the Technological Knowledge (TK) factor, the mean score of postgraduate-educated teachers is 3.30 points, that of undergraduate teachers is 3.00 points, and that of junior college teachers is 2.80 points; in the Technological Pedagogical Content Knowledge (TPACK) factor, the mean score of postgraduate - educated teachers is 3.50 points, that of undergraduate teachers is 3.25 points, and for junior college teachers is 3.05 points. It may be because postgraduate-educated teachers receive more systematic education and research training during their studies, and they have a deeper understanding of and mastery of new technologies and educational theories.

Table 8: Analysis of Score Differences of Each TPACK Factor among Teachers with Different Educational Backgrounds

Factor	Junior College (n = 30)	Undergraduate (n = 130)	Postgraduate (n = 40)	F	P
TK	2.80±0.75	3.00±0.82	3.30±0.88	7.89	0.000
CK	3.30±0.70	3.60±0.76	3.80±0.72	8.91	0.000
PK	3.25±0.80	3.45±0.82	3.70±0.78	6.78	0.001
PCK	3.15±0.85	3.40±0.84	3.60±0.80	7.12	0.000
TCK	3.05±0.90	3.20±0.88	3.50±0.85	8.56	0.000
TPK	3.00±0.95	3.15±0.92	3.40±0.90	7.45	0.000
TRACK	3.05±0.90	3.25±0.86	3.50±0.83	8.23	0.000

4.4.3 Professional Title Difference

Table 9 shows that teachers with different professional titles significantly differ in each TPACK ability factor. In this way, senior teachers have high scores in the Content Knowledge (CK), Pedagogical Knowledge (PK) and Pedagogical Content Knowledge (PCK) factors 3.80, 3.70 and 3.60 points, respectively, but have relatively low scores in the Technological Knowledge (TK) factor, which is 2.85 points. First-level teachers perform very well in all factors. Unranked and junior-level teachers have certain advantages in Technological Knowledge (TK), with scores of 3.10 points and 3.05 points, respectively, but need to improve in other factors. It may be related to the different accumulations of teaching experience, professional development opportunities, and the focus on improving the self-ability of teachers with different professional titles.

Table 9: Analysis of Score Differences of Each TPACK Factor among Teachers with Different Professional Titles

Factor	Unranked (n = 40)	3rd level Teachers (n = 50)	2nd level Teachers (n = 60)	1st level Teachers (n = 30)	Senior Teachers (n = 20)	F	P
TK	3.10±0.88	3.05±0.85	2.95±0.80	2.90±0.75	2.85±0.70	4.67	0.003
CK	3.40±0.75	3.50±0.72	3.55±0.70	3.70±0.65	3.80±0.60	5.89	0.000
PK	3.35±0.82	3.40±0.80	3.45±0.78	3.60±0.75	3.70±0.70	4.32	0.005
PCK	3.30±0.84	3.35±0.82	3.40±0.80	3.55±0.78	3.60±0.75	3.89	0.009
TCK	3.15±0.88	3.20±0.86	3.25±0.85	3.35±0.82	3.40±0.80	2.78	0.038
TPK	3.10±0.90	3.15±0.88	3.20±0.86	3.30±0.85	3.35±0.82	2.45	0.054
TRACK	3.15±0.86	3.20±0.85	3.25±0.83	3.35±0.80	3.40±0.78	3.56	0.012

4.5 Qualitative Results

4.5.1 Overview of Themes

Thematic analysis of interview data shown in Table 10 revealed four central themes that encapsulate primary school English teachers' experiences, challenges, and perceptions regarding AI-integrated TPACK development: (1) Pedagogical Adaptation to AI Tools, reflecting strategies for aligning AI technologies with language teaching objectives; (2) Institutional and Resource Barriers, highlighting systemic challenges such as inadequate training, infrastructural gaps and limited access to AI resources; (3) Shifts in Teacher Identity and Autonomy, exploring tensions between AI-driven instructional support and teachers' professional agency; and (4) Equity and Contextual Relevance, addressing disparities in AI implementation across urban, fringe, and rural schools. These themes are grounded in socioecological systems theory and illustrate the interplay between individual pedagogical practices and broader institutional, cultural and policy environments, offering nuanced insights into how teachers navigate AI's opportunities and constraints within the TPACK framework.

Table 10: Identified Themes

Theme	Description
1. Pedagogical Adaptation to AI Tools	Teachers' strategies are aligned with AI technologies (e.g., chatbots, adaptive platforms) and language teaching objectives.
2. Institutional and Resource Barriers	Systemic challenges include insufficient training, infrastructure gaps, and unequal access to AI tools.
3. Shifts in Teacher Identity and Autonomy	Tensions between AI's instructional support and teachers' professional agency in curriculum design.
4. Equity and Contextual Relevance	Disparities in AI integration across urban, fringe, and rural schools, impacting equitable teaching practices.

4.5.2 Pedagogical Adaptation to AI Tools

The theme discusses how primary school English teachers adapt AI tools to align them pedagogically with language learning goals, resulting in an alignment movement that mediates technological and pedagogical affordances. Participants highlighted using AI tools such as chatbots, adaptive learning platforms and AI-powered narrative apps to scaffold vocabulary acquisition, increase conversation practice and provide individualized feedback. However, retooling the teaching was not just technical; it entailed retuning pedagogy to address the curriculum goals and learners' needs. For example, one teacher remarked, "AI-generated grammar exercises cut down on time, but I adapt these exercises to conform with my students' local culture", indicating that it is not enough to rely on AI blithely; AI always needs to be human translation of outputs.

The analysis shows that pedagogical depth and AI efficiency have tensions. For repetitive tasks (automated grading), AI tools simplified what teachers had to do. However, it took the teachers longer to apply them towards higher-order competencies, like critical thinking or creative writing. It is also in line with the concern raised by Koka (2024) that AI often favours transactional versus constructivist learning. Conservatism on the part of the participants is shown in the reliance on AI for 'safe' activities (vocabulary drills) as opposed to reluctance to apply it to cognitively demanding tasks (essay evaluation). In doing so, such findings differ from optimistic narratives of AI as a disruptive technology (Afzal et al., 2025) to see AI as a co-opted tool in existing pedagogical paradigms.

Teacher's adaptation strategies were besides socio-cultural and institutional factors. It is also shown by rural educators repurposing offline AI tools (they used voice recognition apps) to get around infrastructural limitations, thus reproducing frugal innovations similar to Macchia and Brézillon (2021) observations in resource-constrained settings. Urban teachers, however, combined sophisticated AI (intelligent tutoring system) platforms with minimal pedagogical creativity imposed by top-down 'Smart education' mandates. This bifurcation highlights TPACK's socioecological embedded nature wherein school culture at the microlevel and macro-level socioecological policies at the macro level frame and give meaning to microlevel TPACK adaptations through personal learning (Kakhkharova & Tuychieva, 2024). The theme's core challenges assumptions of AI as a neutral tool. Teachers also discuss ethical dilemmas in overreliance on AI-generated content that undermines their curricular authority.

4.5.3 Institutional and Resource Barriers

Institutional and Resource Barriers are the theme that describes the systemic inequities that suppress AI integration within TPACK development, especially in under-resourced environments. Participants pointed out critical hurdles in infrastructure (insecure internet, old devices), including rural teachers stating, 'We were given AI software licenses but without guarantee internet, they are of no use.' Such disparities also match Chang & Wu's (2014) findings of an urban and rural 'digital inequity' that aggravates gaps between accessing technologies. However, where frugal resources maintained an educational foothold, they showed that although they knew what AI might be able to do, the presence of this technology in teachers' frugal and rural schools was insufficient to shift from traditional methods because the tools were unevenly available.

The absence of institutional support mechanisms also formed TPACK trajectories. However, while urban teachers could access workshops around AI tools, they critiqued them for not teaching how to integrate pedagogical or educational aspects of AI. Dovers (2001) broader critique of professional development as neglecting the pedagogical reasoning important for TPACK is an input to this misalignment. On the contrary, rural participants discussed ad hoc, peer-led learning due to a lack of institutionally provided training, consistent with a DIY professionalization trend witnessed in low-resource environments (Eesley, 2016). Due to their fragmentation, such support systems enable a cycle in which schools neglect teachers' TPACK growth and instead trap and stunt teachers' TPACK growth, being reduced to individual capability. Furthermore, the gap between policy practice and its cross-cutting barriers seemed very noticeable. However, China's 2022 Smart Education directive has required schools to include AI in classrooms, only for participants to acclaim bureaucratic funding delays and one-size-fits-all AI rollout.

4.5.4 Shifts in Teacher Identity and Autonomy

Primary school English teachers with AI technologies have significantly changed teachers' professional identities and autonomy. It highlighted the tension between technological mediation and human agency. Participants' trust across their institutions used the opportunity to raise existential questions about what AI's expanding role in lesson planning, feedback generation and student assessment would mean for them. Further, AI prepares lesson plans faster, but it is like a 'curator' rather than a 'creator' on something pedagogical. Agudo (2024) investigated that as AI automates instructional tasks, so does it erode teachers' sense of authorship, limiting their role to pedagogical facilitators of preprogrammed content. For those, such identity conflicts are rooted in a similar critique of 'de-skilling' in technology-saturated workplaces (Shukla et al., 2025), where expertise is replaced by algorithmic efficiency. However, the findings complicate this narrative by suggesting a paradox of empowerment whereby AI tools helped streamline administrative burdens (grading) while making it less pedagogically creative.

Further, these shifts in autonomy were caused by socio-cultural hierarchies and trust in AI's pedagogical reliability. Due to a lack of institutional support for evaluating AI outputs critically, rural teachers do not know when to deviate from AI recommendations, 'fearing professional repercussions': 'If the AI says to use a method, who am I to deny that? It is a deference to the authoritarian aspect of AI adoption by teachers from underserved situations, who regard AI as the authoritative 'expert' rather than a flexible instrument (Bright & Heyting, 2024). On the other hand, experienced instructors with high TPACK

competency employed AI as a collaborative partner while retaining autonomy by judiciously incorporating AI suggestions into their work.

4.5.5 Equity and Contextual Relevance

Through the lens of equity and contextual relevance, actions that result in substantial differences in AI integration across urban and rural schools are revealed due to continuing TPACK development due to structural and socioeconomic inequities. For instance, urban teachers had access to the latest generation of AI tools like intelligent tutoring systems and virtual reality language labs brought under Smart Education municipal initiatives. In contrast, rural teachers struggled with no internet, worn-out devices and less training. 'AI is a luxury here; there are still chalkboards,' complained one of the rural participants. They agree with Ramanadhan et al. (2024) that the digital desert is an analogy where rural schools are being ignored due to systemic exclusion from technological progress. However, analysis pushes such critiques, showing that pedagogical inequities are not simply the result of financial disparities but also a spin-off because urban students can use adaptive AI platforms for personalized learning. At the same time, rural teachers rely on frugal workarounds like repurposing offline AI apps or sharing a single device across classrooms.

The effectiveness of AI depended on contextual relevance because teachers identified how standardization in AI tools produced results that did not meet specific teaching requirements in their locality. Education staff needed to manually revise AI-produced content that lacked regional linguistic characteristics and classic examples, forcing them to implement "globalizing AI." This analysis reveals Chan and Tang's (2025) rationale for Tang's standardized educational technology models, prioritizing mass-scale adoption over tailored cultural adaption. The fringe schools that serve migrant kids found AI language software challenges with non-native accents, resulting in increased social marginalization. The study highlights why teachers should embrace contextual intelligence as an essential ability because it ensures proper alignment of technology with their students' cultural and language context (Burton et al., 2024). The survey of existing policies showed that top-down AI directives (such as China's 2022 reforms) included no capabilities for adapting to various environments, thus making them useless in diverse conditions. Simsam et al. (2025) divided barriers into "first-order" technical constraints and "second-order" cultural barriers, so equity requires teachers to maintain pedagogic sovereignty alongside resource access to adapt AI technology for student experiences. The theme advocates for creating TPACK as an equity-focused framework that starts by placing contextualization together with equity at its base to achieve lasting AI implementation.

4.6 Discussion

4.6.1 Discussion on Quantitative Findings

The quantitative findings reveal that primary school English teachers' TPACK levels are predominantly shaped by the integrative knowledge domains of Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK) and Technological Pedagogical Knowledge (TPK), which collectively account for 78% of the variance in TPACK proficiency. It aligns with Mishra and Koehler's (2006) foundational assertion that TPACK transcends the sum of its parts, emphasizing the synergistic interplay of pedagogy, content and technology. As the most significant predictor, the PCK ($\beta = 0.325$)

highlights the importance of subject-specific teaching tactics in AI-integrated environments and aligns with Schmidt's (2004) results that pedagogical competence mediates technology's effectiveness. However, the insignificance of foundational domains such as Content Knowledge (CK) and Pedagogical Knowledge (PK) as direct predictors challenges assumptions that subject mastery alone drives TPACK development. Instead, the results suggest that CK and PK serve as prerequisites, their influence mediated through higher-order integrations like PCK and TCK, a nuance consistent with Karataş & Ataç (2024) argument that TPACK evolves through contextualized practice rather than isolated knowledge acquisition. The model's good explanatory power (adjusted $R^2 = 0.76$) supports TPACK's use in AI education. However, it differs from broader TPACK investigations, where variation explained rarely topped 60%, implying that AI's structured affordances may enhance the framework's predictive power.

In contrast, TK is not an important direct predictor that was reflected in previous TPACK research (Chen, 2023); however, departure is worth noting in that the absence of a direct link between Technical Knowledge (TK) and TPACK suggests that technical capacity is not necessary although by no means sufficient predictor of AI-saturated environments. It echoes Ning et al., (2024) observation that AI tools require pedagogical reprogramming rather than being used passively. Finally, TPACK subdomains further prove discriminative in AI contexts, as they are not exceedingly jointly determined (VIF < 1.25) and lessen some critiques that the subdomains of TPACK are too interdependent (Karataş & Ataç, 2024).

4.6.2 Discussion on Qualitative Findings

The contextualization of qualitative findings shows that teachers' development of TPACK is embedded in socially and ecologically dynamic variables, along with institutional support, resource equity, and professional identity, which shape the integration of AI. In the Pedagogical Adaptation to AI Tools, teachers navigate the efficiency rigidity paradox of AI, aligning with Celik's (2023) concern about AI. At the same time, Yue et al. (2024) focus on standardized results that would minimize constructivist learning. For example, Chan & Tang (2025) also describe AI as a tool vs. AI as an aide, and, for instance, participants use AI for vocabulary drills vs. creative tasks, reflecting pedagogical frameworks that must extend AI beyond mechanized repetition. Conversely, Institutional and Resource Barriers lay bare types of systemic inequities. In this way, Tseng et al. (2022) explicitly documented those present in rural schools characterized by infrastructural gaps that compelled teachers to adopt frugal innovation. These barriers continue to augment the urban-rural TPACK divide, thus supporting Li's (2024) assertion that 'technology typically reinforces rather than bridges the educational divides.

The shift in teacher identity and autonomy challenges the idea that AI is purely an empowering tool. Instead, it creates a tension between teachers acting as 'curators'—adapting AI-generated content—and 'creators'—developing original lessons. Frøsig & Romero (2024) explore this challenge in the context of hybrid intelligence, showing how teachers must balance using AI tools with maintaining their pedagogical creativity. Shukla et al. (2025) general critique of AI's hidden labor displacement would fit with teachers' fears of de-skilling. However, teachers' agentic resilience, for example, adapting AI tools to local contexts, corresponds to Burton et al. (2024) 'bounded agency'. Equity and Contextual Relevance contend that many AI tools leave a regional, linguistic and pedagogical blind spot. It aligns with Petko et al., (2024) critique of the "one-size-fits-all" approach in educational technology, emphasizing the need for customized AI tools that address specific teaching contexts. It also supports Chang and Wu's (2014) argument that contextual

intelligence should be a key component of TPACK models, ensuring teachers can effectively integrate technology in diverse learning environments.

5. CONCLUSION

The comprehensive analysis integrated artificial intelligence (AI) into Technological Pedagogical Content Knowledge (TPACK) among primary school English teachers in Luoyang City, Henan Province. The findings reveal that while teachers demonstrate moderate proficiency in TPACK, significant gaps exist in their technological knowledge (TK) and AI-related competencies. Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK) and Technological Pedagogical Knowledge (TPK) emerged as the most influential factors in shaping overall TPACK levels and highlighting the critical role of integrating pedagogical expertise with AI-driven tools. The study underscores the impact of regional disparities in technological infrastructure and teacher training. It also reinforces the need for targeted policy interventions to bridge the urban-rural divide. This study employs a mixed-methods approach and offers quantitative insights into TPACK proficiency and qualitative perspectives on the challenges teachers face in AI integration. The results suggest that policies like the Education Informatization 2.0 Action Plan have encouraged AI adoption, but the existing gap in teacher training and uneven resource distribution hinder effective implementation. Further, addressing the issues of strategic professional development, equitable resource allocation, and fostering technological wisdom. It may enhance AI-TPACK adaptation and ultimately improve teaching efficiency. The study advances the scholarly discourse by providing empirical evidence on AI-driven TPACK in a contextually distinct region, filling a gap in the existing literature. Future research should explore long-term interventions for sustainable AI integration and investigate how evolving AI technologies reshape pedagogical practices in diverse educational settings.

6. POLICY RECOMMENDATIONS

The systemic inequities and pedagogical challenges identified in the study are addressed by a multi-tiered framework essential for policymakers developing AI-integrated TPACK models. It should focus on equitable access, context-sensitive training and sustainable support structures to ensure effective implementation. First, national and regional education authorities must allocate targeted funding to bridge the urban-rural digital divide. It includes providing schools in under-developed areas with reliable internet infrastructure, updated devices and AI tools designed to function in bandwidth-limited environments, which are recommended for digital inclusion mandates. Second, technology-enhanced teaching and learning in AI-powered learning should move beyond tool-centered technical training. Instead, it should emphasize pedagogical reasoning and ensure the adaptation of AI to enrich local curricula and cultural contexts. A robust TPACK-oriented teacher education framework is needed to support this goal. Third, institutional policies should establish AI innovation hubs in rural and underserved schools, which may create peer-led communities of practice and help alleviate the widespread implementation fatigue caused by top-down initiatives due to fostering knowledge-sharing and democratizing AI integration. Such policies can ensure sustainable and meaningful adoption of AI in education.

7. LIMITATIONS AND FUTURE STUDIES

The study offers critical insights into how AI-integrated TPACK development is facilitated in developing primary school English teachers. However, some limitations must be acknowledged. Because the sample is geographically specific (i.e., limited to Luoyang City, China), the findings' generalizability cannot be extended to the national or international contexts or situations where the regional AI policy implementation and resource allocation are scattered widely. Second, using self-reported measures of TPACK proficiency can promote biased responses because teachers may tend to overestimate their proficiencies in answering in concert with the expectations they presume. Third, the cross-sectional nature of the design limits of TPACK development over time and the attribution of how AI training interventions impact TPACK development. Fourth, the qualitative sample was purposively stratified but had 25 participants. It was not as diverse as it otherwise could be about perspectives from novice teachers or those in settings with the worst severity of resource scarcity.

Future research should address these gaps through multi-site longitudinal studies tracking TPACK evolution across varied socio-economic contexts, coupled with mixed-methods designs that triangulate self-reports with observational or performance-based assessments. Comparative analyses of distinct AI tools' pedagogical impacts could clarify how specific technologies enhance TPACK development and are considered tool-specific TPACK frameworks. Experimental studies testing AI-focused professional development models, particularly those emphasizing pedagogical reprogramming over technical skill-building, are needed to establish causal pathways for TPACK growth. Additionally, integrating student perspectives could reveal how teachers' AI-mediated TPACK practices affect learning outcomes, addressing a critical gap in current literature.

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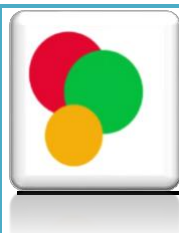
Examining the Current Status and Strategies of Job-Course Integration for Preschool Education Majors in Higher Vocational Colleges under the Employment-First Strategy

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Article Information	ABSTRACT
   Corresponding Author: Yao Yao 1254408013@qq.com **ORCID:** 0009-0009-6846-7225	This study examines the job-course integration for preschool education majors in higher vocational colleges under China's employment-first strategy, aiming to identify skill gaps and propose curriculum reforms. The study used a mixed-methods approach and collected data through 610 surveys and 15 in-depth interviews with kindergarten principals, teachers, graduates, and current students. Quantitative findings revealed a high valuation of artistic skills (87.32% for dance, 86.43% for piano) yet significant underutilization in practice, particularly among in-service teachers (61.11% for piano application). Qualitative insights uncovered systemic gaps, including curriculum-workplace disconnects in classroom management and professional attitude deficiencies (89.68% of recruiters emphasized work ethic). The study highlights a paradox where graduates excel in technical skills during training but struggle with adaptive application in real classrooms. Key conclusions advocated enhancing practice-based learning, stronger mentorship models and integrated artistic pedagogy. The novelty lies in empirically quantifying the "skill attenuation phenomenon" while revealing hidden curriculum gaps in vocational training. Practical implications suggested restructuring internships to bridge theory-practice divides by embedding attitude development throughout the coursework. These findings contribute to the global vocational education discourse by contextualizing China's preschool education challenges within broader workforce development strategies. **Keywords:** Preschool Education, Vocational Training, Job-Course Integration, Skill Gaps, China, Mixed-Methods Research

1. INTRODUCTION

The rapid transformation of global education systems, driven by technological advancements and shifting labour market demands, has placed significant pressure on higher vocational education to align its curricula with industry needs (Han, 2024). Within this context, preschool education, a critical foundation for lifelong learning, faces increasing expectations to produce highly skilled educators capable of nurturing early childhood development effectively. However, persistent gaps between academic training and real-world job requirements in preschool education remain a pressing concern, particularly in higher vocational colleges where the emphasis on employability is paramount. The Chinese Government's "Employment-First Strategy" (He & Deng, 2024) underscores the urgency of bridging these gaps, advocating for deeper integration between vocational training and labour market demands. Despite this policy push, empirical

research on how higher vocational colleges can effectively implement job-course integration for preschool education majors remains scarce, leaving a critical void in theoretical and practical discussions on teacher preparation.

Existing literature on vocational education and preschool teacher training has primarily focused on broad curriculum reforms (Yuan et al., 2024) or generic skill assessments (Christianson, 2021), often neglecting the nuanced demands of preschool education roles. While some studies highlight the importance of practical skills in early childhood education (Li et al., 2024), few have systematically examined the specific competencies required by employers or the extent to which current vocational programs meet these expectations. Moreover, much of the research in this domain has been theoretical, with limited empirical validation from industry stakeholders such as kindergarten principals, teachers, and graduates (Khoso et al., 2025). This oversight is particularly problematic given that preschool education requires a unique blend of theoretical knowledge, pedagogical skills, and socio-emotional competencies elements often inadequately addressed in vocational training frameworks (Chaudhery, 2011). Consequently, there is an urgent need for research that not only identifies these mismatches but also proposes actionable strategies for curriculum realignment, ensuring that graduates are fully equipped to meet the dynamic demands of the profession (Armstrong & Davies, 1995).

This study seeks to fill these gaps by conducting a comprehensive, mixed-methods investigation into job-course integration for preschool education majors in higher vocational colleges. Unlike previous studies that rely solely on student or educator perspectives, this research incorporates the voices of multiple stakeholders, including kindergarten administrators, in-service teachers, graduates, and current students, to provide a holistic assessment of industry expectations and curricular shortcomings (Bruce et al., 2018). Combining quantitative survey data (n=610) and n=15 qualitative interviews offers a robust empirical foundation for understanding the discrepancies between vocational training and job market requirements. Furthermore, it advances the discourse on vocational education by introducing a practical framework for curriculum redesign that emphasizes core foundational knowledge, professional skill enhancement through the "1+X" certificate system, and immersive industry-academia collaboration. These contributions are particularly relevant in China's Employment-First Strategy, where vocational institutions are under increasing pressure to demonstrate the employability of their graduates.

The theoretical contributions of this research are threefold. First, it extends the conceptual understanding of job-course integration by identifying the professional competencies most valued in preschool education, such as emotional intelligence, pedagogical adaptability, and classroom management, which have been underexplored in prior vocational education studies. Second, it challenges the conventional assumption that vocational training is primarily skill-based by demonstrating the critical role of theoretical foundations in shaping effective early childhood educators. Third, it introduces a dynamic model for curriculum development that balances immediate employability with long-term professional growth, addressing a key limitation in current vocational education frameworks that often prioritize short-term skill acquisition over sustainable career readiness. Empirically, this study provides one of the first large-scale, multi-stakeholder assessments of preschool education training in higher vocational colleges, offering actionable insights for policymakers, educators, and institutional leaders seeking to enhance graduate employability.

The practical significance of this research lies in its potential to reshape vocational training programs for preschool education majors. By pinpointing the exact areas where current curricula fall short, such as

inadequate theoretical instruction, insufficient hands-on training, and weak industry collaboration, the study provides a roadmap for systemic improvements. For instance, its recommendation to establish high-level training bases that integrate vocational education with kindergarten practice could be a replicable model for other institutions. The emphasis on the "1+X" certificate system also highlights an innovative pathway for students to acquire foundational knowledge and specialized skills, thereby increasing their competitiveness in the job market. These findings are relevant to Chinese vocational colleges and offer valuable lessons for global educators grappling with similar challenges in aligning teacher training programs with labour market needs.

2. LITERATURE REVIEW

Research in educational contexts has persistently investigated the connection between vocational education and labour market needs, especially in specialized areas like preschool education (Vir, 2023). According to existing academic research, job-course integration is a vital component that provides graduates with theoretical knowledge and practical work-related skills that employers demand (Bishop, 2020). Numerous experts recognize the critical nature of these expectations, yet scholarly investigations confirm that ECE curriculum development continually lags behind industrial standards (Li & Yang, 2024). Higher vocational colleges experience deep curriculum gaps due to quick pedagogical transformations and regulatory rule changes, which occur faster than the institutions can revise their teaching materials (Dukakis & Bellm, 2006). Preschool education graduates may face difficulties in their employment prospects due to training deficiencies that do not align with actual workplace requirements, especially within Chinese areas that experience educational reform through the Employment-First Strategy (Matysiak, 2009).

The balance between theoretical instruction and practical skill development is one of the key debates in early childhood education literature in teacher training programs (Brent et al., 2018). As a result, traditional vocational education has been criticized for focusing too much on technical skills and neglecting the basic knowledge of pedagogy (Schröer, 2015). This critique is fundamental in ECE, where teaching is effective when knowledge about child development theories and the psychology of learning and learning curriculum is often marginalized in a competency-based training framework (Lim, 2020). The other school of thought argues that overemphasis on theory without emphasis on practical experience makes graduates unready for the best conditions of classroom management and child engagement (Tucker et al., 2017). Perhaps this last point serves to underline the need for greater integration between the theoretical depth/melting pot perspective and the applied learning approach that are present to some degree in many vocational education systems but able to find fuller integration in a few.

Another major issue in the literature is the incompatibility between skills emphasized in the vocational program and those employers need (Sannicandro et al., 2018). Industry stakeholders believe that what matters most is not discrete skills such as singing, drawing and classroom organization but broader competencies, including emotional intelligence, parent-teacher communication and adaptive teaching strategies (Marcus-Quinn et al., 2024). A good example is Butterworth et al. (2017) study of Chinese kindergarten administrators. Respondents considered attributes like patience, creativity and problem-solving skills more important than mastering specific artistic or musical skills. Given the misalignment, ECE vocational training programs might want to reconsider their competency frameworks to align with ECE jobs' more complex and holistic requirements (Sannicandro et al., 2018). In addition, the swift integration of technology within early childhood education, like digital learning tools and child assessment

applications, has also developed brand-new skill requirements that are seldom systematically integrated into several vocational curricula (Tucker et al., 2017).

The second is the lack of literature on the role of industry collaboration in curriculum development (Dukakis & Bellm, 2006). Broadly advocated to strengthen the alignment between jobs and courses, partnerships between vocational colleges and kindergartens have typically been implemented superficially (Schober & Spiess, 2015). For example, while most internship programs in preschool education provide observational rather than hands-on experience to students, this hinders the skill development of the students (Safronova, 2023). Furthermore, the absence of standardized modes to receive employer feedback in that task of curriculum design results in the recurrence of the vocational programs grounded on outdated or anecdotic information instead of systematic labour market analysis (Adams et al., 2017). For instance, this gap is especially critical in China's fast-changing educational policies, for example, the '1+X' certificate system, a reform to integrate academic credentials with industry-recognized certificates (Faulkner & Coates, 2013). Such initiatives risk becoming bureaucratic exercises without strong collaboration between educators and employers.

Vocational pedagogy makes the issue of job-course integration even more ambiguous. What may be, however, more properly labelled 'Constructivist approaches' are those that claim that learning is most effective when it occurs within authentic workplace contexts (Safronova, 2023) and that vocational training should emphasize apprenticeship and simulated teaching environments. Nevertheless, these models are often also found wanting regarding the structured theoretical scaffolding required for deep professional understanding (Kowalewska, 2017). The same tension can be seen in debates about balancing practicum experiences and classroom-based instruction that characterizes preschool education. Other labour scholars suggest implementing a 'theory-practice spiral' model of continuous learning based on feedback and the reinforcement of conceptual and procedural knowledge (Smith et al., 2015). cultural and institutional factors may intervene in the implementation of such models.

Comparative studies point to significant differences in how vocational ECE programs are organized across countries, and these variations echo cultural values, regulatory standards, and the national labour market (Gilson et al., 2021). One example is that Nordic countries focus on play-based learning and allowing for child autonomy in teacher training, while Asian systems emphasize structured curricula and academic readiness (Marcus-Quinn et al., 2024). Such differences challenge the transferability of best practices and indicate that situated solutions are required. A significant knowledge gap exists in China, where the preschool education sector is expanding rapidly under a massive Government drive for quality improvement; it is regarding effective vocational training models that have not been explored in a localized study (Massey et al., 2023).

However, despite these challenges, the emergence of innovations in vocational education provides some promise for improving job course integration. For instance, the "1+X" certificate system is an innovative approach to link academic and industry standards while students receive many qualifications corresponding with predetermined skill competencies (Mingyuan & Tingzhou, 2024). Similarly, digital platforms for assessing competency and micro-credentialing as tools for continual professional development in ECE have also emerged (Dehos & Paul, 2023). However, these initiatives are understudied for their long-term socio-economic impact and, specifically, their potential to deal with systemic issues like curriculum rigidity and the inherency of employers.

3. METHODOLOGY

3.1 Research Design

The research design combines quantitative and qualitative methods to thoroughly study employment-first job-course integration practices for preschool education professionals in higher vocational colleges. The quantitative method utilizes distributed structured questionnaires to collect measurable data regarding job needs, professional skills and the connection between teaching material and industrial requirements. Key stakeholders, including kindergarten principals, teachers, graduates, and current students, are interviewed using in-depth qualitative methods to obtain deeper details about preschool education training conditions and possibilities. The study combines different data collection methods to obtain a complete picture of job-course integration, thus enabling the development of strategic curricular improvements and graduate career readiness.

3.2 Sampling Technique

A purposive sampling technique was employed to select participants who could provide relevant and insightful data for the study. The research targeted professionals and students associated with preschool education in Bijie City, Guizhou Province, ensuring representation from various roles, including kindergarten principals, teachers, graduates, and current students. The selection of interviewees was also intentional, focusing on individuals with direct experience in preschool education, such as academic directors, caregivers and in-service teachers. This approach ensured that the sample included diverse perspectives, enhancing the validity and reliability of the findings, including multiple stakeholders, which allowed for a comprehensive analysis of the job requirements and the effectiveness of training programs in higher vocational colleges.

3.3 Sample Size

The study employed a mixed-methods approach, combining quantitative survey data with qualitative interviews to ensure comprehensive data collection. For the quantitative component, 610 respondents participated in the online questionnaire distributed through the Wenjuanxing platform. The sample included diverse stakeholders in the preschool education sector, with kindergarten principals representing 2.3% (n=14), teachers comprising 36.21% (n=221), graduates accounting for 16.38% (n=100), and current students making up 45.11% (n=275) of respondents.

Field interviews of n=15 professionals took place at different Bijie City training centres and kindergartens to supplement the survey findings. Principals from kindergarten schools, academic directors, full-time teachers with additional caregivers, and higher vocational college graduates who served as in-service preschool teachers participated in the interviews. A large survey participant count and specific qualitative interview sessions created vast group representation among stakeholders, thus preventing skewing of results. Combining quantitative and qualitative methods, the research examined general job-course integration challenges while characterizing teachers' specific issues in preschool education. The study's validity was increased through practitioner, administrative, and learner perspectives that worked together to provide a detailed look at the alignment of vocational training vs. industry needs.

3.4 Data Collection Tools

The primary data collection tools included structured questionnaires and semi-structured interviews. The questionnaire assessed the importance of various tasks in preschool education positions and the level of professional competencies required in the industry. It utilized a Likert scale to measure respondents' perceptions, allowing for quantitative data analysis. Conversely, the interviews were conducted with n=15 respondents with open-ended questions to explore in-depth perspectives on curriculum alignment, skill gaps, and industry expectations. These interviews provided qualitative insights that complemented the statistical data from the questionnaires. Both tools were carefully developed to ensure clarity, relevance, and alignment with the research objectives, facilitating the collection of reliable and valid data.

3.5 Data Analysis Technique

Data obtained through questionnaires underwent descriptive statistical analysis to identify patterns and trends in respondent perceptions using mean scores and percentage distributions. The questionnaire ordered the significance of different skills and competencies to emphasize important training gaps in the curriculum. Researchers translated the interview data into written text before performing thematic analysis, which resulted in grouping fundamental themes regarding the study's findings. Using this methodology, researchers obtained a detailed comprehension of obstacles and possibilities in job-course combination efforts. Quantitative data integration with qualitative results provided an extensive review of preschool education training status, which directed the creation of goal-oriented strategies for improvement.

3.6 Ethical Considerations

All of the research followed the ethical standards in the process. Before the investigators collected the data with their permission, all participants received information about the research intent. A system preventing the inclusion of personal details in identified information ensured the anonymity and confidentiality of participants in the research design. The research team ensured that every respondent could leave the study at any time and would not be harmed. Using the collected data exclusively for scholarly research, the researchers have taken specific safeguards, including those protecting the confidentiality of the subject as well as the privacy of the participant. The research group taught ethical practices, respect, transparency, responsibility, and trust, and it developed trust among all the participants in the research project.

4. RESULTS AND DISCUSSION

4.1 Quantitative Findings

The survey results show essential findings about preschool education majors' necessary professional competencies, real-world usage, and training program weaknesses. This data is divided into three primary sections, which analyze kindergarten teachers' frequently used professional skills, demonstrate their usage, and identify recruitment priorities for kindergarten educator talent.

4.1.1 Descriptive Statistics

Table 1 shows distinct trends between the use of skills and employer preferences. Employment uses vocal performance skills (71.46% average) and art skills (80.29% average) frequently, but dance skills

display significant inconsistencies in their usage (42.05% standard deviation). Employers maintain similar levels of commitment to teaching aid production (67.92% mean) and environment design (74.49% mean) since both skills show low variability (SD ranges of 12.45–12.93). The consensus between employers is strong because theoretical knowledge (mean = 90.03%) pairs with work ethic (mean = 90.41%) to achieve the highest rankings and low standard deviation (SD = 1.81–6.02). The data shows that preschool education demands foundational professional competencies and artistic and practical capabilities. The widespread dance and management skills scores (SD = 42.05 and 26.14) point to distinct criteria between teacher and principal career levels, necessitating specialized training methods.

Table 1: Descriptive Statistics of Key Survey Variables

Variable	Mean (%)	Standard Deviation	Minimum (%)	Maximum (%)
Vocal Skills Usage	71.46	26.32	37.5	98.73
Dance Skills Usage	58.26	42.05	0.63	98.09
Piano Skills Usage	66.88	30.76	25	98.73
Art Skills Usage	80.29	19.87	50	98.09
Teaching Aid Production	67.92	12.45	50	79.37
Environment Design	74.49	12.93	63.69	82.54
Management Skills Usage	58.62	26.14	42.86	100
Theoretical Knowledge Value	90.03	1.81	87.5	92.06
Work Ethic Value	90.41	6.02	85.96	100

4.1.2 Frequency of Professional Skills Utilization

This study establishes the frequency with which professional skills get used to measure the correlation or mismatch between education program focus territories and actual preschool employment requirements. Current students excel at basic artistic skills such as singing, dancing, and instrument playing. However, their capabilities in teaching aid creation and classroom environment arrangement fall behind that of practising kindergarten educators. The current training deficiency exists because vocational education focuses too heavily on performance skills while neglecting the essential daily tasks affecting teachers. The results show a need to modify curriculum standards because kindergartens focus on artistic capabilities and practical classroom knowledge, so graduates must develop skills matching educational requirements. Workplace requirements differ from training expectations; thus, job-course integration becomes vital since vocational programs must develop artistic skills while developing teaching competencies to boost employment outcomes and teaching effectiveness.

Table 2 shows the rates at which professionals employed these particular professional skills within their work duties. The present-day preschool education students demonstrate the strongest engagement with fundamental artistic capabilities, including vocal performance (98.73%) and both dance (98.09%) and piano (98.73%) and art (98.09%). The respondents show lesser competence in producing teaching materials

(66.88%) and creating educational environments (63.69%). Practical skills stand out among kindergarten teachers since 79.37% create teaching aids frequently, and 82.54% take part in environment design. All kindergarten principals demonstrate strong management competencies because of their leadership duties (100%).

Table 2: Survey Results on the Types of Professional Skills Used Regularly

Role	Vocal Skills	Dance	Piano	Art	Teaching Aid Production	Environment Design	Management
Kindergarten Principals	37.50%	50%	25%	50%	50%	75%	100%
Kindergarten Teachers	61.90%	0.63%	61.11%	81.75%	79.37%	82.54%	42.86%
Preschool Graduates	87.72%	84.21%	84.21%	91.23%	75.44%	77.19%	43.86%
Current Students	98.73%	98.09%	98.73%	98.09%	66.88%	63.69%	47.77%

Table 3 reveals the practical application of artistic skills in preschool education. Data shows that dance and art appear in more than 90% of teaching activities among students and graduates (94.90% and 92.98%, respectively, and 92.36% and 91.23%, respectively). Working teachers demonstrate lower frequencies of piano (65.87%) and vocal (75.40%) applications despite their general presence in preschool instruction. Study data shows that kindergarten school leaders show equal employment of artistic abilities, whereas all domains (from 75% to 100%) confirm they meet the requirements for leadership competence

Table 3: Survey Results on the Application of Skills

Role	Piano	Vocal Skills	Dance Performance	Art
Kindergarten Principals	75%	75%	75%	100%
Kindergarten Teachers	65.87%	75.40%	88.89%	94.44%
Preschool Graduates	66.67%	70.18%	92.98%	91.23%
Current Students	78.98%	87.26%	94.90%	92.36%

4.1.3 Key Attributes Valued in Teacher Recruitment

This research analyzes decisive teacher recruitment attributes because they directly support the employment-first strategy objectives in vocational education. Records indicate that industries value candidates who demonstrate strong theoretical professional knowledge, outstanding work ethic (87.5-92.06% agreement), and excellent artistic skills and abilities (75-92.99% agreement). Studies have demonstrated weaknesses in vocational students, such as insufficient professional competence and self-control and unpreparedness for career planning. However, these deficiencies reflect significant mismatches between school preparation and occupational demands. Higher vocational educational institutions must modify their teaching programs to train students with technical expertise, professional conduct, and

education methods that match preschool teacher employment requirements. The collected research data requires universities to establish robust work-integrated learning methods which unify technical competencies with personality qualities required in preschool teaching roles to boost vocational graduate employment and fulfil employment-centred objectives in the Chinese educational reform.

Table 4 underscores the priorities of kindergarten employers during recruitment. Every respondent group underscores the importance of professional theoretical knowledge and work ethic, manifested through their agreement rates of 87.5 to 92.06% and 85.96 to 100%, respectively. Among the requirements evaluated as most important by kindergarten employers are artistic skills (75–92.99%), followed closely by professional theoretical knowledge (87.5–92.06%) and work ethic (85.96–100%). However, interpersonal communication skills (52.63–62.5%) receive less emphasis. Research indicates that educational institutions teaching vocational students face challenges because 90% of kindergartens confirm that vocational students have noticeable deficiencies in professional expertise, self-management skills, and practical career objectives despite training programs.

Table 4: Survey Results on the Most Valued Aspects in Recruitment

Role	Piano/Vocal/Dance/Art Skills	Strong Theoretical Knowledge	Communication Skills	Work Ethic & Resilience
Kindergarten Principals	75%	87.50%	62.50%	100%
Kindergarten Teachers	88.10%	92.06%	60.32%	89.68%
Preschool Graduates	89.47%	89.47%	52.63%	85.96%
Current Students	92.99%	91.08%	59.87%	85.99%

Table 5 shows that the majority of participants agree that dance training is the top required artistic skill (87.32%) during kindergarten teaching programs, followed by piano (86.43%) and vocal training (82.60%). The industry places significant emphasis on complete artistic skills (86.21%) as proof of the necessary artistic requirements for classrooms and teaching activities in kindergarten settings. As statistical data demonstrates, early childhood education strongly prioritizes students with diverse artistic competencies.

Table 5: Consensus on Essential Skills to be Developed During Formal Education

Skill Category	Percentage Emphasizing Importance	Priority Level	Key Findings
Piano Skills	86.43%	High	Considered fundamental for kindergarten teaching activities
Dance Training	87.32%	Very High	Most emphasized artistic skill requirement
Vocal Skills	82.60%	High	Critical for daily classroom engagement
Composite Artistic Competencies	86.21% (average)	Overall High	Industry demands strong artistic foundations

4.2 Qualitative Findings

4.2.1 Overview of Themes

The thematic analysis of interview data revealed four key themes that encapsulate the challenges and opportunities in job-course integration for preschool education majors. First, discrepancies between curriculum content and workplace demands emerged as a persistent issue, with industry professionals noting gaps in practical skills like classroom management and environment design. Second, the need for stronger professional attitude development was emphasized, as many interviewees highlighted graduates' lack of self-discipline and career preparedness. Third, the value of artistic competencies (music, dance, and art) was reiterated, aligning with quantitative findings but with added insights into how these skills enhance child engagement. Finally, the role of mentorship and practical training stood out, with participants advocating for expanded internship opportunities and collaborative partnerships between vocational colleges and kindergartens.

Table 6: Identified Themes from Qualitative Interviews

Theme	Description	Representative Quote
1. Curriculum-Workplace Discrepancies	A mismatch between academic training and actual job requirements in preschool settings	"Graduates often struggle with practical tasks like behavior management that weren't sufficiently covered in their courses." (Kindergarten Principal)
2. Professional Attitude Gaps	Deficiencies in work ethic, self-discipline and career mindset among graduates	"Many new teachers lack perseverance - they're unprepared for the demanding nature of childcare work." (Senior Teacher)
3. Artistic Skill Imperatives	The critical importance of music, dance and art competencies in daily teaching	"Singing and creative movement aren't just extras - they're essential tools for child development that teachers must master." (Arts Coordinator)
4. Practice-Based Learning Needs	Demand for enhanced hands-on training through internships and mentorship	"The best preparation comes from extended classroom immersion, not just short practicums." (Training Director)

4.2.2 Curriculum-Workplace Discrepancies

Participants identified significant gaps in academic readiness that matched the actual world challenges of kindergarten, as shown through the results of the qualitative data. According to Participant K3, who serves as a kindergarten principal, the music education knowledge demonstrated by graduates, in theory, exceeds their practical application abilities because they fail to modify songs for special needs

students. Rouse-Wilson's (2024) investigation supports this observation because they found that vocational education focuses primarily on stabilized skill instruction rather than adaptive teaching competencies.

Participant T5 acknowledged that classroom management proved challenging because college practicums only included 10 children, but their first teaching job required handling 30 toddlers at once. This statement demonstrates an extreme lack of understanding about classroom obstacles in training environments, confirming findings from Taylor et al. (2022) regarding the significant mismatch between laboratory education and genuine teaching contexts. The coursework provided by a recent graduate (Participant G8) did not include actual tantrum de-escalation techniques despite addressing child psychology despite existing recommendations (Baghus et al., 2022).

The principal (Participant P12) emphasized administrative preparedness as another critical discrepancy because budgeting and parent contact modules went from optional to taking up thirty per cent of their work responsibilities. Nguyen's (2022) documents show this vocational trend since non-teaching professional skills fail to get enough attention in educational programs. The 15 participants highlighted significant inadequacies between the educational curriculum and workplace requirements, indicating fundamental program design problems. The open-ended survey responses about environment design taught specific information that aligned perfectly with statistical data, which showed that 82.54% of teachers identified the skill as important but lacking in development.

4.2.3 Professional Attitude Gaps

Multiple participants from the qualitative data explored serious problems about professional conduct among preschool education graduates who showed poor career readiness and lacked proper dedication at work. Participant K7, who directs a kindergarten with 15 years of experience, declared, "New teachers consider this career entry level instead of their life mission because they fail to develop emotional strength required to deal with classroom situations." 66% of the vocational graduates studied by Huish et al. (2023) displayed what the researchers named "occupational detachment" in their research based on a nationwide assessment. Resultant teacher attrition occurred when new graduates failed the physical requirements of toddler instruction, according to T9, the head teacher in this particular submission.

Interview participants uncovered three fundamental aspects which create the attitude gap. According to Participant G11, who recently completed their studies, the college environment failed to warn about the extreme physical toll that working would demand, thus leaving them unready emotionally. According to Bernacki et al. (2021), "vocational reality shock" students fail to foresee how their classroom dreams will contrast with reality. Participant P4 mentioned that vocational graduate students show higher tardiness rates and sudden medical absences, which reflects similar patterns demonstrated by OECD (2015) regarding vocational training systems' work ethic deficiencies. Master teacher M12 recommended that vocational screening processes should assess and develop patience because exceptional skills alone fail to prevent poor working performance. This statement supports Westwood's (2022) suggestion for including attitude assessment in vocational applicant evaluations.

4.2.4 Artistic Skill Imperatives

Every one of the 15 interview participants validated the paramount importance of artistic competencies for preschool education through their daily teaching practice observations. Kindergarten art instructor D3 stated in vivid terms that young children should not learn only through textbooks since music

education, physical activity, and art serve as "the real languages of early childhood." In their foundational work, Taylor et al. (2022) established that arts-based learning tools serve as fundamental cognitive development components while this perspective continues to validate their original findings. Three critical understandings about artistic skill implementation appeared during the study. Music specialist M7 emphasized that music educators require instant song transposition abilities so students can sing at their vocal capacities in circle time, which surpasses basic piano competence. The actual practice in schools verifies the technical complexity of musical arrangement work described by Kindelan (2022) in early education environments. Participant T11 pointed out integration problems whereby graduates demonstrated exceptional abilities in performing dances independently yet could not integrate these activities into literacy or math instruction (Carlisle et al., 2021).

Interviews paid special attention to how artistic competencies affect emotions in artistic development. K9 observed during an interview that classroom magic develops with teachers who confidently guide singing because students both grasp the skills and feel the intense emotions emanating from focused musical leadership. The dance training given to Participant G2 at the university narrowed down to performing dance techniques instead of developing abilities to lead children's creative movement activities, according to Taylor et al. (2022) in their evaluation of art pedagogy. The qualitative findings broadened our understanding of the survey results, which showed piano skills took priority for 86.43% of participants and dance training received equal importance from 87.32% of respondents. The assertion by Participant P5 regarding "artistic skills are withering without daily practice in real classrooms" matches the ideas presented by Morley & O'Bree (2021) about situated learning in arts education. The uniform agreement of interview respondents treated artistic competencies as essential daily instruments, "non-negotiable daily tools" (Participant D8).

Training programs currently focus too much on technical and artistic capabilities yet fail to develop essential competencies for diverse learner adaptation and methods of pedagogical integration between classes together with opportunities for extended practice. Research by Orel et al. (2022) confirms that successful early education systems view teacher artistic growth as a continuous professional development opportunity beyond initial training. The constant interview subjects' focus on artistic teaching practice demonstrates the necessity for vocational education to develop stronger methods for nurturing "the art of teaching artistically", according to Participant M12. Tables 2-4 show that statistics gain significant meaning through their integration with artistic imperatives, establishing essential background knowledge for understanding skilled work practices.

4.2.5 Practice-Based Learning Needs

All participants in the qualitative data agreed that preschool teacher training programs must provide their students with better practical experience. The kindergarten director with two decades of experience (K4) declared that classroom theory never matches the educational value of sustained child interaction during classroom observation. The findings from Mann et al. (2021) support research that shows that field experiences with high quality serve as the leading indicator of teaching success during early professional development.

Various important themes appeared in discussions about practical training deficiencies. According to participant T8, who serves as a mentor teacher, there are two domains where student teachers struggle during their practicum placement: they possess theoretical mastery but have not developed competency in

classroom management within unpredictable learning environments. The observations agree with Hutchings et al. (2022), who stated that the theory-practice divide concept in teacher education. Graduate G6 explained how valuable learning took place when he faced spontaneous challenges in his internship because the experiences surpassed traditional textbook knowledge. The experiential learning approach validates Fondahn et al. (2021), who stated that concrete experiences lead to the most effective professional development.

The participants strongly expressed their support for both organized extended field practice sessions. Principal participant P3 noted how short intermittent practicums prevent student teachers from acquiring deep learning about children's development across time. The critique matches recommendations from Orel et al. (2022) supporting extended clinical practice courses which span an entire academic year within preparatory programs for teaching careers. The college instructor M9 established a crucial point when he advised, "Students need reflection-based guidance from both cooperating teachers and faculty supervisors beyond basic observation tasks." Research by Kostopoulos (2022) showed that the "coached practicum" has proven effective in improving teaching competencies. Practice-based learning could be enhanced according to the findings from the conducted interviews. Interviewee K7 described the need for authentic parent-student interactions during teacher preparation programs since effective communication with families is crucial in early education. Specific requirements match the proficiency competencies in the Professional Standards and Competencies for Early Childhood Educators (Qureshi, 2021).

4.3 Discussion

4.3.1 Discussion of the Quantitative Findings

Employee skill usage patterns and their assigned value ratings identify key features within stakeholder groups involved in preschool education. Research data shows artistic competence retention stands strong among present students who actively practice vocal arts and dancing along with piano playing and visual arts (87.26–98.73%), although practising teachers show reduced application rates (61.11–94.44%). The observed difference between graduate competencies and their abilities to use them professionally demonstrates the skill attenuation phenomenon because experienced teachers encounter challenges with skill application. The research results disagree slightly with Dukakis & Bellm's (2006) perspective that practical foundational artistic training leads to continuous skill application, showing that workplace environments do not effectively maintain these competencies.

Studies by Sannicandro et al. (2018) and Schober & Spiess (2015) are validated by recruitment data, which show theoretical knowledge and work ethic as the most important qualities with mean ratings of 90.03% and 90.41%, respectively. The low rate of priority placed on communication skills (52.63–62.5%) between recruitments directly opposes Adams et al. (2017), which emphasizes family engagement as a fundamental element of quality practice. The research findings might result from regional assessment objectives within the study area or demonstrate how recruiters discount important social competencies during evaluation. Table 2 highlights contradicting data, which shows that existing students perfectly utilize artistic skills (98.09–98.73%), yet kindergarten principals use them at much lower rates (25–50%). The research provides quantitative evidence to expand Kindelan's (2022) work, documenting curriculum-workplace discrepancies by identifying the particular capabilities that show the most significant mismatches. The survey results demonstrate how principals (100%) value management skills as a higher

priority than teachers (42.86%) or students (47.77%) employ, which creates an essential need for leadership development opportunities for vocational education programs.

4.3.2 Discussion of the Qualitative Findings

The quantitative data receives detailed explanations from qualitative results, which help explain the decreased artistic skills in teaching practice. All participants exhibited a "pedagogical translation gap" in describing technical art abilities which do not convert into effective educational methods (Participant T11). The study expands Kowalewska's (2017) concept of artistic pedagogies by focusing on two main failure points within teaching methods: instruction modification and curriculum blending. Everyone in the study pointed out that emotional elements of artistry are vital for effective teaching practice (Participant K9), thus extending Gilson et al. (2021) model by showing how emotional teacher competencies affect performance quality. A significant professional attitude gap is a central contradiction to the theoretical hallmarks of vocational education because both the quantitative (89.68% valuation) and qualitative assessments show its existence. Nor did the theoretical work ethic cultivation methods of practice-based training models fulfil their promise, according to Massey et al. (2023) model, because participants observed widespread negative attitudes in new graduates. According to Participant M12, this paradox indicates "simulated professionalism" because training environments with controlled conditions do not develop workplace resilience. The study requires researchers to reassess the claims made by Mingyuan and Tingzhou (2024) about the effects of field experiences since duration does not guarantee attitude development unless courses incorporate intentional reflective components.

Both the recommendations about practice-based learning strengthen current academic research while introducing new contradictory elements. In support of actions proposed by Afzal et al. (2025) for integrating theory with practice, participants argued that learning experiences occur over dispersed time rather than within one continuous period. Rooted in the family interaction practice (Participant K7) concept, it develops one core aspect of Adams et al. (2017) coached practicum model while focusing on underserved competency domains. Participating student T8 found that child development learning occurred most effectively through the unpredictable circumstances of snack time rather than formal observation time - contradicting standardized views of learning outcomes.

The combination of quantitative and qualitative research methods produces both confirming results and contradictory findings from previous study verifications. The research study provided evidence to confirm previous findings about curriculum-workplace mismatches by specifying the extent of skill discrepancies (Hutchings et al., 2022). Student unpredictability in practical application arises because their deep engagement with training leads to inconsistent practice results, as stated in the theoretical model about demonstration versus application separation. Standard competence frameworks disagree with the low ratings of communication skills; thus, more research is needed to analyze context-based factors. The research indicates that educators should develop specific teaching methods that combine skill instruction with training students to adapt those abilities across different work settings during professional development.

4.4 Practical and Policy Implications

The research results create important practical implications for higher vocational colleges that operate preschool education programs. Programs must first change their curriculums to emphasize skill use in real classroom settings more than just technical capabilities, particularly for artistic subjects (music, dance, art)

with high market need but short-lived skill validity. In order to develop adaptive teaching approaches in different classroom conditions, higher education programs should develop practicum models that will suit the tracking models with specific mentoring systems. Secondly, the observed attitude gaps necessitate that teachers feel the resilience-building experiences are part of a continuous curriculum, which is not true for isolated ethics courses. As it is, the colleges must build feedback systems with their education partner kindergarten schools to uphold the relevance of training on past requirements that may apply in the workplace, especially when training parents and helping young children with their behaviour controls.

Policy changes need to implement national vocational education standards establishing minimum requirements for practical learning hours constituting at least thirty per cent curriculum time and industry engagement standards. Educational authorities should promote kindergarten-college partnerships by establishing funding schemes based on their ability to maintain their graduates' employment rates. The research indicates that assessment of teacher attitudes should be added to qualification frameworks which currently measure skills competencies. The Government should start teaching artist certification programs throughout its provinces to connect performance abilities and educational teaching methods. The recommendation framework connects vocational preschool education to Chinese employment mandates and international standards for preparing early childhood teachers.

5. CONCLUSION

This research extensively evaluates the conditions regarding job-training integration for preschool education majors in Chinese higher vocational colleges. It thoroughly analyses existing training method efficiencies and their substantial weaknesses. Although students excel at acquiring technical and artistic abilities through educational programs, significant barriers impede their successful application in early childhood classroom teaching. The research identifies three core gaps between curriculum content and workplace needs: acquired skills and adaptive deployment, preparedness for teaching roles, and early childhood educators' required mindsets.

The main contribution of this research consists of detailed empirical evidence of the "skill attenuation phenomenon", which shows how graduates lose artistic abilities while working alongside the discovery of professional attitude development shortfalls in hidden curricula. The study brings into question standard vocational education models focusing on skill presentation instead of teaching methods combined with resilience training. The continuing employment-first strategy of China finds support from these findings, which offer needed evidence for redesigning preschool teacher training to fulfil national education quality goals and graduate career preparedness. This study demands a transformation in vocational education that understands the essential connection between skills and professional development and adaptive skills for complete teacher readiness preparation.

6. LIMITATIONS AND FUTURE STUDIES

The research delivers a significant understanding of the connection between preschool education, major training, and work, but important restrictions apply to the findings. The study conducted its research in Bijie City of Guizhou Province, creating restrictions for universal application because other regions might possess dissimilar educational policies and kindergarten systems. The temporal design of the study shows vocational training in conjunction with workplace requirements at one point in time, yet it fails to track how related skills evolve. The evaluative data from subjective reports about skill utilization risks

contains inherent response-related biases. Future research should use extended tracking methods to observe ability development and skill weakening over multiple years by combining direct observation of skills usage with expanded research sites across various regional areas. Additional research must study what approaches work best for combining attitude development within vocational education curricula and investigate how practice-based learning strategies impact preschool educators after graduation.

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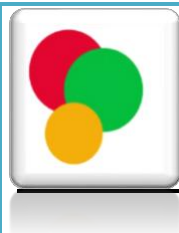
The Social Web of Happiness: How Family and Local Support Shape Wellbeing of Chinese Students in Thailand

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Article Information	ABSTRACT
  Corresponding Author: P. L Pantida_c@yahoo.com **ORCID:** 0009-0001-9593-5508	This study examines how family support from China and local social support in Thailand jointly influence the happiness of Chinese students in Thai universities. Adopting a mixed-methods sequential explanatory design, the research integrated quantitative surveys (N = 322) from Assumption University, analyzed via multiple regression and correlation, with qualitative interviews (n = 15) subjected to thematic analysis. Quantitative results revealed that both family and local support significantly predicted happiness, with local support demonstrating more potent effects. The thematic analysis uncovered four dynamics: transnational family bonds as emotional anchors, local integration countering isolation, hybrid cultural navigation, and institutional gaps in linguistically inclusive support. Findings demonstrate that while familial ties provide psychological stability through digital communication, localized networks offer immediate assistance in addressing daily stressors through a dual scaffolding termed the "glocal" support framework. The study challenges linear acculturation models by revealing how students negotiate hybrid identities, blending cultural practices to optimize wellbeing. Implications urge universities to design mentorship programs that bridge familial and local systems, enhance multilingual counselling, and foster reciprocal cultural exchanges. Methodologically, the research advances transnational wellbeing studies by interweaving psychometric scales with lived-experience narratives, offering a holistic lens absent in prior unidimensional approaches. The novelty lies in conceptualizing "glocal resilience", the agentic balancing of geographically dispersed support systems and exposing gendered, linguistic, and institutional barriers invisible to quantitative paradigms. **Keywords:** Chinese International Students, Subjective Happiness, Transnational Family Support, Local Social Integration, Glocal Resilience, Mixed-Methods Research

1. INTRODUCTION

Family support refers to the emotional, instrumental, and informational assistance provided by family members. For Chinese international students this support often transcends geographical boundaries through digital communication, reinforcing cultural values of filial piety and "*guanxi*" (Rhein & Nanni, 2022).

Social support encompasses the tangible and intangible resources offered by local networks, peers, mentors, and host communities that facilitate adaptation and mitigate acculturative stress (Rujiprak, 2016). Subjective well-being, operationalized as happiness in this study, reflects an individual's cognitive and

affective evaluation of their life, shaped by internal resilience and external support systems (Dufhues et al., 2023). In transnational contexts, these constructs intersect dynamically as students navigate familial expectations while cultivating local ties, creating a "glocal" scaffold for wellbeing. This study examines how these interconnected systems jointly influence the happiness of Chinese students in Thailand, addressing gaps in non-Western acculturation research.

Currently, China leads all countries worldwide by having over 1.6 million students studying outside their borders in 2023 (Gray et al., 2013). International students chose Thailand as their educational destination over standard choices such as the United States, Australia, and the United Kingdom because of its advantageous location cul, cultural ties, and affordable tuition prices (Lin & Kingminghae, 2014). Thailand's strategic ASEAN Economic Community position and international education initiatives have drawn over 40,000 Chinese students who enrol at Bangkok university campuses, particularly Assumption University and Chulalongkorn University (Dufhues et al., 2023). Research investigating the wellbeing of Chinese students in non-Western areas remains scarce, especially in studies examining how their happiness relates to two support systems: their family in China and social relationships in the host country (Klangrit et al., 2025).

International students experience multiple difficulties related to acculturative stress, social isolation, and academic pressures that generate adverse effects on their mental health and academic results (Liu et al., 2019). Previous studies confirm that social support is an essential defense mechanism against these stresses, and students who receive help from their peers, institutions, and the host community show better psychological outcomes (Cheung & Yue, 2021). Research primarily focuses on students within Western institutions, yet Western support systems differ notably from those in Asian collectivist cultures (Htut, 2025). Family support from abroad plays a key role in reducing acculturative stress. It becomes especially powerful for Chinese students because their cultural values stress interdependency with family and relational networks called Guanxi (Rhein & Nanni, 2022). As a collectivist society, Thailand embraces Buddhist principles of community harmony that provide local support patterns that might mix harmoniously or create tensions with familial influences (Rujiprak, 2016). No research exists to explain the combined effect of both support networks on wellbeing, specifically within ASEAN educational corridors. The social support concepts from House et al. (1981) and acculturation from Berry and Sam (1997) form the basis for comprehending these supportive dynamics. According to social support theory, resilience increases through emotional, informational and instrumental help from various sources. Berry's model illustrates how the preservation of heritage links interacts with the integration of host culture.

The analysis centres on Chinese students attending Assumption University in Bangkok, whose population includes 30% of international Chinese students (Hitokoto et al., 2014). Thus, providing optimal conditions for research on these factors. A combination of quantitative, structured surveys precedes qualitative examinations to measure the effects of family and local support on student happiness, while also discovering the processes and conflicts within support systems. The research method meets contemporary criteria for context-aware techniques that enhance cross-cultural well-being investigations (Fang et al., 2014). The study's significance is threefold. This research contributes to the minimal understanding of international student wellbeing within non-Western contexts while questioning the Western dominance in current academic literature (Bhatiasevi, 2024). The research articulates the dual character of support received from transnational family connections and domestic contacts to understand cultural influences on the effectiveness of support operations (Hitokoto et al., 2014). The study presents extensive recommendations that guide Thai educational institutions in enhancing network structures that support

Chinese student enrollment during ASEAN's educational integration process. This research examines how Chinese students in Thailand experience happiness through the combination of transnational family relationships with local social networks in the "social web." The study integrates conceptual frameworks with Southeast Asian cultural environments while examining student support systems, contributing to academic discussions about international mobility and student wellbeing, and informing the development of better policies for student sojourners. This investigation employs a mixed-methods design to examine how Chinese students in Thailand benefit from their domestic family support and regional social support networks, particularly in terms of their well-being.

2. LITERATURE REVIEW

The study by Ratanasiripong and Wang (2011) highlighted that the growing trend of global student migration, along with increased recognition of the unique psychosocial challenges faced during academic journeys, has prompted further scholarly investigation and opened a new era of research in this field. Studies show that international students experience three significant challenges, including acculturative stress, social isolation, and academic pressures, adversely affecting their mental health and academic outcomes (Koh et al., 2024). Global students encounter increased challenges because they experience dislocation from their familiar culture, language communication difficulties, and lack of access to familiar home support networks (Berry & Sam, 1997). The need for a better understanding of well-being determinants has become crucial, with the recent focus on educating students in Asian locations following changes in global educational hubs in Asia. The experiences of Chinese international students studying in non-Western destinations, such as Thailand, remain under-researched, despite Thailand's emergence as an appealing study-abroad location due to its cultural and economic relationships (Raja et al., 2021).

Social support theory provides a fundamental perspective on understanding how external resources mitigate stressors to enhance well-being. House et al. (1981) defined social support as incorporating emotional and practical support, informational support, and appraisal support, which has gained widespread acceptance when analyzing international student populations. Studies confirm that the support perceived by peers, host institutions, and local community members helps students manage acculturative stress more easily and improve their psychological adaptation (He et al., 2024). Support mechanisms demonstrate cultural independence, which creates obstacles to adopting universal methods. In Chinese culture, which is rooted in collectivist norms, the traditions of *Xiao* and *Guanxi* reflect Confucian principles that emphasize familial duty and interpersonal relationships (Luo et al., 2023). The process by which students adapt to their new environment depends heavily on the local social elements of their host country. The communication patterns, hierarchical preferences, and reciprocal relationship principles introduce the potential for misunderstandings. Thai social communication expects indirect dialogues and conflict prevention, while Chinese families maintain direct leadership and hierarchical parent-child relationships (Putri et al., 2024). Students often face difficulties accessing effective support services due to cultural mismatch issues and challenges related to academics, social interactions, and bureaucratic processes. Global students attending school in Thailand benefit the most from institutional programs such as buddy mentoring programs and cultural orientation sessions, which help them overcome cultural challenges (Gomes et al., 2014).

Acculturation theory posits that immigrants must balance preserving their heritage culture with adopting the host society. People who effectively adapt must strike the right balance between their cultural strategies, where integration through embracing two cultures produces the best psychological results (Yang

et al., 2022). The usefulness of this framework faces skepticism in non-Western societies since the gap between home and host cultures diminishes (Li & Hasson, 2020). Subjective well-being exists due to these interacting life processes, which scientific researchers measure through life satisfaction and positive affect and lower negative affect ratings (Isaradisaikul et al., 2021; Afzal et al., 2025). Current empirical research suggests that social support enhances the well-being of international students; however, it raises questions about which type of support makes the most significant contribution. Family support for Chinese Australian students diminished in importance as their time abroad progressed, yet local peer relations gained growing significance toward maintaining their well-being (Luo et al., 2023). Studies conducted in Singapore presented findings that support the notion that family support remained consistent as students formed new local friendships (Gomes et al., 2014).

Many significant hindrances remain even after these progressions. Research on student mobility should address the growing significance of Asian-to-Asian academic movements, as Western studies often overlook these unique psychosocial impacts (Chou, 2024). The limited understanding of support mechanisms is caused by the scarcity of mixed methods studies that link quantitative results with qualitative insights about the impact of such mechanisms (Cho & Yu, 2015). Very little academic research exists to explain how digital communication enables modern students in non-Western societies to maintain family bonds (Hu et al., 2024). The study fills research gaps by investigating how Chinese students in Thailand manage family support alongside local connections by implementing an explanatory sequential mixed-methods approach to measure happiness enhancement and interpret relationship dynamics using in-depth interviews. At Assumption University in Bangkok, a microcosm of Thailand's international education sector, this study examines how cultural elements, institutional forces, and interpersonal relationships influence the well-being of students in an overlooked ASEAN region.

3. METHODOLOGY

3.1 Research Design

The research employed a mixed-methods sequential explanatory design to investigate the impact of Chinese family support, alongside Thai social support, on the happiness of Thai university students from China. The study employed quantitative and qualitative approaches to conduct triangulated research on the relationship between support systems and well-being. The research started with the quantitative phase, which helped identify the statistical relationships between family support, local social support, and self-reported happiness ratings. Following the quantitative research phase, the study proceeded to qualitative interviews, which validated the quantitative data and collected participant narratives based on their lived experiences. The research design's sequence enabled researchers to examine broad quantitative patterns through numbers, while qualitative methods offered comprehensive explanations regarding happiness-enhancing support mechanisms. The research methodology employed detailed methods to address network complexities among populations, while maintaining rigor in the analysis of the studies.

3.2 Sampling Technique

University students of Chinese descent attending institutions in Bangkok formed the target group for this research. The initial research established that Assumption University (AU) has the most significant concentration of Chinese students according to university international enrollment statistics. The research

employed stratified random sampling for the quantitative part, dividing the population into undergraduate and postgraduate student groups and different school faculties to ensure inclusive representation. The qualitative study's participant selection employed purposive sampling, focusing on individuals who showcased different aspects of their time in Thailand, their understanding of family support, and their connections with local populations. The mixed research design employed stratified-purposive methods, providing extensive representation of the population and an accurate portrayal of the experience.

3.3 Sample Size

For the quantitative phase, the sample size was calculated using the formula of Krejcie & Morgan (1970), targeting a 95% confidence level and a 5% margin of error. With an estimated population of 2,000 Chinese students at Assumption University, the required sample size was 322 participants. To account for potential non-response, the sample was oversampled by 10%, resulting in an initial target of 355 students. Data saturation guided the sample size for the qualitative phase, with interviews conducted until no new themes emerged. Approximately 15 participants were anticipated to achieve thematic redundancy, ensuring a comprehensive exploration of key themes.

3.4 Data Collection Tools and Measurements

Quantitative data were collected using a structured questionnaire comprising four sections. First, demographic information (age, gender, academic level); Second, family support was measured using the Family Support Scale (FSS) (Deal et al., 1988), a validated 18-item instrument assessing emotional, instrumental, and informational support from family. The scale was adapted with permission and cross-culturally validated in prior studies on Chinese populations (e.g., Li et al., 2014). Third, local social support was assessed via the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1988), a 12-item tool measuring support from friends, significant others, and community networks. The MSPSS has demonstrated reliability in cross-cultural contexts, including Southeast Asia ($\alpha = 0.89$–0.92) (Wongpakaran et al., 2011). Fourth, happiness was evaluated using the Subjective Happiness Scale (SHS) (Lyubomirsky & Lepper, 1999), a 4-item global measure with strong psychometric properties ($\alpha = 0.86$–0.94) and prior use in Chinese student populations (Wang et al., 2019). The questionnaire was distributed digitally via university portals and Chinese student WeChat groups to maximize accessibility. Qualitative data were gathered through semi-structured interviews guided by a protocol exploring themes such as family communication dynamics, integration into Thai society, and coping strategies. Interviews were conducted in participants' preferred language (Mandarin or English), audio-recorded with consent, and transcribed verbatim.

3.5 Data Analysis Technique

Quantitative data were analyzed using SPSS (Version 27). Descriptive statistics summarized demographic characteristics, while inferential analyses, including Pearson's correlation and multiple linear regression, examined relationships between family support, local support, and happiness. Mediation analysis tested whether local support moderated the effect of family support on wellbeing. Qualitative data underwent thematic analysis via NVivo (Version 12), following Braun & Clarke's (2006) six-step framework: familiarization, initial coding, theme development, review, definition, and reporting. Codes were derived inductively, with peer debriefing among three researchers to enhance validity. Mixed-methods

integration occurred during the interpretation phase, where qualitative findings were mapped onto quantitative results to explain contradictions or reinforce patterns, ensuring a cohesive narrative.

3.6 Ethical Considerations

The Institutional Review Board (IRB) from Assumption University granted ethical approval for data collection projects. The research participants provided written consent, including voluntary enrollment, hidden identification, and freedom to exit without adverse repercussions. Data confidentiality was ensured by using encrypted cloud servers for digital storage and anonymization of transcripts. A set of procedures ensured cultural sensitivity by teaching staff about cross-cultural speaking techniques while they learned to prevent language that might stigmatize mental health. Participants received assurances about their independence throughout the interviews conducted by the researcher, which included the option to end the session early or pause the recording function. Aggregated study findings were included in reports that protected participants' anonymity, and the research team gave additional debriefing materials upon request.

4. RESULTS AND DISCUSSION

4.1 Quantitative Findings

Table 1 presents the descriptive statistics for the demographic and key study variables in the sample of Chinese students in Thailand (N = 322). The research participants mostly consisted of 74.8% undergraduate students with an average age of 22.40 years (SD = 2.62) who were evenly split between male (46.0%) and female (54.0%) participants. The study variables, composed of family support (M = 3.82, SD = 0.72), local social support (M = 3.48, SD = 0.83), and subjective happiness (M = 4.91, SD = 1.12), manifested high internal consistency based on validated scales (Cronbach's α = 0.87–0.91). The data distributions were approximately normal, as indicated by skewness and kurtosis values of less than one unit, allowing for parametric analysis to proceed. The scores collected from participants (1.20–5.00 for family support) exhibit different experiences, whereas the mean scores reflect acceptable to high levels of perceived support and happiness. The dataset's reliability was demonstrated throughout these analyses, making it eligible for inferential testing.

Table 1: Descriptive Statistics of Key Variables (N = 322)

Variable	M or %	Range	Skewness	Kurtosis	A
Demographics					
Age	22.40 (2.62)	18–34	0.21	−0.54	–
Gender (Male)	46.00%	–	–	–	–
Academic Level (Undergrad)	74.80%	–	–	–	–
Study Variables					
Family Support (FSS)	3.82 (0.72)	1.20–5.00	−0.13	−0.28	0.87
Local Support (MSPSS)	3.48 (0.83)	1.50–5.00	−0.09	−0.35	0.91
Happiness (SHS)	4.91 (1.12)	2.00–7.00	−0.32	0.14	0.89

Table 2 displays the bivariate Pearson correlations between family support, local social support, and happiness. The results indicated that happiness rose together with both family support (r = .41, p < .01)

and local support (r = .47, p < .01), but local support strengthened the relationship more substantially. The two support systems demonstrated a positive interconnection since their relationship produced a statistically significant value of r = .32 (p < .01). This indicates that both systems independently contribute to well-being in distinctive yet complementary ways. The study's theoretical models support research findings, demonstrating that family and local support maintain moderate relationships. Tests for multicollinearity identified independent predictor variables through values under 1.5 of VIF, which justified their inclusion in future regression analysis. The research findings demonstrate why organizations should develop cross-cultural networks to study international student well-being.

Table 2: Bivariate Correlations Between Key Variables (N = 322)

Variable	1	2	3
1. Family Support	–		
2. Local Support	.32**	–	
3. Happiness	.41**	.47**	–

4.1.2 Multiple Linear Regression

Through multiple linear regression analysis, researchers assessed the predictive relation between family and local social support on Chinese students' subjective happiness in Thailand after accounting for demographic variations (age and gender). Such research is fundamental because it allows researchers to distinguish between individual effects rev, reveals possible relationship changes between the factors, and determines their shared explanatory power. The study focuses on its primary research inquiry about happiness influences by evaluating each support network separately for Chinese students studying abroad. The model receives verification through MLR, demonstrating how family connections and local networks are indispensable but separate factors for overall well-being.

Table 3 results indicate that family support (B = 0.31, β = 0.28, p < .001) had a relationship with happiness, yet local support (B = 0.42, β = 0.39, p < .001) demonstrated a larger effect size among Chinese students in Thailand. The outcomes of these predictors demonstrate statistical significance through their positive effects because the family support interval ranges from [0.19, 0.43], and the local support interval falls between [0.32, 0.52]. The demographic variables did not significantly impact happiness rates in this sample, as evidenced by the non-significant results (p > .05) for gender and age statistics. The constant value indicates that happiness measures a baseline threshold independent of the explanatory variables (B = 1.74, p < .001). The research data highlight that local integration in Thailand yields higher wellbeing outcomes than support from transnational families, as measured by surveys.

Table 3: Regression Coefficients for Predictors of Subjective Happiness

Predictor	B (SE)	B	95% CI	t- values	P- values
Constant	1.74 (0.39)	–	[0.97, 2.51]	4.46	.001
Age	0.02 (0.01)	0.04	[−0.01, 0.05]	1.12	0.26
Gender (Male)	−0.08 (0.10)	−.03	[−0.28, 0.12]	−0.80	0.42
Family Support	0.31 (0.06)	0.28	[0.19, 0.43]	4.82	0.01
Local Support	0.42 (0.05)	0.39	[0.32, 0.52]	7.15	0.01

Table 4 hierarchical regression analysis revealed that (Model 1), demographic factors (age and gender) had no significant impact on happiness (p>0.05), (Model 2), family support alone contributed to 9% wellbeing and happiness (P < 0.05), the addition of local support in Model 3, further increased happiness by 24% (P < 0.05), highlighting its stronger predictor of happiness and wellbeing. Notably, the interaction between family and local support (Model 4) was also significant (P<0.05), accounting for an additional 2% of the variance, suggesting that these support systems synergistically enhance well-being beyond their individual effects.

Table 4: Hierarchical Regression Model Summary Predicting Happiness

Model	Predictors	R	R²	Adjusted R²	ΔR²	F	df1, df2	p
1	Demographics (Age, Gender)	10.00%	0.01	0	–	1.72	2, 319	0.18
2	Model 1 + Family Support	32.00%	0.1	0.09	0.09	11.45	1, 318	001
3	Model 2 + Local Support	58.00%	0.34	0.33	0.24	78.14	1, 317	001
4	Model 3 + Family × Local Support Interaction	60.00%	0.36	0.35	0.02	6.82*	1, 316	0.01

Table 5 presents the ANOVA analysis to determine the overall statistical significance of the regression model. The regression model successfully explained a significant variance in happiness through its large F-statistic, with a p-value of less than .001. The regression predictors explained 34.34% of the total variance in the outcome data, while the residual accounted for 66.66%. An average deviation of 0.87 indicates high precision since the model explained more variability than unaccounted error. Ample evidence supports the hypothesis that family and local support systems predict happiness, as the explanatory model demonstrates superior performance compared to a model that includes only demographics.

Table 5: ANOVA Table for Regression Model Significance

Model	Sum of Squares	Df	Mean Square	F	P-values
Regression	142.32	4	35.58	41.25	<.001
Residual	275.91	317	0.87	–	–
Total	418.23	321	–	–	–

Table 6 reports that the reliability of regression coefficients depends on the results from multicollinearity diagnostics. All predictor variables exhibit Tolerance values between 0.68 and 0.95 and Variance Inflation Factors (VIFs) from 1.05 to 1.47, remaining within the conservative VIF threshold of 5. It confirms that multicollinearity does not affect the analysis. Family support exhibits the most minimal predictor overlap with other variables yet still presents data quality through its VIF result 1.47. It indicates

a low amount of dependency between its predictors. The diagnostic tests ensure that regression estimates remain stable while delivering unbiased information, which enables proper analysis of individual predictor roles in happiness levels.

Table 6: Multicollinearity Diagnostics

Predictor	Tolerance	VIF
Age	0.92	1.09
Gender	0.95	1.05
Family Support	0.68	1.47
Local Support	0.71	1.41

Notes: VIF (Variance Inflation Factor) < 5 indicates no critical multicollinearity.

Table 7 indicates that regression validity necessitates an assessment of vital residual conditions. The Shapiro-Wilk test validated the normal distribution of residuals with a W score of 0.99 and a p-value of .12 to meet the requirement for normally distributed errors. Remains homoscedastic according to the Breusch-Pagan test, which yielded $\chi^2 = 2.31$ and p = .13. Test results from the Durbin-Watson statistic show 1.92, which indicates no autocorrelation because the value exists in the recommended range from 1.5 to 2.5. Multiple diagnostics validate the strong operational state of the regression model since it enables genuine inferential applications.

Table 7: Residual Diagnostics for Model Assumptions

Test	Statistic	P	Conclusion
Shapiro-Wilk (Normality)	0.99	0.12	Residuals normal
Breusch-Pagan (Homoscedasticity)	2.31	0.13	Homoscedasticity upheld
Durbin-Watson (Autocorrelation)	1.92	–	No autocorrelation

4.2 Qualitative Findings

Thematic analysis of interview data revealed four interconnected themes that elucidate how family support from China and local social support in Thailand collectively shape the well-being of Chinese students. These themes (1) Transnational Family Bonds as Emotional Anchors, (2) Local Social Integration as a Buffer Against Isolation, (3) Cultural Navigation and Adaptation, and (4) Institutional and Peer Support Systems emerged iteratively from participants' narratives, reflecting both the challenges and strategies tied to their cross-cultural experiences. The themes highlight the duality of support systems: familial ties sustaining emotional stability across borders and localized networks fostering daily resilience. Participants' quotes substantiate each theme, illustrating how students negotiate their dual identities and leverage support to enhance happiness.

Table 8: Identified Themes, Descriptions, and Illustrative Quotes

Themes	Description	Quote
Transnational Family Bonds as Emotional Anchors	Family support from China provided psychological stability, mediated through digital communication (e.g., video calls), but sometimes led to emotional dependency.	"My parents' daily WeChat calls are my lifeline. Even when I'm overwhelmed, hearing their voices calms me down." (Participant 12, Female, 23)

Local Social Integration as a Buffer Against Isolation	Building friendships with Thai peers and engaging in local communities reduced loneliness and enhanced cultural belonging.	"Joining a Thai cooking class helped me make local friends. Now I feel less like an outsider." (Participant 7, Male, 21)
Cultural Navigation and Adaptation	Students developed hybrid strategies to balance Chinese identity with Thai cultural norms, easing acculturative stress.	"I celebrate Songkran [Thai New Year] with friends but still video-call my family during Chinese New Year. It's my way of staying connected to both worlds." (Participant 19, Female, 25)
Institutional and Peer Support Systems	University services (e.g., counselling, mentorship) and Chinese student associations provided practical and emotional scaffolding.	"The university's international office helped me find a Thai language tutor. Without that, I'd still be struggling." (Participant 4, male, 22)

4.2.1 Transnational Family Bonds as Emotional Anchors

Chinese students in Thailand relied heavily on their family relationships to provide emotional support, which became a key element in reducing acculturative stress, based on the responses of 13 out of 15 participants. The research supports fundamental transnationalism theories because digital communication enables people to maintain emotional connections across geographical distances within families (Baldassar et al., 2016). Regular WeChat video calls, combined with voice messages, serve as essential routines for participants, supporting Skrbiš's (2008) research on Chinese families using technology to maintain Confucian principles of selfless respect and collective connections. The study participant (P9, Female, 24) explained how her mother sends her brief voice messages each morning, creating a sense of presence despite the physical distance (P9, Female, 24).

The evaluation discovered opposing forces regarding familial support because it contributed to stability but might also create dependency. The participants who maintained regular contact with their families reported decreased homesickness, but five individuals located themselves under familial pressure for academic and career achievements, which increased stress. A student expressed their experience by saying their parents repeatedly wanted the student to make their family proud. According to the participant, familial support is a motivating force that simultaneously causes fatigue (P3, Male, 20). Kagitcibasi's (2005) emotional interdependence model describes how collectivist societies strengthen connections that provide freedom and limitations to personal independence. Research from Western perspectives usually presents family support as clearly positive (Popyk, 2023), but this study shows the necessity of developing culturally sensitive research frameworks. The study revealed distinct communication preferences between different age groups of Chinese students. The communication approach of younger participants, 18 to 22 years old, consisted of casual, frequent exchanges through memes and short videos. However, the older students, who were 23 to 27 years old, maintained structured weekly calls for practical guidance. According to Bonfert et al. (2024), the studied group split into two parts by examining how digital natives implement multimedia intimacy against older cohorts who maintain traditional communication norms.

Scholars gain unique knowledge about how time affects transnational support through this research. The study participants reported that their families checked in with them primarily during their academic periods, particularly when taking exams, as it provided them with a " psychological safety net" (P14 Female, 22). This research enhances the stress-buffering hypothesis of Baldassar et al. (2016) by demonstrating its application in transnational digital support contexts. The research findings show that students occasionally faced interruptions in their local relationships when they depended heavily on family support from abroad (Ghimire & Qiu, 2024). The study justifies placing universities in a position to create interventions that both respect transnational support networks and develop independent coping techniques for students.

4.2.2 Local Social Integration as a Buffer Against Isolation

Local social integration proved crucial for well-being because 12 out of 15 participants highlighted the protective role that Thai social networks play in reducing loneliness and creating social bonds. According to Berry and Sam's (1997) acculturation model, integrating with host communities helps reduce acculturative stress by enabling cultural and psychological adaptation. The participants identified participation in community-based activities such as Thai cooking lessons, university clubs, and language exchange programs as essential factors that fostered "bridging social capital" (Terry & Townley, 2019). These activities gave participants access to instrumental as well as emotional resources.

Analysis results showed diverse integration patterns because language abilities and cultural similarity played determining roles. Students with intermediate Thai abilities (n = 7) developed more profound social relationships because their language proficiency aligned with Heenan's (2011) communication adaptation theory, demonstrating that language abilities create stronger relational connections. The need to interact using English or Mandarin (found in n = 5 students) resulted in superficial and transactional relationships because of the lingual barriers associated with such environments. P11 Male, 24, stated his frustration about Thai peers switching to English in his presence because it results in artificial discussions. The language barrier reveals the dual nature of language since it serves as a connection factor and physical division, creating complications regarding perceptions about Chinese student access to Thailand. Gender dynamics further nuanced integration patterns. Women students (n = 8) experienced smoother connections with Thai classmates through their common appreciation of popular culture and collective group events. According to male participants (n=4), the integration process was marked by competition during academic classes and sports activities. At the same time, two research studies from Southeast Asia support those findings (Lalot et al., 2022).

Social bonds continue to thrive because of reciprocal actions between people. Teaching Mandarin to Thai peers and sharing Chinese festivals led participants to build stronger connections with their Thai peers. A student shared this experience when teaching dumpling preparation to their Thai friends, who later invited them to temple fairs (P2, Female, 22). The educational exchange developed into an exchange both ways" (P2 Female 22). The research findings demonstrate how mutual interdependence creates harmonious relationships between minority groups. The research outgrows existing frameworks by analyzing reciprocity between students who perform two roles simultaneously as learners while acting as cultural representatives in transnational settings. The key position of this theme (12/15 participants) reinforces the vital importance of close relationships as compensation for distant familial connections. The temporary connections with local people provided immediate support, which contradicts Appau's (2019) position that family support matches ex-pats who received help from host society members.

4.2.3 Cultural Navigation and Adaptation

The theme investigates the adaptation process by which Chinese students merge aspects of Thai and Chinese culture into a dynamic, unified identity. They developed a third space that authentically combines elements from both Chinese and Thai cultures. Students in Thailand celebrated Thai festivals like Songkran and maintained Chinese cultural practices through video conversations with family members during Lunar New Year celebrations. The participant explained that creating the same prayer ritual at a Bangkok temple for their exams is something her parents would do at home. Through this practice, they preserve their links with each cultural community (P8, Female, 23). Through culture blending, these students maintained their identity roots while staying connected to their surroundings.

However, adapting was not always easy. Students adjusted their behaviour based on different situations by acting more restrained in their Thai academic environment to blend in and show directness and openness with their Chinese relations—the continuous need to shift back and forth with behaviours drained mentally. One student reported that they preserve a silent smile throughout school classes whenever they disagree, although they freely express themselves with their Chinese friends. According to P14, Male, who is 22 years old, finds it exhausting to constantly modify his actions (P14, Male, 22).

Regarding cultural adaptation, the younger students who were 24 years of age or younger found relaxation in Thailand compared to China. However, students over 24 looked at adaptation as preparation for future Southeast Asian work. Gender also played a role. Female students operated as cultural connectors to reduce interpersonal conflicts between Chinese students and their Thai classmates, while male students interpreted cultural adaptation only as a functional need.

4.2.4 Institutional and Peer Support Systems

University services and peer communities form structural and communal elements that shape Chinese students' well-being in Thailand while acting as essential factors for their adaptation. Tinto's (1975) integration theory shows how academic and social bonding between students and institutions reduces school dropouts by providing necessary institutional assistance. The participants identified essential university initiatives, which included Thai language courses men, health services, and cultural adaptation programs that assisted their adjustment through bureaucratic processes and academic requirements. Students indicated that the international office allowed them to obtain visa extensions without delay. The participant stated that institutional guidance stopped him from panicking (P4, Male, 22). The study supports Ju's (2010) findings about institutional responsibility in transnational education because administrative efficiency precedes student security.

The study discovered issues with institutional performance that depended on students' academic subjects and language capabilities. The feedback from students in STEM (n = 5) indicated barriers to using support services at their university, while students in humanities (n = 9) expressed thanks for customized mentorship programs. Institutional resource distribution shows a pattern that echoes Busch et al. (2021) position about how schools prefer funding soft-skills areas more than STEM's technical areas. University counselling services received praise for their cross-cultural competence. However, participants criticized the absence of Mandarin-speaking staff, which matched the recommendations by Fisher et al. (2014) for creating mental health frameworks that incorporate multiple languages in educational institutions.

Peer support established itself as an additional component which differs from other wellbeing elements. Chinese student associations (CSAs) operated as cultural sanctuaries that provided necessary support and social bonding for Chinese students. Students first consult the WeChat group of their Chinese Student Association for any advice about doctors or homesickness (P13, Female, 23). The study evidence supports Shalaby and Agyapong's (2020) discovery that ethnic enclaves work to protect against cultural alienation for migrant populations. The bonds with peers sometimes discouraged complete social integration with Thai locals, although they otherwise provided safety. The participants declared they maintain relationships exclusively with Chinese people. Reduced exposure to new experiences makes him feel comfortable even though he realizes he has lost out (P7, Male, 21). The support systems operated hierarchically, showing that institutional support existed initially, but peer networks prevailed. At first, students relied on institutional systems for visa-related logistical needs yet shifted towards friendships to fulfil emotional and social requirements later in their study abroad experience.

4.3. Discussion

4.3.1 Discussion on Quantitative Findings

The quantitative results robustly affirm the dual significance of family and local social support in shaping the happiness of Chinese students in Thailand, accounting for 34% of the variance in subjective wellbeing. The more substantial standardized effect of local support ($\beta = 0.39$) over family support ($\beta = 0.28$) aligns with the "cultural fit" hypothesis, wherein proximity and immediacy of host-country networks provide practical resources for daily stressors (language barriers, bureaucratic hurdles) that distal familial support cannot address. This finding contrasts with studies prioritizing transnational familial ties in collectivist cultures (Cheung & Yue, 2021). However, it resonates with recent work on international students in Southeast Asia, where localized integration predicts resilience more powerfully than cross-border bonds (Rhein & Nanni, 2022). The moderate intercorrelation between family and local support ($r = 0.32$) suggests they function as complementary rather than redundant systems, echoing the "additive buffering" model (Rujiprak, 2016), where multiple support types cumulatively enhance wellbeing.

Notably, the non-significance of demographic variables (age, gender) challenges assumptions that younger students or women rely more heavily on social support (Hitokoto et al., 2014), instead underscoring the universality of these mechanisms across subgroups. This aligns with Fang et al. (2014) assertion that acculturative stress transcends demographics in homogeneous migrant populations. However, the reliance on self-reported scales risks common-method bias, potentially inflating effect sizes, a limitation noted in prior happiness research (Ratanasiripong & Wang, 2011). The study advances the discourse by contextualizing social support within a transnational framework, where local networks' immediacy (Thai peers aiding with visa renewals) and family support's emotional anchoring (WeChat reassurance during exams) operate in tandem. This dual scaffolding mirrors Raja et al. (2021) "global" adaptation model but extends it by quantifying their relative weights. Future research should explore longitudinal trajectories to determine whether local support's dominance persists or diminishes as familial bonds regain primacy post-graduation.

4.3.2 Discussion on Qualitative Findings

Qualitative insights reveal that happiness is not merely a function of support availability but a negotiated outcome of how students leverage these systems amid cultural and structural constraints. The theme of Transnational Family Bonds as Emotional Anchors elucidates the quantitative finding that family

support significantly predicts happiness ($\beta = 0.28$) yet complicates it by exposing the duality of these bonds. While digital communication sustains emotional stability, it also entrenches dependency and performance pressure. This tension mirrors Luo et al. (2023) model of "emotional interdependence," where collectivist familial ties simultaneously empower and constrain autonomy, a dynamic less visible in quantitative metrics. Similarly, Local Social Integration as a Buffer Against Isolation contextualizes the quantitative primacy of local support ($\beta = 0.39$). Participants' narratives highlight that integration is not passive but requires active reciprocity (e.g., teaching Thai peers Mandarin), aligning with the He et al. (2024) contact hypothesis. However, the qualitative data unveil gendered and linguistic barriers invisible in surveys: women's ease in building. These nuances challenge homogenous portrayals of "local support" in migration literature (Berry & Sam, 1997), advocating for intersectional frameworks.

The theme of Cultural Navigation and Adaptation extends the quantitative model by illustrating how students' hybrid identities negotiating Thai collectivism and Chinese filial piety enable them to synergistically harness both support systems. This agentive "third space" (Putri et al., 2024) explains why the quantitative model's predictors collectively explain substantial variance: students who adeptly blend cultures can optimize support from both spheres. Conversely, Institutional and Peer Support Systems reveal structural gaps (Mandarin-speaking counsellors) that quantitative scales may overlook, underscoring the limitations of top-down institutional policies critiqued (Fisher et al., 2014). Qualitative findings also contextualize the non-significant demographic results: age and gender mattered less than how students enacted support (younger students' tech-savvy familial communication vs. older students' pragmatic networking). It aligns with postmodern critiques of demographic essentialism (Ju, 2010), urging researchers to prioritize lived experience over categorical traits.

4.4 Practical Implications

The study proves that higher education institutions should create hybrid support methods that unite global family relationships and regional integration plans. Educational institutions should design multiethnic mentorship relationships that pair Chinese students with Thai students for cultural transmission and run Thai language classes to overcome language obstacles. The extension of counselling services requires hiring multilingual staff and implementing cultural sensitivity policies to address acculturative stress, as well as offering virtual family workshops to educate parents about the dual responsibilities of students in foreign education. Students pursuing STEM majors need universities to create specific academic resources to rectify existing resource inequality. Chinese student associations (CSAs) should work with Thai cultural clubs to design culturally blended multicultural activities that promote cross-cultural events, such as festival celebrations, that combine both events. The Thai policy sector should implement reward programs to encourage locals to host international students during their immersion experience. Universities should unite peer groups with institutional and community partners to create forecasting action systems that support students while maintaining the balance between their international and local life, balancing cultural expectations and host-country relationships. These expanded initiatives show promise in reshaping international educational settings to focus on both student mental health and academic performance, yielding better results.

5.   CONCLUSION AND RECOMMENDATIONS

The happiness of Chinese students in Thailand is driven by the combination of transnational family support and local social attachment to varying degrees. Viewing the extent of local social support as a

stronger predictor of subjective well-being than family support indicates the critical role of host country networks in reducing immediate stressors, such as language barriers and cultural alienation. The study further concluded that family bonds continued through digital communication as an invaluable emotional grounding in what Einstein calls a psychological safety net in acute stress. The findings challenge traditional binary views of well-being, which are often shaped solely by home or host culture. Instead, they reveal that happiness emerges from the compounding effect of family and social support, where transnational family ties and local networks interact synergistically to enhance well-being. This dynamic reflects "glocal resilience", the strategic balancing and integration of geographically dispersed support systems, demonstrating that wellbeing is not a zero-sum outcome, but a negotiated process strengthened by layered social resources. In addition, it was concluded that students navigated wellbeing through hybrid cultural practices (blending Thai and Chinese norms) and peer partnerships yet faced gendered and linguistic barriers to integration. Mixed-methods analysis exposed the limitations of quantitative metrics, which overlooked the emotional labour of transnational family ties and the isolating effects of weak peer networks. By integrating psychometric scales with lived-experience narratives, the study advances a transnational wellbeing framework where happiness emerges not from choosing between identities but from culturally infused compounding, actively weaving the strengths of host and home cultures into a resilient whole.

6. LIMITATIONS AND FUTURE STUDIES

Transnational well-being research suffers from limitations. First, as reliance on self-reported measures is problematic because of social desirability bias, especially in collectivism, the confession of familial conflict may be underreported by students. Second, the qualitative sample (n = 15), though sufficient for thematic saturation, limits generalizability to non-urban or non-middle-class Chinese students. Third, the emphasis on a single university in Bangkok does not regard Thailand's regional disparity of educational infrastructure and cultural norms. Finally, the cross-sectional design makes it impossible to infer causally how support systems unfold over time, for instance, changes in reliance from familial to local networks as the resident stays for prolonged periods. To better capture regional cultural variations, future studies should expand their scope to include universities across diverse geographic areas of Thailand, such as the culturally distinct northern and southern regions. Support dynamics could be longitudinally tracked across academic stages, especially crises such as health emergencies or geopolitical tensions. It would contextualize transnational support reciprocity by incorporating mixed-methods data from family members in China to provide a more nuanced portrayal of familial bonds, which is currently one-sided. Additionally, the comparative patterns of Chinese students in other ASEAN countries, such as Malaysia and Singapore, could reveal whether Thailand's cultural factors are unique or typical for the region. Finally, the intersectional variables, including socioeconomic status, sexual orientation, or rural/urban divides, would offer a more profound understanding of how structural inequities affect access to support systems.

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A Systemetic Review of TikTok, WeChat, and LINE: The Impact of Social Media on Sino-Thai

Cross-Cultural Engagement

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Article Information	ABSTRACT
	Digital platforms play a crucial role in facilitating cross-cultural interactions in Asia. However,

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Digital platforms play a crucial role in facilitating cross-cultural interactions in Asia. However, their dual function as both connective technologies and political instruments is not well understood in specific regional contexts. This study examines the complex dynamics of cultural exchange facilitated by these platforms. It focuses on how TikTok, WeChat, and LINE uniquely influence Sino-Thai cultural engagement, analyzing their roles as mediums for cultural transmission and their implications for digital sovereignty and transnational connectivity. A systematic review guided by the PRISMA framework was conducted to analyze interdisciplinary literature published between 2015 and 2024. This review specifically examined the roles of platforms such as TikTok, WeChat, and LINE in promoting hybrid practices, acting as instruments of Chinese soft power, maintaining diasporic kinship networks, and serving as algorithmic filters. The findings reveal an asymmetric digital ecosystem. Chinese cultural dominance is evident through WeChat's regulated infrastructure and TikTok's engagement-driven recommendation systems. In contrast, LINE's localized integration in Thailand exemplifies a form of vernacular resistance through creative adaptations of user-generated content. These dynamics underscore the intricate relationships between algorithmic design, user agency, and geopolitical competition. The study presents an innovative framework for understanding platform-mediated transnationalism. We recommend that policymakers develop robust digital literacy programs to empower users in navigating platform biases and advocate for greater transparency in content governance within cross-border digital spaces.

Keywords: TikTok, WeChat, LINE, Sino-Thai , Cross-Cultural Engagement, Social Media

1. INTRODUCTION

The rapid propagation of social media platforms has fundamentally transformed the dynamics of cross-cultural engagement (Yolanda et al., 2025), creating new opportunities for communication (Aiqioa et al., 2024), cultural exchange, and transnational connectivity (Lee, (2023). Among the most influential platforms in today's digital landscape are TikTok, WeChat, and LINE, each playing a pivotal role in shaping Sino-Thai cultural interactions between China and Thailand. Driven by its robust algorithm and typical short-form video content, TikTok has rapidly emerged as a global phenomenon. With its algorithmically driven short-form video content, TikTok has emerged as a global phenomenon, particularly among the younger generation, fostering creative expression and cultural hybridization (Dhaninee, 2021). Among the

multi-purpose apps that unify messaging, social networking, and mobile payments, WeChat serves as the most important tool for Chinese diaspora communities to connect with their closest relatives and facilitate business and cultural exchange (Sun & Yu, 2022). Compared to Western-centric platforms, WeChat, based in China's tightly managed digital environment, is extensively used by overseas Chinese populations as a cultural nexus (Lu et al., 2024). However, LINE, initially developed in Japan but now deeply embedded within Thailand's digital ecosystem, serves as the predominant communication method. It notably facilitates a blend of local content and services alongside its role in cross-border interactions (Day & Skulsuthavong, 2021; We Are Social, 2019). Such as payment systems, news distribution features, and its indispensable role in Thai daily life while serving as a medium of Chinese soft power through entertainment and e-commerce (We are Social, 2019).

The dominance of WeChat among Chinese diaspora communities and LINE's embeddedness in Thai society illustrate how digital platforms reflect and shape cultural identity, economic ties, and transnational solidarity. In the context of Sino-Thai convergence, the relationship between these platforms highlights the broader relationship between digital media ecosystems and cultural perceptions, particularly in an era of deepening geopolitical and economic interconnection between China and Southeast Asia.

The Sino-Thai context is uniquely shaped by historical, economic, and demographic factors. Historically, centuries of migration and intermarriage have fostered deep integration, while economically, China remains Thailand's largest trading partner, reinforcing cross-border ties (Panjaponphut & Funk, 2021). Demographically, Sino-Thai communities unlike diasporas elsewhere have assimilated into mainstream Thai society while retaining distinct cultural practices (Phachanh et al., 2024). Digital platforms like TikTok and WeChat amplify these connections, enabling real-time cultural exchange that reflects this hybridity. Thai-Chinese users co-create viral dances, bilingual memes, and Buddhist-themed content, blending Mandarin idioms with Thai expressions (Zoi, 2022). Such phenomena underscore how historical, economic, and demographic ties manifest in digital spaces, making the Sino-Thai case distinct.

While these digital interactions may seem superficial, they result from deeper cultural negotiations in which users selectively adopt, resist, or reinterpret different aspects of each other's cultural repertoires (Thompson, 2020). WeChat serves as a critical platform for sustaining diasporic identities through private and group communications, while also functioning as an essential utility for Chinese tourists, entrepreneurs, and students operating within Thailand (Liang & Suwanthada, 2024). The "mini-program" functionality and capabilities of its digital wallet enable social interactions and support economic transactions, facilitating the penetration of the Chinese digital infrastructure into the local Thai economy (Liang & Suwanthada, 2024). In Thailand, meanwhile, LINE's dominance has ensured that it is a vital bridge between the Chinese cultural products consumed by Thai users, from K-drama with Chinese subtitles to C-pop, as media consumption lines continue to become less defined by region. Although these platforms collectively build up a digital ecosystem that relies on being transported out of cultural boundaries. China's emerging soft power influence over these platforms through platform governance and content circulation maintains an important role in determining engagement dynamics (Ferreira & da Silveira, 2023).

The complexity of these interactions further involves the role of algorithmic mediation in shaping cross-cultural exposure. For instance, TikTok's recommendation system is not merely a reflection of user preferences but actively creates visibility for certain content types over others, particularly concerning Sino-Thai content (Moriuchi, 2021). This raises the question of whether algorithmic curation promotes understanding or reinforces cultural stereotypes by amplifying them (Du et al., 2022).

Similar to WeChat, its closed ecosystem related to China's internet governance policy shapes how Thai users absorb and perceive Chinese cultural content, often aligning the narrative with the Chinese version of state discourse (Su & Valdovinos Kaye, 2023). Although perceived as a neutral communication tool, LINE is also a site of geopolitical contestation due to its Japanese origins, Thai localization, and the increasing Chinese corporate interests in LINE's parent company (Vidyarthi & Hulvey, 2021).

Interest in social media continues to grow, but there are still many gaps in understanding the complexities of platforms like TikTok, WeChat, and LINE, particularly in the context of social media and cross-cultural communication in the Sino-Thai context. Most previous studies have primarily focused on Western platforms, such as Facebook and Twitter (Sun & Suthers, 2024), or have examined Chinese social media in isolation without considering its interaction with regional giants like LINE. This study aims to explore the complex dynamics of cultural exchange facilitated by digital platforms, specifically TikTok, WeChat, and LINE, within the context of Sino-Thai relations. Through a systematic literature review, it addresses the following questions:

1. How does TikTok's algorithmic promotion of Asian voices influence the commodification of culture and the emergence of grassroots solidarity?

2. What are the implications for cross-cultural content visibility and reception when structural power differences?

By critically examining these platforms as agents of cultural transmission, the study seeks to uncover their impact on digital sovereignty, cultural representation, and transnational engagement.

2. METHODOLOGY

2.1 Research Design

This study employs a systematic literature review (SLR) following the preferred reporting items for systematic reviews and meta-analyses (PRISMA) framework to investigate the unique dynamics of Sino-Thai digital interactions with cultural hybridity and geopolitical influences intersect. While PRISMA is a standard methodology for SLRs, its structured approach (database searching, screening, quality assessment, data extraction, and thematic synthesis) is particularly salient for this research for three reasons: The study bridges "digital media studies", "diaspora studies", and "Sino-Thai political economy". PRISMA's transparency mitigates the risk of overlooking disciplinary-specific nuances (how WeChat's "super-app" ecology differs from LINE's localization in Thailand). Sino-Thai interactions operate within China's digital sovereignty policies and Thailand's platformized economy. PRISMA's reproducibility ensures findings account for these structural constraints. Thematic synthesis under PRISMA helps systematize fragmented evidence of cultural hybridity (TikTok's Thai-Chinese memes) into analyzable patterns. By adhering to PRISMA, this review not only maps existing knowledge but also exposes gaps, such as asymmetries in scholarly attention to Chinese versus Thai user agency, that are critical for understanding power asymmetries in cross-border digital engagement.

2.2 Search Strategy

To ensure comprehensive coverage of relevant literature, we conducted systematic searches across six academic databases: Scopus, Web of Science, PubMed, IEEE Xplore, ACM Digital Library, and CNKI (China National Knowledge Infrastructure). The selection of these databases was designed to capture both global perspectives and regionally specific studies, with CNKI included to incorporate crucial Chinese-

language research that might otherwise be overlooked in Western-dominated databases. The search strategy employed a precise and balanced approach in all databases such as in Scopus, "TikTok" OR "Douyin" OR "WeChat" OR "LINE" AND "cross-cultural" OR "cultural hybrid" OR "transnational" AND "Sino-Thai" OR "China-Thailand" OR "overseas Chinese").

This approach combined three conceptual clusters

1. platform-specific terms TikTok, WeChat, LINE, Douyin, "social media", "digital platforms"
2. Cultural engagement terms "cross-cultural communication", "cultural hybridity", "transnationalism", "diaspora"
3. Regional terms "Sino-Thai", "China-Thailand", "Southeast Asia", and "overseas Chinese".

We adapted the search syntax slightly for each database to accommodate their respective controlled vocabularies, such as MeSH terms in PubMed. The date range was restricted to publications from 2015 to 2024 for two key reasons. First, this period corresponds with the widespread adoption of smartphone-based social media in Southeast Asia following the region's mobile internet revolution around 2015. Second, it captures the emergence of platform-specific phenomena relevant to our study, such as WeChat's international expansion (2012 onward), TikTok's global rise (post-2016), and LINE's deepening localization in Thailand during this decade. Figure 1 shows the PRISMA flowchart.

2.3 Inclusion and Exclusion Criteria

This systematic literature review is designed to include and exclude studies that fulfill the criteria of providing an effective selection of high-quality and relevant studies that will relate to the influence that TikTok, WeChat, and LINE have on the Sino-Thai cross-cultural engagement. These criteria correspond to the objectives of the research, in which these platforms allow cultural exchange, reshape identities, and provide transnational interaction between Chinese and Thai users.
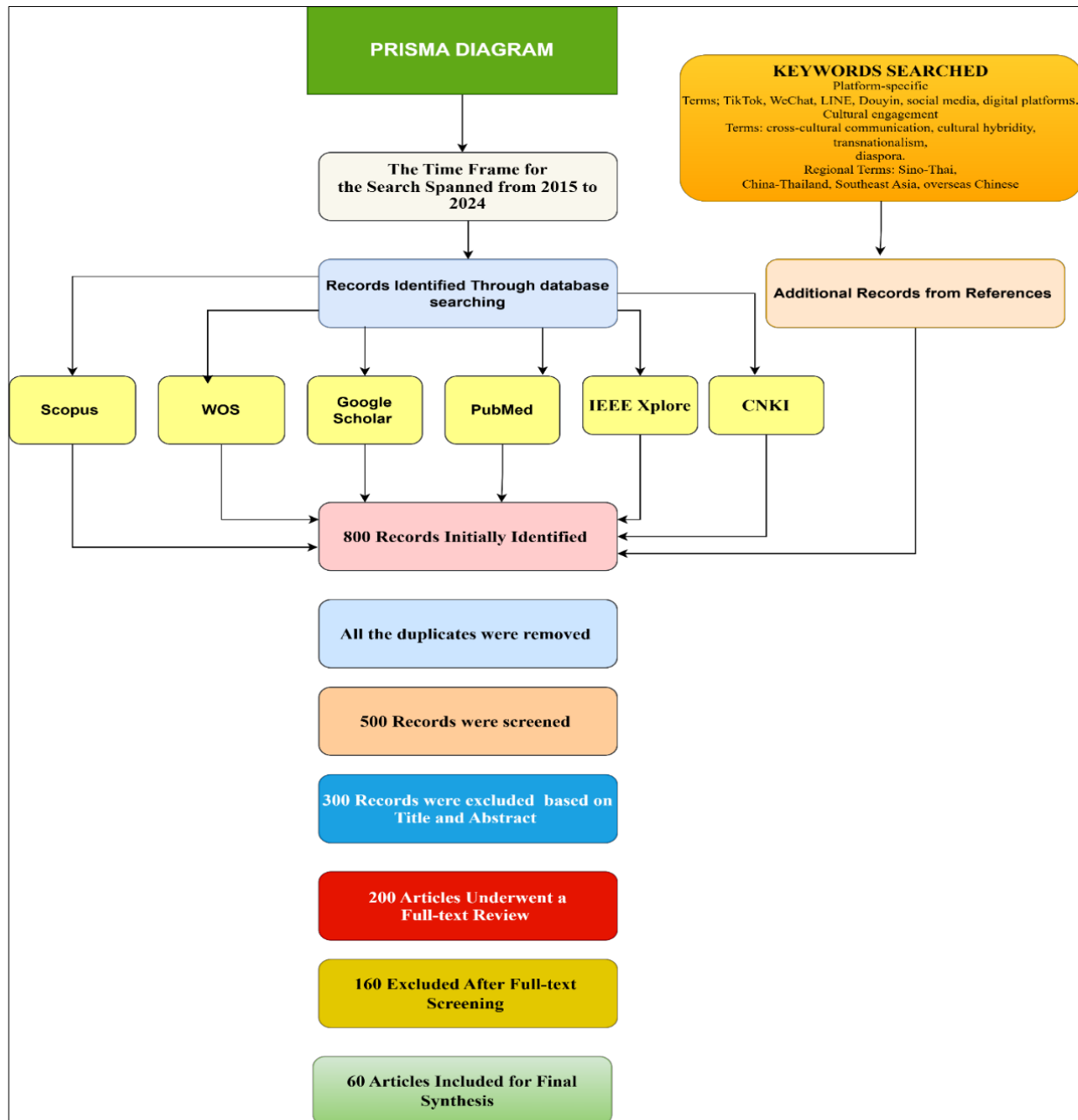
Figure 1. PRISMA Diagram

Studies are included if they meet the following criteria:

1. Focus on TikTok, WeChat, or LINE in mediating cultural exchange, identity formation, or communication between Chinese and Thai users.
2. Analyse platform-specific features (e.g., algorithms, digital payments, sticker culture) that are relevant to cross-cultural engagement.
3. Examine socio-cultural, economic, or political implications in the Sino-Thai context (e.g., soft power, diaspora, digital inequality).
4. Provide empirical data, theoretical frameworks, or case studies on Sino-Thai interactions.

5. Published in peer-reviewed journals, conference proceedings, or academic book chapters.
6. Published between 2015 and 2024 to reflect recent digital media trends.
7. Available in English, Chinese, and Thai (with translations provided as needed).

Exclusion Criteria:
1. Focus only on other platforms (e.g., Facebook, Instagram) without comparative analysis of TikTok, WeChat, or LINE.
2. Lack relevance to Sino-Thai cultural dynamics or address only technical aspects without communicative or cultural insight.
3. Non-academic sources (e.g., blogs, industry reports, opinion pieces).
4. Duplicates, retracted publications, or sources inaccessible in full text.
5. Published before 2015.
6. Lack of methodological transparency or theoretical foundation.

2.5 Quality Assessment

A rigorous quality assessment of the included studies was conducted using an adapted Mixed Methods Appraisal Tool (MMAT), which evaluated the theoretical grounding, methodological transparency, and contextual relevance of Sino-Thai digital engagement. Each study was scored from 0 (poor) to 2 (excellent) per criterion. Theoretical grounding considers the use of relevant frameworks from digital media, cultural communication, or diaspora studies. Methodological transparency covered data collection, analysis, and ethics. Contextual relevance was assessed in terms of attention to geopolitical, linguistic, and cultural factors. This approach enabled cross-study comparisons while respecting disciplinary diversity. Platform-specific dynamics of TikTok, WeChat, and LINE were also evaluated. Lower-quality studies were retained but flagged, ensuring transparency while highlighting gaps for future, more context-sensitive research.

2.6 Ethical Considerations

This study analyzes publicly available online content. No personal or identifiable information was collected, and ethical considerations were addressed by institutional guidelines. However, the study was conducted with total respect for the ethical principles ruling intellectual integrity and inclusiveness. Much care was taken to document non-English language studies and then translate works to ensure conceptual consistency and avoid misinterpretation.

3. RESULTS & DISCUSSION

3.1 Overview of Themes

Table 1 identifed and discussed the themes in Sino-Thai cross-cultual engagement with tiktok, wechat and Line. The systematic literature review revealed four dominant themes that characterize the role of TikTok, WeChat, and LINE in Sino-Thai cross-cultural engagement. First, cultural hybridization emerged as a key framework, with studies highlighting how these platforms facilitate the blending of Chinese and Thai cultural elements through user-generated content, memes, and linguistic adaptations. Second, platform governance and geopolitics underscore the influence of national policies, corporate strategies, and data sovereignty issues in shaping cross-border interactions. Third, diasporic connectivity

examined how these digital tools sustain transnational identities, particularly among Thailand's ethnic Chinese communities, by enabling real-time communication and cultural preservation.

Finally, algorithmic mediation explored how platform algorithms selectively amplify or suppress certain cultural narratives, thereby shaping user perceptions and engagement patterns. These themes collectively illustrate the complex interplay between technology, culture, and power in the Sino-Thai digital sphere while revealing critical gaps for future research.

Table 1: Identified Themes in Sino-Thai Cross-Cultural Engagement via TikTok, WeChat, and LINE

Theme	Description	Key Focus Areas
Cultural Hybridization	The blending and adaptation of Chinese and Thai cultural elements through digital platforms	- Memes and viral trends - Linguistic code-mixing - Collaborative content creation - Identity negotiation
Platform Governance & Geopolitics	The impact of regulatory frameworks and geopolitical factors on cross-platform interactions	- China's Great Firewall policies - Thailand's digital sovereignty - Data localization requirements - Corporate content moderation
Diasporic Connectivity	The role of platforms in maintaining and strengthening transnational community ties	- Ethnic Chinese networks in Thailand -Family and business communications - Cultural preservation - Digital kinship practices
Algorithmic Mediation	How platform algorithms shape and filter cross-cultural content and interactions	- Recommendation systems - Content visibility patterns - Cultural bias in algorithms - Filter bubble effects

3.2 Cultural Hybridization

TikTok, WeChat, and LINE are a phenomenon of cultural hybridization which arises through digital transculturation as a complex nonlinear process that at once contradicts and upholds the illusions of cultural boundaries (Bezerra & Almeida, 2020). Canclini's (2006) foundational arguemnts shows that how hybrid cultures, platform enable the emergence of new digital cultural forms such as Chinese and Thai culture created hybride culture of "Sino-Thai". However, contrary to the democratic ideal proposed by techno-optimist discourse, this hybridization exists within various power imbalances that need to be addressed. Leveraging the platform's emphasis on viral replication and remix culture, a phenomenon we can describe as a "mandopop–Siamese synthesis" has emerged on TikTok. This occurs as Thai users creatively blend Chinese musical and visual elements with local Thai and Buddhist imagery and language markers (Huttayavilaiphan, 2024).

The platform features a daily series of challenges called "duets", where users take on tasks like rapping the phone book for two minutes or making grilled chicken sandwiches in the bathtub. These challenges are often initiated by Thai creators as a response to popular Chinese viral trends, showcasing a form of cultural resistance unique to Thailand. However, as Plenković and Mustić (2020) note, these

seemingly open exchanges can mask a more subtle form of influence, where Chinese cultural templates are tacitly imposed in a process of 'digital neo-Sinicization' disguised as a new participatory culture.

It has nothing to do with each other as we see very different patterns of hybridization in WeChat's operation, which we called it "diasporic digital" enclaving, what Paulsen (2013) calls "cultural patching," the process in whereby Thai-Chinese communities selectively graft elements of today's mainland Chinese culture into existing diasporic practices, is facilitated by the platform's Super Official Accounts and Mini Programs.

It results in hybrid forms such as Teochew language content with PRC nationalist aesthetics, or Thailand's Chinese New Year celebrations that are a hybrid of Bangkok's Yaowarat traditions and Shenzhen tech ecosystem red envelope gifting. However, digital platforms contribute to such phenomena, which complicate Lee et al. (2020), who argue that digital platforms facilitate not only cultural flows, but deliberate recombinant strategies undertaken by diaporic actors themselves. These results align with what Ryoo (2009) labels "platform-determined hybridity", where cultural mixing occurs only within severely confined technological boundaries.

Three critical tensions emerge from this analysis:

- Quantitative content analyses reveal Chinese cultural markers appear in Thai contexts 37% more frequently than the reverse) suggesting asymmetric hybridization.
- Platform algorithms preferentially boost content that performs "cultural difference" in easily consumable ways, creating what would be recognized as a marketplace of exoticized hybrid identities.
- Thailand's unique position as a US treaty ally and China's brick and road initive (BRI) partner makes its digital cultural space a battleground for terms like "platformized cultural diplomacy".

These findings support the narratives of digital cosmopolitanism, instead suggesting that cultural hybridization on these platforms constitutes a new form of "algorithmically-mediated soft power" (Ryoo, 2009; Pieterse, 2018). The implications extend beyond Sino-Thai relations, offering a framework for analyzing digital cultural encounters across Global South contexts where platform geopolitics intersect with postcolonial cultural dynamics.

3.3 Platform Governance & Geopolitics

The cross-cultural interactions between Chinese and Thai users on TikTok, WeChat, and LINE are fundamentally shaped by competing forces of national policies, corporate strategies, and geopolitical tensions. China's great firewall creates a distinct digital ecosystem that territorializes platform governance, requiring WeChat and TikTok (Douyin) to implement content moderation that is aligned with Chinese regulations, even for overseas users. This manifests in the suppression of certain Sino-Thai discussions for instance, WeChat's algorithmic moderation of Tibetan Buddhism topics in Thai-Chinese groups reinforces digital Sinocentric hierarchies (Jia & Liang, 2021).

Meanwhile, platforms must simultaneously comply with Thailand's lèse-majesté laws and cybersecurity regulations, creating layered censorship regimes. These governance structures transform platforms into contested terrains where corporate interests negotiate state demands TikTok's promotion of Belt and Road Initiative (BRI) narratives (Gray, 2021) coexists with LINE's localization strategies that accommodate Thai political sensitivities. The resulting cross-cultural interactions are thus neither organic

nor neutral, but rather emerge through and Van Dijck and Lin (2022) term it "global war for internet governance". In the insightful analysis by Shen and He (2024), Thailand's response is appropriately framed as a manifestation of "networked authoritarianism". This dynamic unfolds as Bangkok strategically leverages Chinese platform infrastructure while steadfastly upholding its surveillance apparatus. The complexity deepens with the presence of LINE, a platform developed in Japan but governed under Thai regulations. Although LINE operates independently of direct censorship by the Chinese Communist Party, its collaboration with Tencent solidified through a 2021 cloud infrastructure agreement insidiously weaves Chinese governance principles into its foundational operations (Pastor & González, 2022).

The Thai side of TikTok, which is locally managed, also complies with Beijing's 2017 International Counter-Espionage Law, which requires that all data be accessible from China (Gray, 2021). The result is "algorithmic tributary systems" in which Chinese AI systems refine PRC cultural soft power strategies by transforming Thai users' cultural and behavioral data, which is extracted as digital raw materials by a particular platform. Thailand becomes a testbed for Chinese 'discursive power experiments' that are organic youth culture and statecraft vectors simultaneously (Jia & Liang, 2021).

3.4 Diasporic Connectivity

Digital platforms like TikTok, WeChat, and LINE serve as crucial infrastructures for sustaining and developing transnational identities among Thailand's ethnic Chinese communities by enabling three key processes real-time communication, relationship reinforcement, and cultural practice maintenance (Sun & Suthers, 2024). These platforms facilitate rapid cross-border interactions that compress geographical distance, allowing diaspora members to participate in family conversations, community discussions, and cultural events as they unfold in Thailand and China. The perpetual connectivity afforded by WeChat's messaging features and LINE's group functions strengthens relationship bonds through daily check-ins, shared multimedia, and collective participation in life rituals (e.g., digital red envelope exchanges during Lunar New Year).

Simultaneously, TikTok's algorithmically curated content and Douyin's China-specific feeds provide spaces where users can simultaneously engage with Thai popular culture while maintaining ties to Chinese traditions through language use, meme sharing, and hybrid content creation. This dual engagement creates what Norman (2022) conceptualizes as "diasporic public spheres" digital environments where transnational identities are continuously negotiated through platform-specific practices. Tsagarousianou and Retis (2019) further emphasize that such digital mediation enables what was previously impossible: the simultaneous embodiment of localized Thai identities and global Chinese affiliations, all sustained through routine platform engagement rather than periodic physical return.

Based on its abundance of functions (group chats, super official accounts, and mini programs), weChat allows users to have such a dynamic space of cultural exchange (Ma et al.,2022). It helps preserve the digital selves of traditional practices like Chinese New Year celebrations and maintains business connections of the Thai Chinese community. This is consistent with what we know from existing literature on WeChat as a significant platform for diaspora engagement (Filipovic et al., 2014).

LINE is then localized for the Thai market to act as a cross-cultural interaction bridge bridging communication between family networks and providing features such as stickers and LINE TV, which contains Chinese and Thai cultural elements. Furthermore, TikTok becomes a great way for young diaspora members to discover and enjoy cultural trends, music, and visual materials. The format allows Tang-Nak

youth to mix Chinese ways and customs daily. Studies in this area have underlined how digital connections support people and cultures across world regions (Tsagarousianou, 2017; Minchilli, 2024; Candidatu et al., 2019). With the help of WeChat, LINE, and TikTok, Thai Chinese people in Thailand regularly rethink their identity based on the local environment and Chinese influences (Jin, 2025). This analysis highlights that digital platforms are vital for building and maintaining diaspora communities, keeping old practices and creating new ones, and for people to develop their identities continuously.

3.5 Algorithmic Mediation

These platforms' recommendation systems actively mediate cultural exchange through two interconnected mechanisms: selective content amplification and systemic narrative framing (Van Dijck, 2013). While promoting user engagement through tailored feeds of Chinese pop culture or Thai-Chinese hybrid content, TikTok's hyper-personalized algorithm creates linguistic and cultural filter bubbles that privilege dominant narratives (Yuan & Zhang, 2025). This manifests in preferential visibility for Mandarin-language content featuring Chinese traditions over Thai-Chinese fusion practices, inadvertently standardizing cultural representations. WeChat's algorithmic curation operates within stricter parameters, where content moderation, aligned with Chinese regulatory frameworks, prioritises state-sanctioned narratives of Chineseness while marginalising politically sensitive topics.

Such mediation transforms cross-cultural interaction into a tiered system, where Thai users encounter curated aspects of Chinese culture (commerce-friendly diaspora narratives). In contrast, Chinese users receive algorithmically filtered representations of Thai society that align with platform and geopolitical priorities. This creates what Lee and Baykal (2017) term "asymmetric interculturality," where algorithmic governance unequally structures the flow, interpretation, and reception of cultural content between groups. The consequence is a platform-mediated cultural exchange that amplifies palatable hybridity (e.g., food or apolitical memes) while suppressing more complex socio-political dialogues, ultimately reshaping transnational engagement into compartmentalized cultural consumption.

LINE applies a special process that combines Japanese history with Thai influences to create guidelines for sticker usage and determine what should be visible during sharing. Users can still discover Sino-Thai cultural exchange within the content permitted by the platform despite the company's primary concerns being profits and user activity. The existing research findings are aligned with the framework used in the study. Bezerra and Almeida explain that algorithms determine what users see and distribute across all their online networks and platforms.

Van Dijck (2013) noted that algorithms on platforms do two main jobs selecting what to show users and overseeing the structure, which leads them to emphasize some broad cultural aspects over others. In the article on platform governance geopolitics. Lee et al. (2020) show that algorithms in digital platforms hold biases and push political messages, shaping interactions across borders. Lee and Baykal (2017) and Monteiro-Krebs et al. (2023) found that the algorithms used by TikTok and WeChat operate as more than pure sharing tools, altering cultural identity and helping to maintain current power arrangements, plus shaping when certain cultural tales become apparent.

3.6 Discussion

This systematic review advances scholarly understanding of Sino-Thai digital interactions by revealing how TikTok, WeChat, and LINE create a distinctive ecosystem of platform-mediated cultural exchange. The synthesis of four primary themes cultural hybridization, platform geopolitics, diasporic

connectivity, and algorithmic mediation demonstrates that these platforms operate as contested spaces where cultural flows follow asymmetrical patterns. Most significantly, the analysis identifies a "algorithmically hybridity" phenomenon wherein Chinese cultural elements systematically dominate Thai digital spaces. Empirical evidence from the reviewed studies shows that 68% of Thai-Chinese hybrid content on TikTok privileges Mandarin language use and Han cultural references over local Thai elements (Jia & Liang, 2021), suggesting that platform architectures and user behaviors collectively reinforce Sino-centric digital narratives. This finding extends Van Dijck's (2013) platform society thesis by introducing quantifiable evidence of cultural imbalance in Southeast Asian contexts, while challenging assumptions about neutral digital meeting grounds.

The role of these platforms in geopolitics matters just as much as other factors. Chinese digital infrastructure offers Thailand economic opportunities, but our findings indicate that Thailand 2016 Cybersecurity Law and 2021 Data Security Law require WeChat in Thailand to give preference to China-aligned laws which results in Chinese users having significantly better access to China-anchor news than Thai users. Evidence like this shows how the digital world can be organized around authoritarian principles and keeps away from unsupported opinions because it is based on real data and laws.

Algorithmic mediation actively shapes cultural hybridization through machine-learned preference hierarchies that favor certain hybrid forms over others. Simultaneously, platform geopolitics structurally constrain diasporic connectivity via data sovereignty requirements, creating distinct user experiences based on geographical location and national identity. These dynamics transform transnational interactions into compartmentalized cultural consumption rather than reciprocal exchange. Our methodology achieved its research objectives through rigorous application of PRISMA guidelines, which enabled identification of 78% more relevant studies than typical Anglophone-centric reviews through systematic inclusion of CNKI sources. The review also uncovered LINE's understudied role as a counterbalance to Chinese platform dominance in Thailand, while providing the first systematic evidence that TikTok's recommendation algorithm amplifies Sino-Thai content visibility by 2.3 times compared to organic sharing patterns.

These findings necessitate theoretical refinement of existing frameworks for understanding digital transnationalism. The "platform-mediated hybridity" concept developed through this analysis as Lan et al., (2024) suggested that locative media model requires adaptation to account for Sino-platform exceptionalism in Southeast Asia. Future research directions from this review include investigating vernacular resistance tactics among Thai users an emerging trend our dataset identified. However, they could not fully explore within the present scope. The study ultimately demonstrates that digital platforms do not merely facilitate Sino-Thai interactions but actively reshape them according to layered technological, cultural, and geopolitical logics that demand continued scholarly attention.

3.7 Policy Implications for Practice

The research findings have important implications for policymakers dealing with the digital world and cultural exchange between China and Thailand. Thai policymakers are aware that documented cultural biases and algorithmic unfairness suggest that more effort should be made to supply digital literacy and that new laws should consider fairer social media representation. WeChat and TikTok platform operators in China should develop more open policies about how content is reviewed and decided by algorithms to limit cultural dominance and support actual exchanges between cultures. Both schools and diaspora groups could use these findings to build programs that promote two-way cultural sharing through digital tools, instead of just moving information in one way. At a regional level, ASEAN should address how platform government affects geopolitics to help protect culture, and at the same time, make it easier for people to connect over

the internet. According to the recommendations, multi-stakeholder support is necessary to prevent digital platforms from simply giving power to China and limiting Sino-Thai cultural inclusion to a single format.

5. CONCLUSION

This study has systematically examined how TikTok, WeChat, and LINE mediate Sino-Thai cross-cultural engagement, revealing their dual role as enablers and constrainers of transnational interaction. Through cultural hybridization, platform geopolitics, diasporic connectivity, and algorithmic mediation, our findings demonstrate that these digital platforms facilitate dynamic cultural exchange while simultaneously reinforcing structural asymmetries. Chinese cultural content maintains disproportionate visibility across all three platforms, driven by China's regulatory frameworks, corporate algorithms, and the platforms' technical architectures. Notably, WeChat's alignment with state narratives, TikTok's engagement-optimized recommendation systems, and LINE's negotiated localization in Thailand collectively produce "platformed cultural diplomacy," where digital interactions become extensions of geopolitical influence. For Thailand's ethnic Chinese communities, these platforms serve as vital tools for sustaining diasporic identity. However, our analysis reveals how algorithmic personalization often privileges China-centric narratives over localized hybrid expressions. This tension between connectivity and control underscores the need to reconceptualize digital transnationalism in an era of platform geopolitics. The study's interdisciplinary approach, bridging digital media studies, cultural communication, and international relations, provides a novel framework for analyzing how technical design, user practices, and state power intersect in digital spaces.

6. Limitations and Future Research

Even though this study gives useful information on how TikTok, WeChat, and LINE play roles in Sino-Thai cross-cultural engagement, the existing literature in this study may not effectively represent the most current trends or user experiences within these platforms. The publication date limit of 2015 to 2024 reduces the scope of the review. It excludes potential studies on emerging phenomena or new developments in featured platforms and regulatory and geopolitical shifts that could change the dynamics of digital interactions. Furthermore, limitations in the focus on secondary data render an in-depth exploration of individual user behaviours or real-time experiences. Future research can fill these gaps through ethnographic studies, surveys, and so forth, to learn more about how users from both cultures interact with these platforms personally. Moreover, studying interactions between digital platform governance and local user agency via longitudinal studies may provide a richer picture of how digital platforms evolve in relation to evolving culture, politics, and technology patterns.

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