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Research Article

A Secondary Data Analysis of Creative Music Teaching Implementation and Teacher Efficacy from a Regional Perspective

Siwen Wang[1,*], Vincent Wee Eng Kim[1]
[1]Universiti Tun Abdul Razak (UNIRAZAK), Kuala Lumpur 50400, Malaysia
[*]**Correspondence:** Siwen Wang, siwen@my-igs.com

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Abstract

Creativity is a stated aim of music education, yet its classroom realisation appears uneven. This secondary data analysis reads public Chinese educational statistics against peer-reviewed studies in order to describe urban-rural differences in the conditions enabling creative music teaching, and it treats teacher efficacy as a theoretical explanatory mechanism rather than a tested mediator. At the end of 2024, 76.23% of the 1.8177 million teachers in rural compulsory-education schools held a bachelor's degree or above, against a derived national benchmark of 86.31% and an implied non-rural share of 88.36%, while 97.90% of junior middle and 97.25% of primary schools met music-equipment standards and close to 40% of 4,587 principals reported a serious arts-teacher shortage. Provision is near-universal, whereas specialist staffing, support and digital readiness are not. Coordinated improvement at individual, school and regional levels is proposed, including turning local musical culture into a curriculum resource. These are analytical implications rather than validated findings.

Keywords

Creative music teaching, Teacher self-efficacy, Regional disparity, Secondary data analysis, Place-based resources

1. Introduction

Creativity is now an explicit curricular objective. China's 2022 compulsory-education arts curriculum standards list creative practice among four core competencies, beside aesthetic perception, artistic expression and cultural understanding (Ministry of Education of the People's Republic of China [MOE], 2022), and music teachers treat the prompting of improvisation, musical creation and cross-disciplinary connection as a mark of instructional quality (Schiavio et al., 2023; Yang & Welch,

2023). Shared objectives have not produced shared practice. Uneven distribution of specialist teachers, funding and cultural resources leaves one stated aim corresponding to markedly different classrooms (Wang & Mohamad Haris, 2025). Where the resource base is fixed in the short term, translating that aim into practice depends on teacher efficacy, and a region constrains both the material possibilities for creative work and the experiences from which efficacy is built.

Prior work takes two forms. Single-site studies such as interviews with rural music teachers in Jilin (Zhou et al., 2026) and a training study in Fujian (Luo et al., 2025) offer depth but little comparability. Conceptual work is abundant. A review of 116 Chinese studies found curriculum enforcement and pedagogical innovation repeatedly proposed as remedies while the research base sat at some distance from national statistics (Yang & Welch, 2023). Rarer is a synthesis that reads those statistics against the literature and treats place-based resources as a route to efficacy rather than a deficit. Three questions follow. RQ1 asks how far public statistics document regional differences in enabling conditions. RQ2 asks how teacher efficacy might explain their translation into classroom differences. RQ3 asks what pathways for improving efficacy follow. This paper is a secondary data analysis. It describes conditions and develops an interpretive account, and it does not test that account.

2. Concepts and Analytical Framework

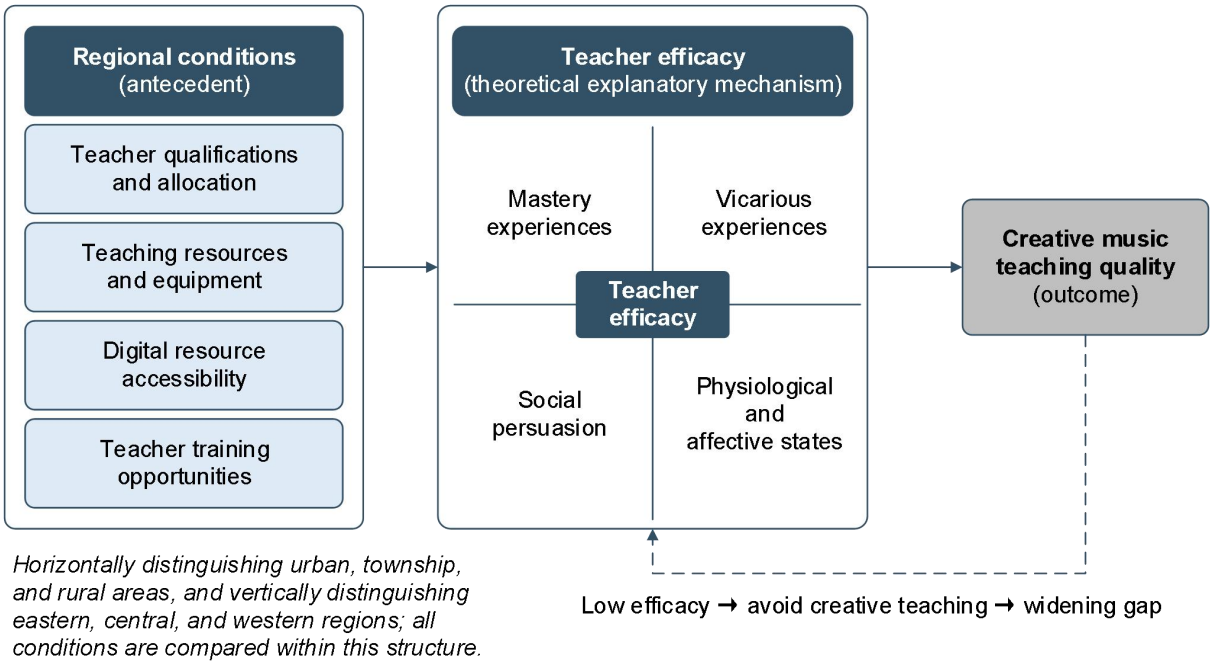
Creative music teaching here denotes instruction engaging learners' imagination through improvisation, composition, listening-driven expression and cross-disciplinary connection, rather than drill and rote reproduction. The usage follows the creative-practice competency of the 2022 standards (MOE, 2022), teachers' accounts of creative classroom work (Schiavio et al., 2023), and the improvisation and composition activities treated as observable indicators in classroom research (Hickey & Schmidt, 2019). What matters is consistency in routine teaching rather than the demonstration lesson.

Teacher efficacy derives from Bandura's (1977) social-cognitive account, in which mastery experience, vicarious experience, social persuasion, and physiological and affective states govern the belief that one can perform what an attainment requires. That framework remains standard in music education (Gill et al., 2024). Applied to teaching, efficacy divides into general and personal teaching efficacy (Tschannen-Moran & Woolfolk Hoy, 2001).

Region is stratified as urban, town and rural on one axis and eastern, central and western on the other, these being the units of official reporting. Conditions are the antecedent, teacher efficacy a theoretical explanatory mechanism, implementation the outcome (Figure 1). The framework is interpretive. Efficacy is posited on theoretical grounds, and no mediation is estimated, the study containing no teacher-level data.

Figure 1

Analytical Framework Linking Regional Conditions, Teacher Efficacy and Implementation Quality



Note. Arrows denote a hypothesised interpretive pathway rather than an estimated mediation model. Efficacy sources from Bandura (1977).

3. Data and Analytical Approach

This study is a secondary data analysis. It involves no original data collection, no participant recruitment and no hypothesis testing. Sources are public educational statistics and peer-reviewed studies, and being aggregate and non-identifiable they required no ethical approval or consent. Teacher supply and resources are treated as conditions enabling or constraining creative teaching rather than as measures of teaching delivered.

Two official releases anchor the analysis. The 2024 statistical report (MOE, 2025a) gives qualification structure by school level and the share of schools meeting equipment standards. The twentieth-anniversary release of the Special Post Teacher Plan (MOE, 2025b) gives the size and qualifications of the rural workforce and names persistent shortage subjects. Peer-reviewed sources are a provincial principal survey (Zhao et al., 2024), studies of rural music teachers in Fujian (Luo et al., 2025) and Jilin (Zhou et al., 2026), a field study of shortage subjects (Liu et al., 2021), and a study of ICT adoption (Jiang & Zhang, 2025). Differing in scope, definition and year, these are compared rather than pooled.

Two benchmarks are derived where aggregation differs. The 2024 report gives the bachelor's-or-above share separately for primary (81.35%, 6.5901 million teachers) and junior middle education (94.19%, 4.1488 million), whereas the rural figure covers compulsory education as one stage and excludes town districts (76.23% of 1.8177 million; MOE, 2025b). A teacher-weighted

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national benchmark is therefore (6.5901 × 81.35 + 4.1488 × 94.19) ÷ 10.7389 = 86.31%, the counts summing exactly to the 10.7389 million reported for compulsory education. Since the rural workforce is a subset of that total, the implied non-rural share follows by subtraction as 88.36%. That residual assumes both releases share a definition and reference date, which each states, and it is reported as an approximation. No other figure is transformed.

4. A Secondary-Data Profile of Enabling Conditions across Regions

4.1. Structural shortages in the teaching workforce

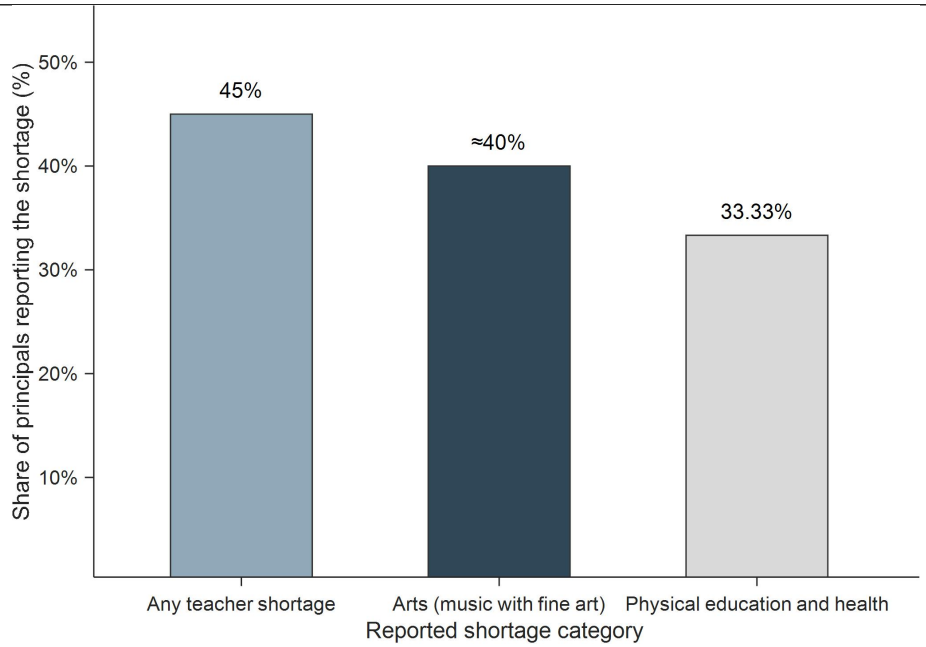
By the end of 2024, 76.23% of the 1.8177 million full-time teachers in rural compulsory-education schools, the village stratum excluding town districts, held a bachelor's degree or above (MOE, 2025b). That sits roughly ten percentage points below the national benchmark and twelve below the implied non-rural share. Rural qualifications have risen substantially, yet the gap persists alongside that rise. The same release names music, physical education, art and science as shortage subjects supplemented through special-post recruitment, which locates the difficulty at subject level rather than in headcount.

The provincial survey points the same way. Of 4,587 principals, 45% reported shortages, close to 40% a serious shortage of arts teachers, and 33.33% a shortage of physical education and health teachers (Zhao et al., 2024). In Chinese staffing statistics the arts category groups music with fine art without separating them, so the figure bounds the music shortage without isolating it, which is a limitation of published categories rather than a finding about music. Two studies address music directly. A year-long field study traced the shortage of music, physical education and art teachers in rural primary schools not to an absolute shortfall in supply but to unresolved problems of professional-role adjustment (Liu et al., 2021). Rural music teachers in Jilin described music as undervalued beside examined subjects, reported heavy workloads, and were dissatisfied with training (Zhou et al., 2026). Since creative teaching presupposes subject expertise and preparation time, an arts-concentrated shortage constrains it more directly than the headline rate suggests (Figure 2).

Figure 2

Proportion of Rural Principals Reporting Teacher Shortages, by Category

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Note. Data from Zhao et al. (2024). The arts category groups music with fine art.

4.2. Resources, equipment and digital access

Provision of basic facilities is near-universal, with 97.90% of junior middle and 97.25% of primary schools meeting music-equipment standards (MOE, 2025a). A compliance rate records presence rather than pedagogical use. One mixed-methods study of a training programme for rural music teachers in Fujian, comparing 46 participants with 30 controls, reported deficits in resources, multimedia use and professional development, with teachers unable to deploy available equipment consistently, which the authors attribute to limited experience and training (Luo et al., 2025). Interviews in rural Jilin report the same dissatisfaction with available training (Zhou et al., 2026). Both sample rural teachers only, without urban comparison groups, so the evidence shows these constraints present in rural settings rather than absent from urban ones, and no comparable urban data were identified. Digital access follows the same pattern. A study of technology adoption reports uneven readiness and facilitating conditions between urban and rural settings, with corresponding differences in use (Jiang & Zhang, 2025). Modelling adoption intentions, it documents association rather than a causal effect of location. As creative work increasingly draws on recordings, notation software and online repertoire, restricted access compounds the constraints above.

4.3. The neglect of place-based resource advantages

Regional difference need not be read only as disadvantage. Local musical traditions are a plausible source of creative material and, in principle, an asset for less-developed areas, and a review of Chinese local music teaching materials documents the depth of that repertoire and the intermittent record of its curricular use (Zhou et al., 2024). Where urban practice is the implicit reference point, such possibilities go unrecognised. This is an interpretation of the literature rather than a finding

supported by the statistics presented. One further boundary should be stated. The urban-rural contrast is evidenced here, the eastern-central-western contrast is not, and the latter is retained as a question rather than reported as a result.

4.4. Summary against the research questions

Table 1 sets the indicators against their aggregation level, benchmark and research question. Three patterns emerge. Provision is near-universal, so hardware is not the binding constraint. The one gap quantifiable on a like-for-like basis lies in human capital, where the reported shortage concentrates in the arts. The remaining indicators are directional rather than comparative, their underlying studies lacking urban comparison groups. RQ1 is thus answered for the urban-rural axis and left open for the eastern-central-western one.

Table 1

Enabling-Condition Indicators, Benchmarks and Research Questions

Indicator	Scope	Value	Benchmark or comparison	RQ
Bachelor's degree or above	Rural, 1.8177m teachers	76.23%	86.31% national; 88.36% non-rural (derived)	RQ1
Bachelor's degree or above, by level	National, primary and junior middle	81.35%; 94.19%	Components of the benchmark	RQ1
Schools meeting music-equipment standards	National	97.25%; 97.90%	Near-universal at both levels	RQ1
Principals reporting any shortage	Rural, one province	45%	Baseline for subject figures	RQ1
Principals reporting an arts shortage	Rural, one province	≈40%	33.33% (physical education and health)	RQ1
Resources, training, workload	Rural, two provinces	Deficits reported	No urban comparison group	RQ1, RQ2
Technology readiness and use	Urban-rural	Uneven	None available	RQ1, RQ2

Note. Derived benchmarks are computed from MOE (2025a, 2025b) as in Section 3.

5. Discussion

5.1. A proposed mechanism linking conditions to classroom quality

Conditions are not outcomes, and an account is needed of how they would become classroom differences. The account proposed here runs through the four efficacy sources. Thin resources make successful creative teaching rare, which limits mastery experience. Distance and sparse specialist staffing restrict demonstration and peer exchange, which constrains vicarious experience and social

persuasion. The open-ended, performative character of creative work raises the risk of visible failure, which bears on affective states. With all four attenuated, a low-efficacy teacher has reason to avoid creative activity, and the absent successes close the loop.

The account fits existing evidence. Survey and workshop studies find limited confidence and limited training to be the reasons teachers give for omitting improvisation and composition (Bernhard & Stringham, 2016; Hickey & Schmidt, 2019), which matches the mastery and training channels above, and teachers' own accounts from rural China point the same way (Zhou et al., 2026). Alignment research reports enacted practice tracking the national standards closely in aggregate while alignment weakens across grade bands and varies between teachers (Yang, 2023), consistent with locating the constraint in enactment rather than curriculum content. The account remains an interpretation. No teacher-level efficacy data are analysed, the pathway is proposed rather than estimated, and alternatives such as school leadership, assessment pressure and pupil composition are not excluded.

5.2. Building efficacy at the individual level

Against scarce mastery experience, the individual response is graduated success, such as a rhythmic ostinato over a familiar folk melody or four improvised bars, with belief built through repetition. Professional-development research supports the graduation. After a multi-day improvisation and composition workshop, participating teachers' perceptions and reported teaching frequency both changed (Hickey & Schmidt, 2019), while survey evidence shows many prospective music teachers lacking confidence to teach improvisation (Bernhard & Stringham, 2016). Endorsing creative aims is not sufficient, and repeated supported practice is what shifts behaviour. Both studies are American, so no particular programme design should be assumed to transfer.

5.3. Support at the school and regional levels

Individual initiative needs an enabling context. School-based and cross-school lesson study supply demonstration and colleague feedback, which serve vicarious experience and social persuasion, while shortage-subject training and digital-resource delivery ease the constraining effect of scarce resources. An action research study reports efficacy gains among non-music-specialist primary teachers after structured training (Salomova et al., 2025), and workshop evidence within music education agrees (Hickey & Schmidt, 2019). The design question is less whether training is provided than whether it produces repeated, visible success near the teacher's own classroom.

5.4. A place-based strategy of transformation

A third approach converts regional identity from constraint into asset. Developing local repertoire into a school-based curriculum (Zhou et al., 2024) gives less-advantaged areas distinctive material,

and teachers' prior familiarity with it lowers anxiety and rebuilds confidence through authentic success. The proposal is theory-driven rather than validated, and it depends on preconditions this analysis cannot assess, among them the capacity to organise local repertoire into teachable form, the availability of curricular time, and alignment with national standards.

5.5. Implications for practice and policy

The following implications follow from the conceptual analysis rather than from empirical findings, and they are offered for testing. Where provision is near-universal while qualification and support gaps persist, further equipment investment plausibly returns less than sustained professional support. Because the reported shortage concentrates in arts staffing rather than headcount, subject-disaggregated planning and locality-specific recruitment should outperform aggregate targets. Because the mechanism proposed works through experience, development producing repeated small successes near the teacher's own classroom is preferable to one-off centralised training. Statistics separating music from fine art and reporting staffing by locality would improve the evidence base, since several limits noted below are limits of published categories.

6. Conclusion

On the indicators available, enabling conditions differ measurably between urban and rural settings. On RQ1, a gap of roughly ten percentage points against the national benchmark and twelve against the non-rural share, a shortage concentrated in arts staffing, and uneven support and digital access sit alongside near-universal equipment provision. That is a difference in conditions rather than a demonstrated difference in the creative teaching delivered, which would need classroom data. On RQ2, teacher efficacy explains coherently how such conditions might become differences in practice, though the pathway is not tested here. On RQ3, the analysis points to coordinated individual, school and regional action and to local musical culture as a creative resource. The question is thus less whether a creative curriculum exists than whether it can be enacted, and policy emphasis may usefully move from hardware to teacher efficacy, an implication offered for examination. Several limitations bound these conclusions. Sources are heterogeneous in scope, definition and year and are compared rather than pooled, and the design is descriptive and non-causal. Coverage is uneven, with one province for the principal survey and two for the qualitative evidence, so the account is not sub-nationally representative. Indicators are indirect, since a compliance rate does not measure use, nor a qualification share creative-teaching competence. The arts category conflates music with fine art, several studies lack urban comparison groups, and the eastern-central-western axis is left open. Most consequentially, no teacher-level efficacy data are analysed, so the mechanism carrying the argument stays theoretical. A teacher-level survey measuring the four efficacy sources alongside reported

creative-activity frequency, sampled across urban and rural schools and the three belts, would let the pathway be tested and mediation estimated. Classroom observation would close the gap between conditions and delivered practice. Design-based studies of local-repertoire curricula would test the place-based proposal and its preconditions. Reporting that separates music from fine art by locality would remove a principal evidential constraint.

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The authors declare that there is no conflict of interest.

Ethics approval

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Consent to participate

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