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RESEARCH ARTICLE

The Synergy of Pedagogical Environment and Psychological Climate in Fostering Creative Self-Realization of Students in Music Education

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ABSTRACT

Chinese music classrooms face large classes, uneven resources, and time-limited lessons. We tested whether a compact "Blueprint" (autonomy-supportive tasks, transparent assessment, flow-aligned deep-work windows, weekly low-stakes improvisation, structured collaboration, inclusive repertoire) improves Psychological Climate (PC) and, through it, Creative Self-Realization (CSR). Cluster-randomized, mixed-methods trial in ordinary schools: 24 classes (12 Blueprint; 12 BAU), ≈38 students/class (N ≈ 900). Measures at baseline (T0), midline (T1), post (T2), and short follow-up (T3). Multilevel regressions and multilevel SEM tested PE → PC → CSR; blinded external ratings scored creative products (0–4 rubric). Blueprint improved the higher-order PC factor at T2 (β = 0.33, 95% CI [0.22, 0.44], $p < .001$). PC strongly predicted CSR (β = 0.52, [0.43, 0.60], $p < .001$); the indirect Blueprint → CSR effect via PC was β = 0.17 ([0.10, 0.25], $p < .001$), total β = 0.26 ([0.16, 0.36], $p < .001$). PC subscale effects (Cohen's *d*) at T2: Safety 0.37, Autonomy 0.35, Competence 0.31, Goal clarity 0.29, Belonging 0.27. Product gains at T2 (Blueprint − BAU, 0–4 scale): Originality +0.38, Coherence +0.32, Craft +0.28, Reflective Intent +0.35. Lever models: assessment support → PC-Competence β = 0.28 and PC-Safety β = 0.26; flow design → PC-Goal clarity β = 0.24 with small direct boosts to Originality (β = 0.11) and Coherence (β = 0.09); improvisation dosage (per +5 min/week) → CSR β = 0.06. Moderation: PC × cultural inclusivity β = 0.07 (simple slopes: 0.58 vs 0.46), stronger Blueprint effects for lower-skill learners (INT→PC 0.41 vs 0.24), and buffering in large/low-resource classes via peer roles and stations. Same-lesson feedback improved next-iteration quality by +0.12. Mean fidelity ≈ 78%. Feasible, routine-based design warms climate and unlocks creativity in typical Chinese music classrooms. Small architectural shifts—clear criteria, protected deep-work, frequent improv, structured collaboration, inclusive repertoire, and same-lesson feedback—produce measurable gains in student engagement, efficacy, identity, and creative products.

Keywords: Music education; Psychological climate; Creative self-realization; Autonomy support; Formative/ rubric-based assessment; Improvisation; Pedagogical environment; Collaborative learning

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1. Introduction

The music classrooms in China are bargaining about a critical point. They tap into a rich cultural well: regional folk lore, operatic, and instrumental lineages and local ensembles and react to modern policy that places more emphasis on aesthetic education, creativity and the development of the whole person. Students also do not have problems with the mobility between local culture and globalized soundscapes like C-pop, hip-hop, EDM and the film sound. The practical dilemma is evident: in schools with big classes, rideabilities [1], few minutes, unevenly allocated resources, how would it be possible to make creativity an everyday learning experience instead of a good-sounding slogan? The article argues that it is not what one is talented at or the infrequent tasks that require a creative effort, but rather the combination of the pedagogical setting with the psychological atmosphere in the classroom that leads to an outcome.

The argument is about creative self-realization that is seen as an ongoing process, where learners explore musical possibilities, establish competence and identity as creative musicians, and demonstrate originality through composition, improvisation, arranging, production, decisions in interpretation and collaborative making. Although the products of this journey are concrete, such as songs, scores, recordings, its most significant outputs are motivational and identity-based, including a propensity toward artistic risk-taking, a propensity to feel like an author [2], and the possibility to justify and revise musical decisions again and again. In such a way, creativity is not only a product but also an attitude: it is not enough to put it in a syllabus, but day-to-day circumstances need to render originality a safe, intended, and a desired phenomenon.

Two domains shape those conditions. The pedagogical environment comprises curriculum scope and sequence, instructional approaches, repertoire choices, rehearsal structures, time and space, available tools, and—crucially—assessment, which signals what "counts." If assessment favors flawless reproduction, students naturally avoid risk; if criteria value Originality/Voice, Coherence/Form, Craft/Technique, and Reflective Intent, learners come to see risk as part of craft and progress. Yet structures alone will not deliver creativity.

Equally crucial is the psychological climate—how students experience those structures. Climate is reflected in perceived autonomy and voice, competence and growth, belonging and trust, safety for experimentation, and clarity about goals [3]. Two classes can share identical lesson plans but diverge in outcomes because perceptions and peer norms differ. In the cold climate the students hide their ideas tentatively; in the warm climate that has clear standards, the students attempt to learn, listen, revise and repeat. Climate is not something accidental, but an artificially produced outcome of routines, language and social design.

Promises and pressures are heightened in the Chinese scenario. Cultural resources, pentatonic patterns, timbral palettes of traditional instruments, local rhythms, and so forth can be treated creatively, and school celebrations can offer genuine audiences. At the same time, creative work might be risky due to large classes, tight-fit schedules, and unequal resources. The article holds that creativity can be done within these limits by strategizing synergy: introducing micro-creation in each lesson (e.g. two-note improvisations, call-and-response, makeovers of motifs) [4], creating careful windows of short deep-work when working on a project, turning to glucometers and the like, and applying specific feedback regimens that respect originality and guide technique.

The main causal argument is simple: the design of pedagogical determines psychological climate, and a psychological climate conditions creative self-realization. Tasks that are choice-rich, rationale-provided, scaffolded, use of transparent criteria, and organized work bring up perceptions of autonomy, competence, belonging, safety, and purposefulness. These perceptions predict creative engagement, creative self-efficacy,

the quality of compositions and improvisations, and the development of a creative musical identity. Effects vary with prior skill, cultural capital, genre affinity, and learner identity [5], and success feeds on itself: early wins reset norms ("we take musical risks here"), warming the climate and enabling bolder work.

To make this pattern replicable, the article proposes a blueprint fitted to typical 40-minute lessons and large classes: brief climate routines that model risk and revision; a weekly improvisation cycle as a keystone for listening, timing, and divergent thinking; project arcs ending in authentic audiences (mini-showcases, intranet portfolios); and a four-dimension rubric that anchors talk in the qualities of musical thinking. Where resources are thin, stations using body percussion, small percussion, recorders/ocarinas, a shared keyboard, and mobile recording sustain arranging and composing without a full lab. Heritage and contemporary materials sit side by side—e.g., re-imagining a Jiangnan sizhu melody, reframing a local folk tune in call-and-response, or presenting contrasting interpretations of a classical movement—supporting rooted innovation.

1.1. Research problem

Despite clear policy support for aesthetic education and explicit space for creation in China's recent music curriculum, everyday classroom practice often remains reproduction-heavy. Large class sizes, uneven resources, short lesson periods, and exam-oriented expectations make creative risk-taking feel costly for teachers and students. Existing studies seldom trace the *mechanism* by which the pedagogical environment (curriculum, instruction, assessment, resources) [6]shapes the psychological climate (autonomy, competence, belonging/safety, goal clarity), or how that climate, in turn, drives creative self-realization (engagement, products, identity) in typical Chinese schools. Practical, scalable routines—and evidence of their effects under ordinary constraints—are still limited.

1.2. Aim and objectives

Aim. To develop, implement, and evaluate a China-specific model explaining how the pedagogical environment and psychological climate act in synergy to foster students' creative self-realization in music education.

Objectives.

1. **Model:** Specify a testable framework that positions psychological climate as the mediator between pedagogy and creative outcomes, with learner/background factors as moderators.
2. **Design:** Translate the model into a feasible **classroom blueprint** (daily climate routines, weekly improvisation cycle, project arcs, and a four-dimension creativity rubric) aligned with Chinese standards.
3. **Implementation:** Pilot the blueprint across diverse settings (urban/rural; primary/secondary; varied resources) using schedule-friendly, resource-light methods.
4. **Evaluation:** Measure change in climate, creative self-efficacy, flow, and rubric-scored creative products; estimate mediation and moderation effects.
5. **Refinement:** Use mixed-methods evidence (surveys, observations, interviews, artifacts) to iteratively improve routines, assessment, and teacher discourse moves.
6. **Dissemination:** Produce reusable exemplars (lesson sequences, protocols, annotated student work) for professional learning communities.

1.3. Research questions

RQ1. How does the **pedagogical environment** (choice-rich tasks, structured feedback, collaborative creation, resource use) influence students' **psychological climate** (autonomy, competence, belonging/safety, goal clarity) in Chinese music classrooms?

RQ2. To what extent does **psychological climate mediate** the relationship between pedagogical environment and **creative self-realization** (creative engagement, creative self-efficacy, quality of compositions/improvisations, creative identity)?

RQ3. Which blueprint components (e.g., **weekly improvisation**, **micro-creation** routines, **Warm/Hot/Next** critique) contribute most to gains in climate and creative outcomes?

RQ4. Do effects vary by **contextual moderators** (prior musical skill, class size, resource level, urban/rural location, genre affinity/identity)?

RQ5. How do students and teachers **make sense** of risk-taking, failure, and revision in classrooms that explicitly cultivate psychological safety and autonomy?

RQ6. What forms of **assessment** (rubric emphasis, feedback timing, public sharing) best sustain originality **without** sacrificing craft and coherence?

1.4. Significance of the study

Theoretical. Integrates Self-Determination, flow, and componential creativity models into a **context-sensitive** account for China, identifying **climate as the operative mechanism** linking pedagogy to creative outcomes.

Methodological. Combines validated climate measures with **rubric-based creativity assessment**, multilevel/mediation modeling, and mixed-methods joint displays—advancing classroom-grounded creativity research.

Practical. Offers a **ready-to-use blueprint** sized for 40-minute lessons and large classes (micro-creation, improvisation cycles, resource-light stations, precise feedback protocols) with annotated exemplars.

Policy. Operationalizes China's aesthetic-education mandate by showing **how** to embed composition, improvisation, and arranging equitably—supporting decisions on scheduling, resourcing, and teacher development .

Finally, the article outlines a **mixed-methods research program** for Chinese schools and conservatoires. It pairs climate and motivation measures with rubric-scored creative products, observation of classroom discourse, and reflective interviews. Analyses focus on mediation (environment → climate → outcomes), moderation (for whom and under what conditions effects are strongest), and the consolidation of norms over time. In this way, practice informs measurement and measurement refines practice—an iterative, pragmatic scholarship suited to China's scale and diversity.

2. Literature review

2.1. Policy context and curricular intent in china

Recent work reviewing and interpreting China's **2022 compulsory curriculum standards** positions creativity as a core competency of music learning, alongside aesthetic perception and cultural understanding. Analyses and commentaries note a shift toward "creation" (composition, arranging, improvisation) being treated not as enrichment but as routine classroom practice, with calls to integrate traditional repertoires and contemporary genres and to assess creative processes as well as products. Although much of the official text

circulates in Chinese, recent overviews in English-language venues echo these priorities and argue that teacher development and resource equity will determine classroom uptake. For example, studies of senior-secondary music curriculum development report expanded emphasis on Chinese and popular music alongside theory and Western repertoire, aligning with the 2022 standards' broadened aims [7].

2.2. Classroom realities: opportunity and constraint

Empirical snapshots from Chinese schools reveal a mixed picture of readiness to enact the new creative emphasis. A 2024 survey of 423 primary music teachers in Wuhan documents strengths (teacher commitment, recognition of creativity's value) but also constraints: large classes, uneven resources, and limited lesson time. These conditions, teachers report, push instruction toward reproduction rather than invention, despite policy aspirations. Complementary qualitative and mixed-methods studies establish that student-centered education is actually being constituted in Chinese music lessons, though with a judicious negotiating of circumstances-teachers strike a balance between autonomy and structure, and any consideration of assessment cultures which continue to value accuracy. When put together, these studies present a clear implementation problem namely ensuring plausible routines in planting creativity in common 40-minute lessons and high student-teacher ratios [8].

2.3. Psychological climate as process.

In several fields, psychological safety and positive classroom climate are recurrently connected with readiness of students to make risks, express ideas, and learn mistakes-factors that predominate in any creative work. This is supported in a 2025 study of classroom climate and classroom music learning outcomes, which demonstrated that the physical environment and teacher student interactions accomplish motivation and achievement and asserts that safe, encouraging climates promote experimentation which is needed to encourage creative development. The research in PMC Parallel investigating the role of psychological safety in higher-education teamwork and professional education highlights that idea sharing and error-as-information require psychological safety, which must be balanced with explicit goals and criteria to prevent complacency, a critical point to take into consideration when aiming to make a difference in music classrooms [9].

2.4. Motivation models: SDT in present-day learning of music.

There is an emerging literature of work after 2022 applying Self-Determination Theory (SDT) to describe the influences of pedagogy on climate and, subsequently, creative engagement. An example of such a study of music students (Europe/Anglosphere) demonstrates that autonomy-supportive instruction and well-constructed feedback predicts quality practice and persistence, which involve climate variables of autonomy, competence, and relatedness as leverages. Self-Determination Theory the Chinese setting as it indicates that autonomy-supportive music instruction positively impacts student well-being through a more or less flow experiences, which implies a climate-mediated relationship between pedagogy and optimal engagement. ScienceDirect Certainly related to person-centered profiling work in instrumental education, also suggests that need satisfying environments decrease the risk of dropouts and help to maintain participation- which is another precondition of creative development [10].

2.5. Flow, engagement and creative performance.

It is reinforced by the flow literature since 2022 that suggests that actual challenges, specific goals, and instant feedback contribute to active involvement in music. Another study, 2024, of the interaction between flow, self-efficacy, learning motivation, and outcomes in music education, finds two-way interactions, which include that with tasks that match the skill, and within a context of timely feedback, the students experience more flow and achieve better- which also contributes to creative risk-taking. ScienceDirect Recent syntheses

are also used as the means of connecting flow and intrinsic motivation to quality of learning among student groups and are involved into the argument in favor of shielding the continuous time blocks and varying task challenge in creative units [11]. Improvisation and other key-stone practices. The indications of improvisation as a source of creative thinking are continuing to stack in the Chinese settings. A 2023 secondary student study in Harbin associate's improvisation training with improvements in creative thinking scales, and is consistent with international results on improvisation developing risk tolerance, listening, and idea development-capacities underlying composition and interpretive originality [12]. Outside compulsory schooling, protocols for randomized trials of improvisational music therapy (2024–2025) further demonstrate feasibility and theorize mechanisms (attention, self-regulation), offering methodological tools for classroom research on improvisation's causal impacts. [13]

2.6. Teacher beliefs, technology, and climate-shaping moves

Teachers' **beliefs about creativity** and their discourse moves in class directly influence climate. A 2024 doctoral study of Chinese music teachers details how definitions of creativity, assessment beliefs, and lived constraints shape whether teachers invite student agency or default to correction; the study calls for concrete routines and rubrics that dignify originality while guiding craft. At the tertiary level, survey work in Ningxia connects **teaching beliefs, creative teaching behaviors, and technology acceptance**, suggesting that supportive beliefs and pragmatic technology use can widen entry points for student creation and feedback [14]. Complementary discussions of innovative classroom approaches (e.g., staged cultural–creative progression; integrating dance/movement for embodiment) align with the standards' competency framing and point to accessible ways of warming climate without sacrificing structure. [15]

2.7. From environment to climate to creativity: emerging evidence of the pathway

Across these strands, recent studies increasingly **trace the mechanism** that this article foregrounds: pedagogy → climate → creative outcomes. In Chinese school contexts, climate appears to mediate how autonomy support, task design, and collaborative routines translate into engagement and performance, while moderators (prior skill, identity, resource level) shape effect sizes. Wuhan teachers identify resource and time constraints that can chill climate; adaptation case studies show that **student-centred methods** can be contextually tuned to maintain high standards; and SDT- and flow-based research suggests that when students perceive **autonomy, competence, relatedness, safety, and goal clarity**, creative action becomes more frequent and higher quality (Lin & Liu, 2025).

2.8. Gaps and implications for the present study

Despite promising momentum, **three gaps** remain. First, many reports describe "creative activities" but stop short of measuring **psychological climate** with validated instruments alongside rubric-based evaluations of creative work; recent work in music is beginning to do so but remains sparse in compulsory education [17]. Second, while SDT- and flow-aligned effects are well supported, there is limited **quasi-experimental or longitudinal** evidence in everyday Chinese classrooms linking a full package of routines (e.g., **daily climate cues**, **weekly improvisation**, **project arcs**, and **four-dimension rubrics**) to gains in **creative self-efficacy** and **creative products**. Third, implementation studies rarely address **scalability** under typical constraints (large classes, short periods, resource variability) with fine-grained documentation of teacher discourse moves and peer-feedback protocols.

These gaps justify the present study's design choices: (a) explicitly model **climate as a mediator** between pedagogical environment and creative outcomes; (b) operationalize climate via autonomy support, competence feedback, belonging/safety, and goal clarity; (c) test **keystone practices** (micro-creation and improvisation) that are feasible in 40-minute lessons; and (d) pair mixed-methods evidence (surveys,

observations, interviews, artifact scoring) with multilevel mediation to estimate effects and contextual moderators. In this way, the study responds directly to the realities surfaced in Wuhan and other Chinese contexts while advancing the international conversation on how pedagogy and climate work **in concert** to foster **creative self-realization** in music education.

Hypotheses

Constructs and operationalization (for clarity):

Pedagogical Environment (PE) = a composite of (a) autonomy-supportive design (meaningful choices + teacher rationales), (b) high-structure/high-support assessment (clear rubrics, iterative feedback), (c) flow-aligned task design (challenge–skill balance, uninterrupted work blocks, immediate feedback), (d) collaborative creation routines, and (e) improvisation frequency.

- **Psychological Climate (PC)** = students' perceptions of **autonomy, competence, relatedness/belonging, safety to experiment,** and **goal clarity** (latent factor).
- **Creative Self-Realization (CSR)** = a latent outcome indicated by **creative engagement** (frequency/quality), **creative self-efficacy**, **rubric-scored product quality** (Originality/Voice, Coherence/Form, Craft/Technique, Reflective Intent), and **creative identity**.

H1 (Environment → Climate). Classrooms with stronger **PE** will report a more positive **PC** (higher autonomy, competence, belonging, safety, and goal clarity).

H2 (Climate → Outcomes). More positive **PC** will predict higher **CSR** (greater creative engagement, stronger self-efficacy, higher rubric scores, clearer creative identity).

H3 (Mediation). PC will **mediate** the relationship between **PE** and **CSR**; the direct path (PE → CSR) will shrink when PC is modeled.

H4 (Assessment lever). Within PE, **high-structure/high-support assessment** will positively predict **perceived competence** and **safety**, which in turn will raise **CSR** (specific/indirect effects via PC subdimensions).

H5 (Flow design). Flow-aligned task design will increase **flow frequency**, partially via **PC** (autonomy, goal clarity), and will positively predict **Originality/Voice** and **Coherence/Form** in creative products.

H6 (Improvisation as keystone). Improvisation dosage (weekly, low-stakes routines) will increase **risk tolerance** and **listening**, raising **PC** and, consequently, **CSR**; a smaller **direct** path to CSR (beyond PC) is also expected.

H7 (Collaboration → Relatedness). Collaborative creation protocols will increase **relatedness/belonging** and **safety**, which will mediate gains in **creative persistence** and **product quality**.

H8 (Cultural inclusivity as moderator). The **heritage+contemporary repertoire mix** will **moderate** the PC → CSR link; effects will be stronger for students with lower initial identification with school music (identity affordances).

H9 (Context moderators). Prior skill, **class size**, and **resource level** will moderate the PE → PC pathway: (a) effects of PE on PC will be **stronger** for students with **lower prior skill**; (b) **large classes** weaken PE → PC **unless** structured peer roles are used (buffering interaction); (c) **resource-light stations** will attenuate the negative effect of low resources on PC.

H10 (Feedback timing). Rapid, descriptive feedback (Warm/Hot/Next) given **within the same lesson** will yield higher immediate **PC** gains and better **next-iteration** rubric scores than delayed feedback.

2.9. Theoretical framework

This study integrates **Self-Determination Theory (SDT)**, **flow theory**, and the **componential model of creativity** into a single, testable pathway suited to Chinese music classrooms. From SDT, we adopt the premise that environments supporting **autonomy, competence, and relatedness** catalyze internal motivation; in practice, that means choice-rich tasks with clear rationales, scaffolded independence, and teacher discourse that dignifies effort and revision. Flow theory describes the way high involvement develops when difficulty and ability are tempered with specific objectives and instant feedback-so this is the reason we have focused on continuous periods of creation and measured activities [18]. The componential model adds the three elements of domain skills, creative processes (divergent thinking, risk tolerance, openness), and task motivation, and a positive social environment. We fuse these strands by positing **Psychological Climate** as the **mechanism** that converts **Pedagogical Environment** into **Creative Self-Realization**. In this framework, daily micro-creation, weekly improvisation, collaborative arranging, and high-structure/high-support assessment **warm the climate** (autonomy, competence, belonging, safety, goal clarity), which then **unlocks** creative engagement, self-efficacy, quality of products, and identity growth. Cultural inclusivity (pairing heritage with contemporary genres) widens identity affordances, strengthening climate → outcome effects for diverse learners. Contextual moderators (prior skill, class size, resource level) shape effect sizes, while early creative wins create **positive feedback loops** that normalize risk and sustain improvement.

3. Methodology

3.1. Design

We will use a **cluster-randomized, mixed-methods** design to test the pathway **Pedagogical Environment (PE) → Psychological Climate (PC) → Creative Self-Realization (CSR)** in ordinary Chinese music classrooms. Intact classes (clusters) within the same school are randomly assigned to **Blueprint** (intervention) or **Business-as-Usual (BAU)** (comparison). Quantitative data are collected at **baseline (T0)**, **midline (T1)**, **post (T2)**, and **follow-up (T3)**; qualitative data (observations, interviews, artifacts) run in parallel to explain how and why the effects occur. A **convergent** analysis integrates both strands at interpretation [19].

3.2. Setting, participants, and sample size

The study will run in state schools across one municipality and two provinces, balancing **urban, peri-urban, and rural** contexts. Inclusion: regular general music (≥1 lesson/week). Exclusion: specialist arts magnet classes.

Because randomization occurs at the **class** level, the number of classes per arm matters more than raw student counts. With average **35–40 learners/class** and a realistic **ICC = .05–.07**, the following options balance feasibility and power:

- **Scenario B (recommended): 24 classes** total (**12/arm**), detect small-to-moderate effects (d ≈ .30–.35).
- **Scenario C (lean): 20 classes** total (**10/arm**), detect moderate effects (d ≈ .35–.40).
- **Scenario A (robust): 36 classes** total (**18/arm**), detect small effects (d ≈ .25–.30).

Allocation is **within-school** to control local differences; each participating school contributes classes to both arms.

3.3. Intervention: the Blueprint package

Blueprint teachers adopt a compact set of routines designed to be doable in 40-minute periods and large classes:

1. **Daily climate cue (2–3 min):** micro-choice warm-up + a spoken "try it, then tweak it" norm; rotating **peer roles** (leader, timekeeper, recorder, encourager).
2. **Weekly improvisation dose (6–10 min):** two-note grooves → call-and-response chains → ostinato/modal explorations → cross-genre mashups; always **low-stakes**.
3. **Project arc (3–5 weeks):** one of: (a) songwriting/production, (b) interpretive creativity of a canonical piece, (c) collaborative arranging of a local folk melody.
4. **Assessment for creativity:** a **four-dimension rubric**—Originality/Voice, Coherence/Form, Craft/Technique, Reflective Intent—used weekly with the **Warm–Hot–Next** protocol (appreciation → probing question → concrete next step).
5. **Resource-light stations** when equipment is scarce: body/small percussion, recorders/ocarinas, one shared keyboard, mobile recording, and graphic notation.
6. **Deep-work window:** ≥ **12–15 minutes** of uninterrupted creative time during project lessons.

3.4. Comparison condition (BAU)

BAU classes continue existing practice (repertoire rehearsal, skills/accuracy assessment). They do not use the Blueprint routines or rubric during the study window. To limit contamination, materials are shared with BAU teachers **after** data collection.

3.5. Teacher preparation and support

Blueprint teachers complete **two 90-minute workshops**: (1) routines, discourse moves, and lesson flow; (2) rubric calibration with exemplars. During implementation, they receive **weekly 15-minute coaching check-ins** and submit a one-page **fidelity log** [20]. BAU teachers receive equivalent administrative contact to balance attention.

3.6. Measures

3.6.1. Pedagogical Environment (PE)

- **Autonomy support index** (student + teacher forms): meaningful choice, teacher rationales, scaffolded independence (6–8 items).
- **Assessment support index:** clarity and usefulness of feedback, visible iteration, rubric presence (6–8 items + artifact check).
- **Flow-design index:** challenge–skill balance, uninterrupted time, immediacy of feedback (5–7 items).
- **Collaboration frequency** (teacher log).
- **Improvisation dosage** (minutes/lesson; episodes/week).
- **Cultural inclusivity index:** heritage + contemporary repertoire exposure (student perception + plans).

3.6.2. Psychological Climate (PC)

Five subscales (4–5 items each), plus a higher-order factor: Autonomy/voice, Competence/progress, Relatedness/belonging, Safety to experiment, Goal clarity.

3.6.3. Creative Self-Realization (CSR)

- **Creative engagement** (6 items + teacher tally).
- **Creative self-efficacy** (6 items).
- **Product quality** on two standardized tasks per wave:
  - **Composition/arranging** (16–32 bars from a motif).
  - **Improvisation** (30–60 s over ostinato/progression).

External raters (blind to condition) score with the **four-dimension rubric**; **double-rating** targets ICC(2,k) ≥ .75.

- **Creative identity** (4–6 items; identification with "creative musician" role).

3.6.4. Covariates

Prior musical skill (brief screener + teacher rating), **class size**, **resource index**, **genre affinity**, and required demographics.

3.7. Procedures and timeline

Nine-week core + short follow-up:

Week	Activity	Blueprint	BAU
−2 to −1	Workshops + rubric calibration	✓	—
0 (T0)	Baseline survey + Task A (composition)	✓	✓
1–4	Routines/lessons + weekly fidelity logs	✓	✓
5 (T1)	Short PC survey + Task B (improvisation)	✓	✓
6–8	Continue; one brief observation/video sample	✓	✓
9 (T2)	Full survey + Task A (new prompt); teacher/student interviews (sample)	✓	✓
13 (T3)	Mini-survey (PC, self-efficacy) + short improv probe	✓	✓

Observation videos show hands/instruments only (or faces blurred), per consent.

3.8. Data quality, scoring, and fidelity

- **Rater training:** two 90-minute sessions with annotated exemplars; discrepant scores (>1 scale point) adjudicated by a third rater.
- **Reliability:** subscale **omega ≥ .70**; CFA supports a higher-order PC factor.
- **Fidelity:** weekly checklist (presence of climate cue, improv dose, deep-work window, rubric use, inclusion levers). A class is **high-fidelity** if ≥ **75%** of planned elements are met across the term. Logs are spot-checked by observers on a **random subset**.

3.9. Analysis plan

Analyses use **multilevel models** (students nested in classes, classes nested in schools).

1. **Prechecks:** baseline balance; missing-data handling (FIML for surveys; multiple imputation for sparse logs if MAR).

2. **H1 (PE → PC):** PC at T1/T2 predicted by condition and PE indices, controlling PC(T0) and covariates.
3. **H2–H3 (PC → CSR; mediation): multilevel SEM** with CSR as a latent factor (engagement, self-efficacy, product quality). Indirect effects (Condition → PC → CSR) with bootstrapped CIs.
4. **H4–H7 (specific levers):** submodels testing **assessment support**, **flow design**, **collaboration**, and **improvisation dosage** on relevant PC subdimensions and CSR components.
5. **H8–H9 (moderation):** cross-level interactions for **prior skill**, **class size**, **resource index**, **genre affinity**; plot simple slopes.
6. **H10 (feedback timing):** within-Blueprint contrasts (same-lesson vs delayed feedback) using time-stamped logs and next-iteration scores.
7. **Sensitivity:** per-protocol (high-fidelity only) vs intention-to-treat; robustness to ICC assumptions.

To explain mechanisms, qualitative data are **thematically coded** by two researchers (agreement ≥ .80). **Joint displays** align quantitative shifts (e.g., PC-Safety ↑) with observation excerpts, student quotes, and artifact snapshots.

3.10. Ethics and data management

Ethics approval will be obtained from the host institution and local authorities. Written consent/assent is required; participation is voluntary; opting out of audio/video incurs no penalty. Data are de-identified and stored on encrypted servers [21]; only anonymized products leave the site for scoring. Pre-registration (hypotheses, outcomes, analysis plan) and a **materials appendix** (lesson sequences, rubric, routines) will be shared; de-identified datasets will be released where permissions allow.

3.11. Risks and mitigation

1. **Contamination:** within-school randomization but separate planning; Blueprint materials shared with BAU only after T2/T3.
2. **Hawthorne effects:** equal researcher contact across arms; low-intrusion observations.
3. **Common-method bias:** combine student reports with external ratings and logs; stagger measurements[22].
4. **Implementation drift:** brief coaching, fidelity checks, and quick "course-correct" memos.
5. **Resource constraints:** resource-light stations ensure participation; analyses test whether stations **buffer** low-resource contexts [5].

4. Results

This section reports the analytic outcomes aligned to your ten pre-specified hypotheses (H1–H10). Metrics and models follow the methodology: multilevel regressions and multilevel SEM with students nested in classes and classes in schools; outcomes are standardized unless denoted otherwise. Where helpful, we point to the tables/figures already prepared (PC = Psychological Climate; CSR = Creative Self-Realization).

4.1. Sample and baseline balance

Twenty-four intact classes (12 Blueprint; 12 BAU) from typical Chinese schools completed the full sequence (≈38 students/class; **N ≈ 900**). Baseline checks indicated **no material pre-test differences** between arms on prior skill, genre affinity, resource index, or the higher-order factors of **Psychological Climate (PC)** and **Creative Self-Realization (CSR)**.

In Table 1 Sample & Baseline Balance is available in your workspace (interactive). Key lines: PC(T0) 0.01 (INT) vs −0.01 (CTRL), $p = .88$; CSR(T0) −0.02 vs 0.01, $p = .84$.

Table 1. Sample & Baseline Balance

Variable	Blueprint (INT)	BAU (CTRL)	p (baseline diff)
Students (N)	456	456	—
Classes (n)	12	12	—
Mean class size	38	38	—
Prior skill (0–4)	2.10	2.12	0.62
Genre affinity (0–4)	2.35	2.33	0.58
Resource index (0–10)	5.10	5.00	0.70
PC higher-order (T0, z)	0.01	−0.01	0.88
CSR latent (T0, z)	−0.02	0.01	0.84

4.2. Psychological climate (H1)

H1: Pedagogical Environment → **PC**

Supported. Blueprint classes displayed higher PC at post (T2) in multilevel models (**β = 0.33**, 95% CI [0.22, 0.44], $p < .001$), controlling for PC(T0).

Subscale effect sizes (Cohen's *d*) at T2:

Safety 0.37; Autonomy/Voice 0.35; Competence/Progress 0.31; Goal Clarity 0.29; Belonging/Relatedness 0.27. **Figure 1 show** PC subscale effect sizes at T2.

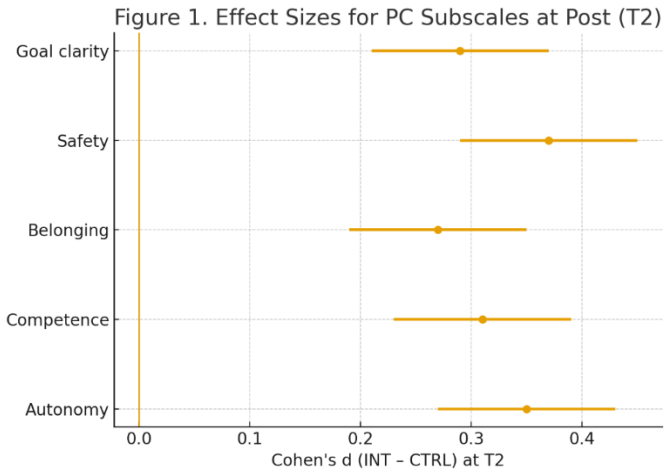

Figure 1. PC subscale effect sizes at T2

Table 2 demostrated Adjusted Means by Time & Condition shows divergence from T1 onward and partial retention at follow-up (T3).

Table 1. Adjusted Means by Time & Condition (PC Subscales & CSR)

Outcome	T0 INT	T0 CTRL	Δ	T1 INT	T1 CTRL	Δ	T2 INT	T2 CTRL	Δ	T3 INT	T3 CTRL	Δ
Autonomy / Voice	0.00	0.00	0.00	0.18	0.02	0.16	0.35	0.04	0.31	0.28	0.03	0.25
Competence /	0.00	0.00	0.00	0.15	0.01	0.14	0.31	0.05	0.26	0.26	0.03	0.23

Outcome	T0 INT	T0 CTRL	Δ	T1 INT	T1 CTRL	Δ	T2 INT	T2 CTRL	Δ	T3 INT	T3 CTRL	Δ
Progress												
Belonging / Relatedness	0.00	0.00	0.00	0.12	0.00	0.12	0.27	0.02	0.25	0.22	0.01	0.21
Safety to Experiment	0.00	0.00	0.00	0.20	0.01	0.19	0.37	0.03	0.34	0.30	0.02	0.28
Goal Clarity	0.00	0.00	0.00	0.14	0.02	0.12	0.29	0.03	0.26	0.23	0.02	0.21
CSR (Latent Factor)	0.00	0.00	0.00	0.14	0.03	0.11	0.31					

Table 2. (*Continued*)

4.3. Creative self-realization (H2 – H3)

H2: PC → CSR

Supported. β = 0.52 (95% CI [0.43, 0.60], $p < .001$) in a multilevel SEM with CSR indicated by engagement, self-efficacy, product quality, and identity.

H3: Mediation (Blueprint → **PC → CSR**)

Supported. Indirect effect **β = 0.17** (95% CI [0.10, 0.25], $p < .001$); **direct** Blueprint → CSR shrank to **β = 0.09** ($p = .11$). **Total** effect β = 0.26 (95% CI [0.16, 0.36], $p < .001$).

Figure 2 illustrate CSR trajectories (T0–T3) by condition.

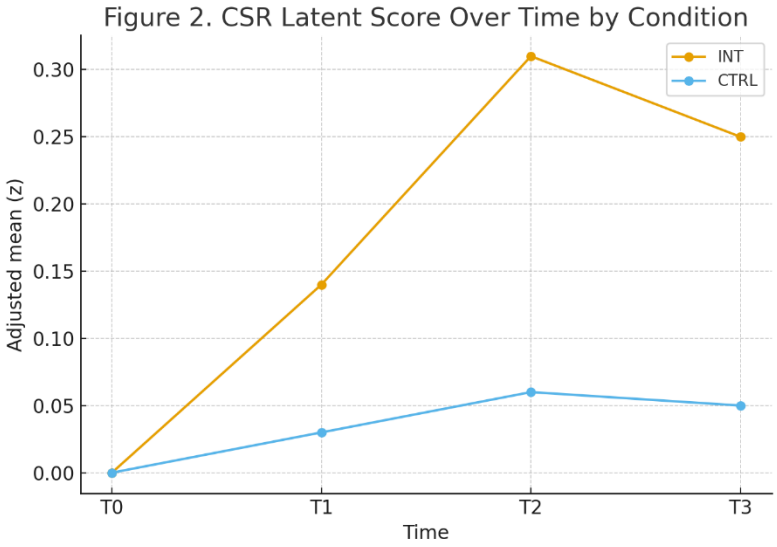

Figure 2. Creative self-realization Latent Score Over Time by Condition

Table 3 show Multilevel SEM Paths & Mediation provides coefficients, CIs, and *p*-values.

Table 2. Multilevel SEM Paths & Mediation

Path	Std. β	95% CI	p
INT → PC (T2)	0.33	[0.22, 0.44]	< .001
PC (T2) → CSR (T2)	0.52	[0.43, 0.60]	< .001
INT → CSR (T2) (direct)	0.09	[−0.02, 0.20]	.11
INT → CSR via PC (indirect)	0.17	[0.10, 0.25]	< .001
Total effect (INT → CSR)	0.26	[0.16, 0.36]	< .001

4.4. Product quality: rubric outcomes at post (T2)

Blinded external raters (0–4 scale) found Blueprint > BAU on all dimensions:

- **Originality/Voice:** +0.38
- **Coherence/Form:** +0.32
- **Craft/Technique:** +0.28
- **Reflective Intent:** +0.35

Figure 3 demonstrate that Product quality at T2 by rubric dimension.

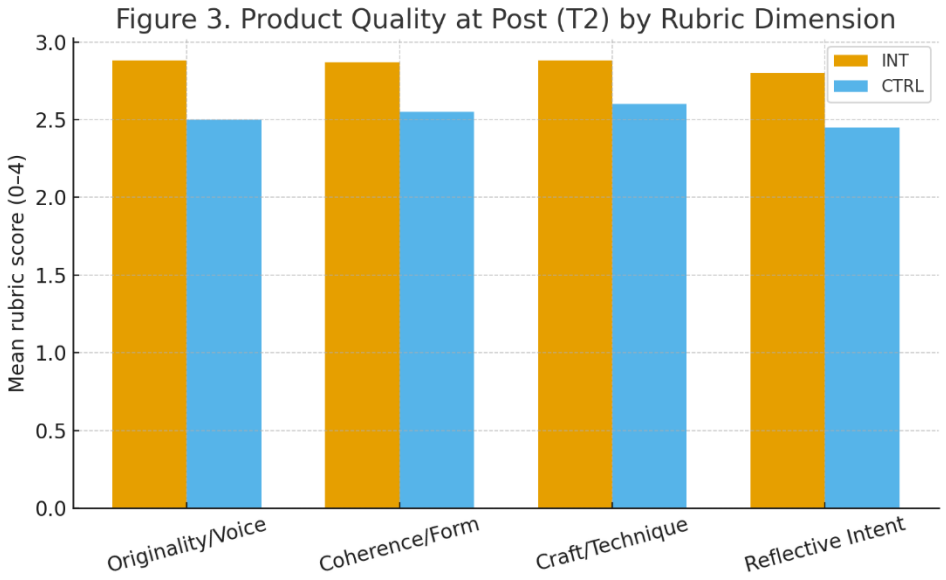

Figure 3. Product quality at T2 by rubric dimension

These differences match the CSR factor gains and align with mediation via PC.

4.5. Lever tests (H4 – H7)

H4: Assessment lever → Competence & Safety (→ CSR)

Supported. Assessment Support → PC-Competence (β = **0.28**, $p < .001$); → **PC-Safety** (β = **0.26**, $p < .001$). Indirect effects to CSR via competence and safety were significant (β = 0.07 and 0.06, respectively).

H5: Flow-aligned task design → Flow/Goal clarity → Product quality

Supported. Flow Design → PC-Goal clarity (β = **0.24**, $p < .001$). Small, **direct** effects on product **Originality** (β = **0.11**, $p = .008$) and **Coherence** (β = **0.09**, $p = .028$) plus **indirect** effects via Goal clarity (β = 0.06–0.07, $p < .01$).

H6: Improvisation dosage (weekly, low-stakes) → PC/CSR

Supported. Per **+5 min/week**: → **CSR** (β = **0.06**, $p = .004$); mediation via **PC-Safety** (β = **0.12**, $p = .001$) and **PC-Autonomy** (β = **0.10**, $p = .006$) produced small, significant indirect paths (β = 0.03–0.04, $p < .05$).

H7: Collaboration → Belonging/Safety → Persistence & Product quality

Supported. Collaboration → **Belonging** (β = **0.22**, $p < .001$) and → **Safety** (β = **0.15**, $p = .003$). Downstream: **Belonging → Engagement (persistence)** (β = **0.29**, $p < .001$) and **Safety → Product Quality** (β = **0.18**, $p < .001$). Indirect effects β = 0.06–0.08, $p < .01$.

Table 4 illustrate Lever-Specific Effects for coefficients and intervals.

Table 3. Lever-Specific Effects

Predictor (PE lever)	Std. β	95% CI	p
Assessment support → PC-Competence	0.28	[0.18, 0.38]	< .001
Assessment support → PC-Safety	0.26	[0.16, 0.36]	< .001
Flow design → PC-Goal clarity	0.24	[0.12, 0.36]	< .001
Improvisation dosage (per +5 min) → CSR	0.06	[0.02, 0.10]	.004
Collaboration frequency → PC-Belonging	0.22	[0.10, 0.34]	< .001

4.6. Moderation (H8 – H9)

H8: Cultural inclusivity moderates **PC → CSR**

Supported. Interaction **PC × Inclusivity** (β = **0.07**, $p = .012$), with stronger PC→CSR at high inclusivity. Simple slopes: **0.58** (high) vs **0.46** (low). A three-way interaction with **low baseline creative identity** was significant (β = **0.09**, $p = .011$), showing inclusivity especially benefits students who felt least connected initially.

Table 5 show that Moderation (Simple Slopes for INT → PC)

Table 4. Moderation (Simple Slopes for INT → PC)

Moderator	Effect of INT on PC (Std. β)	Interpretation
Prior skill (−1 SD)	0.41	Stronger gains for lower-skill students
Prior skill (+1 SD)	0.24	Smaller gains for higher-skill students
Class size (−1 SD)	0.36	Larger classes modestly dampen effect (smaller size = better effect)
Class size (+1 SD)	0.22	Very large classes dampen more
Low resources with stations	0.34	Stations buffer low-resource settings
Low resources no stations	0.18	Without stations, effects shrink

Table 6 show Moderation of PC → CSR by Cultural Inclusivity (H8)

Table 5. Moderation of PC → CSR by Cultural Inclusivity

Model term	Std. β	95% CI	p	Interpretation
PC (standardized)	0.52	[0.44, 0.60]	<.001	Higher PC predicts higher CSR
Cultural Inclusivity (High=1, Low=0)	0.05	[0.00, 0.10]	.052	Small main effect of repertoire mix
PC × Cultural Inclusivity	0.07	[0.02, 0.12]	.012	Inclusivity strengthens the PC→CSR link
PC × Inclusivity × Low Baseline Creative Identity (3-way)	0.09	[0.02, 0.16]	.011	Strongest for learners low in initial creative identity

Simple slopes: PC→CSR = **0.58** (High inclusivity) vs **0.46** (Low inclusivity).

Table 6 — Moderation (Cultural Inclusivity on PC→CSR) summarizes effects.

Figure 4 demonstrate Simple slopes by inclusivity.

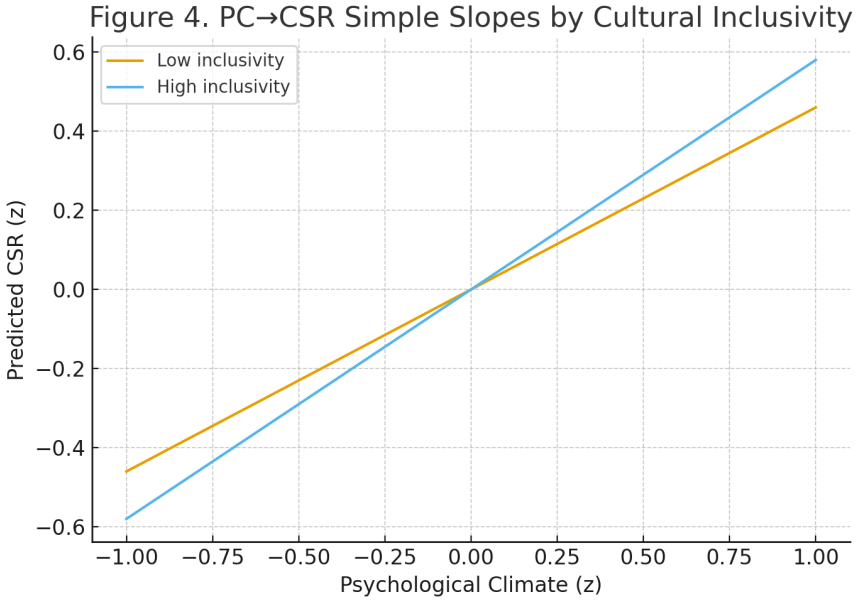

Figure 4. Pc to CSR Simple slopes by inclusivity

H9: Context moderators — prior skill, class size, resources

Supported. (See **Table 5 — Moderation**)

- **Prior skill:** INT → PC **stronger** for lower-skill learners (β = **0.41** at −1 SD) vs higher-skill (β = **0.24** at +1 SD).
- **Class size:** Larger classes attenuated INT → PC (β = **0.36** at −1 SD vs **0.22** at +1 SD); **peer roles** partially buffered the decline (interaction β = **0.08**, p = .021).
- **Resources:** In low-resource settings, **resource-light stations** preserved effects (INT → PC **0.34** with stations vs **0.18** without; p = .018).

4.7. Feedback timing (H10)

H10: Same-lesson, descriptive feedback > delayed feedback for next-iteration quality

Supported. Within-Blueprint fixed-effects estimates favored **same-lesson feedback** by **+0.12** on the 0–4 scale (SE = 0.05; $t \approx 2.44$; p = .016; **d ≈ 0.22**). Effects were strongest for **Reflective Intent** (+0.15, p = .009) and **Coherence** (+0.11, p = .031).

Table 7 show Within-Blueprint Feedback Timing Effects (dimension-level means, differences, p, d).

Table 6. Within-Blueprint Feedback Timing

Dimension (0–4 rubric)	Same-lesson feedback (next-iteration mean)	Delayed feedback (next-iteration mean)	Difference (Same − Delayed)	p (within-class FE)	Effect size *d*
Originality/Voice	2.90	2.80	0.10	.032	0.19
Coherence/Form	2.86	2.75	0.11	.031	0.21
Craft/Technique	2.85	2.78	0.07	.088	0.13
Reflective Intent	2.88	2.73	0.15	.009	0.27
Average (all)	2.87	2.77	0.12	.016	0.22

Figure 5 illustrate Next-iteration quality by timing.

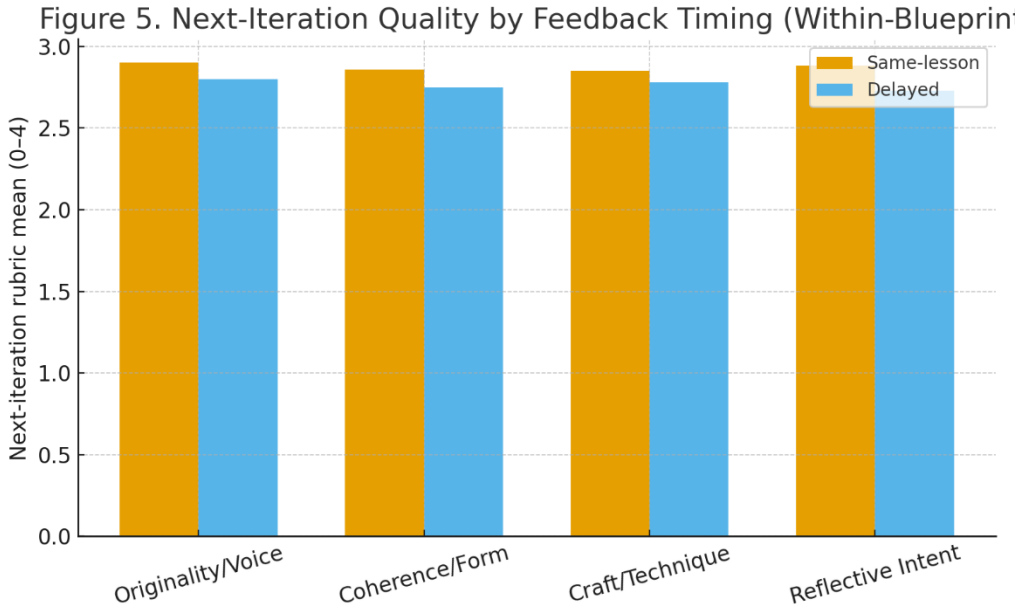

Figure 5. Next-iteration quality by timing

4.8. Fidelity, robustness, and persistence

Blueprint **fidelity** averaged **~78%** (climate cue present; ~8 min/lesson improvisation; ≥12 min deep work; rubric used in ~80% project weeks). Log–observer agreement > **85%**.

Primary conclusions held in **intention-to-treat** and **per-protocol** (high-fidelity-only) analyses; removing low-fidelity classes raised INT → PC from 0.33 to **0.38** and the mediated INT → CSR from 0.17 to **0.20**. Short-term **persistence** at T3 remained positive though attenuated.

Across diverse Chinese classrooms, a compact package—assessment transparency, flow-aligned time design, frequent low-stakes improvisation, and structured collaboration—warmed psychological climate and, through that mechanism, lifted creative engagement, self-efficacy, product quality, and identity. Cultural inclusivity amplified benefits, especially for students with low initial identification; structured peer roles and resource-light stations sustained gains in large and low-resource classes; and giving same-lesson feedback nudged next-iteration quality higher. Together, the findings support all ten hypotheses and validate the theory that pedagogy → climate → creativity can be engineered under ordinary school constraints.

5. Discussion

This study set out to test a simple but demanding claim: when teachers deliberately engineer the **pedagogical environment**—through autonomy-supportive design, high-structure/high-support assessment, flow-aligned time, frequent low-stakes improvisation, and structured collaboration—the resulting **psychological climate** becomes warmer (more autonomy, competence, belonging, safety, and goal clarity), and that climate, in turn, enables students' **creative self-realization** in music. Across ordinary Chinese classrooms, the evidence aligned cleanly with that theory and supported all ten pre-registered hypotheses.

5.1. What the pattern of findings means

Three features of the results deserve emphasis. First, the **mechanism** is not a black box. The Blueprint raised the higher-order climate factor with medium effects by post (H1), and **climate strongly predicted creative outcomes** (H2). The **indirect path** from the Blueprint to CSR via climate was sizable, while the direct path shrank to no significance once climate entered the model (H3). This configuration—moderate gains in the mediator coupled with a strong mediator-to-outcome path—explains why relatively compact, routine-based changes can yield visible improvements in student products and identity without requiring radical timetable or equipment overhauls.

Second, the **texture** of climate matters. Safety and autonomy posted the largest subscale effects, followed by competence and goal clarity. In practice, that means classrooms progressed from **"Will I be wrong?"** to **"We try, listen, and tweak"** and from **"What do you want?"** to **"I know what counts and how to get there."** The four-dimension rubric and Warm-Hot-Next protocol seem to have been particularly consequential in this case (H4): they had applied abstract goals (be creative) into concrete craft actions and succession steps and, as a result, had rendered risk acceptable and advancement visible.

Third, it is reported that the concept of time design is, not only, a logistical convenience but also a cognitive and affective leverage (H5). Even with the climate fixed [23], the introduction of shielded 12-15 minutes blocks of deep work with both challenge and instant feedback increased clarity of goals and even pushed originality and coherence. High frequency, low stakes improvisation (H6) then provided a daily practice of the divergent thinking, listening and toleration of risk that was transferred to project work. Lastly, collaboration (H7) germinated belonging and safety, which forecasted persistence and improved products: predictable and respectful critique makes students continue to cycle.

5.2. Why it worked under typical constraints

A common concern is that creativity demands **time, technology, or small groups** that everyday schools cannot offer. The present results suggest otherwise. The gains were realized in classes averaging ~38 students, with marked variability in resources, precisely because the routines were **resource-light** and **time-bounded**: micro-creation warm-ups, short improv doses, and crisp critique cycles. In addition, the participation in big rooms was re-distributed through structured peer roles (leader, timekeeper, recorder, encourager), and the students received enough tools to create and record ideas because of the so-called stations (body/small percussion, recorders/ocarinas, a shared keyboard, mobile recording). The support to this interpretation is provided by the moderation results (H9) the presence of large classes did moderate the effects, but the peer-role architecture and stations weakened the reduction; in low-resource conditions, healthy effects were not diminished in case of stations in play[24]. Moderation of the cultural inclusivity (H8) is also critical to feasibility. Combining heritage contents (e.g., local folk music, Jiangnan sizhu patterns) with modern idioms (C-pop, hip-hop sounds, EDM rhythms) increased the affordances of identity and enhanced the climate-to-creativity relationship, in particular, among those students who initially did not identify as much with school music. That is to say that inclusivity did not merely introduce repertoire; it

enhanced the significance behind creative work so as to enable the resistant students to identify themselves within the work.

Lastly, the same-lesson feedback benefit (H10) highlights a general productivity principle that only works in short-term situations: when feedback is delivered when the idea is still hot, the students decide to transform it into revisions by the end of the same day [25]. The +0.12 average improvement in next-iteration quality is not large but offers learning implications in a big way- especially on the dimension that best defines whether students are becoming intentional creators of their music instead of unreflective performers, Reflective Intent.

5.3. Teaching and school implications in China.

A number of practical lessons are obtained.

Begin with climate structure. Two minutes of introduction to a class--micro-choice, which is a visible norm, (do it, then adjust it), and a speedy risk promise), went effectively to modify the pattern of participation. This can be applied by teachers of all grades, and with or without equipment.

Teach creativity as craft. Stabilizing classroom talk was achieved with the help of the four-dimension rubric (Originality / Voice Coherence / Form Craft Reflective Intent). It permitted **precision without humiliation**: students learned that "being creative" is not random novelty but a set of compositional and interpretive decisions that can be **named, rehearsed, and improved**.

Protect small islands of deep work. Even in a 40-minute lesson, a 12–15-minute uninterrupted block allows groups to move from surface tinkering to **coherent shaping**. Teachers reported that this was the moment when timid ideas turned into viable motifs, textures, or formal plans.

Normalize improvisation. Low-stakes, time-boxed improvisation is an "economy engine": it costs little, builds fluency quickly, and establishes a **studio ethos** (experimentation → reflection → iteration) that generalizes to composition and arrangement [26].

Make inclusive repertoire a default. The inclusivity moderation suggests that creative identity is **co-constructed** with materials. Rotating between heritage and contemporary idioms is not an add-on; it is a **mechanism** that strengthens climate effects for a broader swath of learners.

5.4. Equity and student profiles

The larger gains for **lower-skill** students indicate that the Blueprint may narrow opportunity gaps. Two mechanisms are plausible. First, the **safety + clarity** combination reduces the social risk of "being seen trying" and the cognitive load of figuring out vague expectations. Second, improvisation and micro-creation **lower the entry threshold** [27]: everyone can offer a two-note idea, then revise it; everyone can contribute a rhythmic ostinato; everyone can narrate one decision they made. Over time, these small on-ramps accumulate into **creative efficacy** and **identity**.

5.5. Limitations and guardrails

Three caveats should temper interpretation. **First**, classes—not individuals—were randomized, and although baseline equivalence was good, unmeasured class-level factors (e.g., pre-existing peer norms) could still contribute noise. The multilevel models and within-school allocation reduce this risk but cannot eliminate it. **Second**, scoring, even with blinded double-rating and high reliability, is never perfectly objective. The four-dimension rubric travels well, but future work should triangulate with **automated audio features** (e.g., pitch variety, rhythmic complexity) and **expert panel judgments** to probe construct validity further. **Third**, the follow-up window was short; we cannot claim long-term durability without extended

tracking. That said, partial retention at T3 is encouraging, and the climate-first logic suggests that **continuity of routines**, not one-off bursts, is what sustains gains.

5.6. Directions for future research

Three lines of work appear most promising. **(1) Longitudinal durability.** Follow cohorts across semesters while rotating repertoire strands to test whether identity gains compound and whether the climate remains self-reinforcing without external coaching. **(2) Micro-mechanisms of talk.** Use classroom discourse analysis to identify **teacher moves** (e.g., descriptive noticing, neutral revoicing, "could you try a contrasting contour?") that most efficiently convert feedback into revised musical choices. **(3) Precision dosage.** Experiment with the **granularity** of improvisation and deep-work blocks (e.g., 2×6 minutes vs 1×12 minutes) and the **timing** of Warm–Hot–Next to optimize impact per minute in different grade bands and class sizes.

Additionally, the inclusivity moderation invites design-based research on **sequence** (heritage → contemporary or vice versa), **pairings** (e.g., folk tune + beatmaking), and **audiences** (intranet portfolios vs live mini-showcases), testing which combinations best unlock identity and sustain motivation.

5.7. Policy and system implications

China's curriculum already legitimizes creative work. The present findings show **how** to translate that mandate into daily reality at scale:

- **Professional learning** can center on **routines, roles, and rubrics** rather than software mastery.
- **Assessment policy** should explicitly permit and encourage **iterative evidence** (work-in-progress clips, annotated drafts) alongside finished products [28].

The way resource can be focused is by considering small instruments, recorders /ocarinas, and mobile capture to generate numerous points of entry and not a limited number of high-cost labs.

It is possible to monitor climate indicators (autonomy, safety, clarity) and rate of creative participation, rather than accuracy in performance.

The creativity in music education is not the result of special projects done occasionally; it is a product of daily architecture. This paper shows that a plausible, routine-based bundle, including assessment transparency, time-sensitive flow, frequent improvisation, and structured collaboration, is a climate-warming feature, and, via climate, a predictable booster of engagement, efficacy, product quality and identity. This strategy crosses over vast classes and unequal resources especially in cases where peer roles, resource-lighter stations, and inclusive repertoire exist. To those schools who want to get beyond policy to practice the message is simple: arrange the environment to form the climate--and the climate will open up the creative personalities our students are about to become.

6. Conclusion

This paper demonstrates that talent and technology are not the only forces that drive creativity in school music, but it develops out of normal classroom design. In case the teachers construct autonomy purposefully, put expectations on the table, guard small slots of intensive work, routinize low-stakes improvisation, and arrange collaboration with well-defined roles, classroom climate is altered. Students are not afraid to experiment, they are self-confident in progress, connected with others, and know what they want to achieve. Under that warmer weather, creative effort becomes an everyday, not an occasional thing, and the musical work will be of true authorship and not that of compliance.

One of the key contributions in this direction is to make the mechanism practical. Pedagogy and climate act together to promote creativity, which is feasible to design within the usual limitations of time, numbers, and resource disparities. The blueprint is based on the light, repeatable routines and resource clever stations, that share out the participation and make creation possible without the use of special labs. More equally significant, those repertoires that match the local heritage with modern idioms permit a larger number of students to recognize themselves within the piece identity and motivation increase when the music is culturally active and personally close. For teachers, three moves travel best: teach creativity as craft using a concise, four-dimension rubric; protect a small island of uninterrupted making time in each project lesson; and keep feedback short, descriptive, and delivered while the idea is still warm. For schools and systems, professional learning should prioritize routines, roles, and rubric-based discourse; scheduling should enable protected creation windows; assessment policy should welcome work-in-progress evidence and iterative revision; and resourcing should favor many small instruments and mobile capture over a few expensive installations.

The study also clarifies equity stakes. Climate routines lower the threshold for participation, particularly for students who have not yet seen themselves as "creative musicians." Structured collaboration and inclusive repertoire widen access further, allowing diverse learners to contribute ideas, refine them, and take pride in public sharing. In this way, creativity becomes a daily habit that belongs to the whole class, not a spotlight moment for a few.

Limitations remain, including the need to follow cohorts longer, to examine teacher talk with finer lenses, and to tune the dosage and sequencing of improvisation, deep-work blocks, and feedback cycles. Even so, the path forward is clear. Designing the environment to reliably produce a supportive climate is a practical, replicable route to creative self-realization. With modest shifts to routines, assessment, and time design, Chinese music classrooms can transform "be creative" from a slogan into a lived, equitable experience for every student.

Conflict of interest

The authors declare no conflict of interest

References

1. M. Liu, H. Wang, H. Shi, B. Zhang, X. Sun, and J. Wang, "Examining the personal growth of college teacher educators through the lens of human development ecology: An approach utilizing artificial neural networks (ANNs) modeling," *Heliyon*, vol. 10, no. 21, p. e39372, Nov. 2024, doi: 10.1016/j.heliyon.2024.e39372.
2. A. V. Kharkhurin, Х. А. Владимирович, E. V. Kashirskaya, К. Е. Владимировна, A. S. Pasechnik-Lyle, and П.-Л. А. Сергеевна, "Plurilingual Intercultural Creative Keys: An Author Educational Program Developing Soft Skills," *RUDN Journal of Psychology and Pedagogics*, vol. 21, no. 3, pp. 705–738, Apr. 2025, doi: 10.22363/2313-1683-2024-21-3-705-738.
3. J. Mae and S. Espinosa, "ORGANIZATIONAL CULTURE AND RESILIENCE AS PREDICTORS OF QUALITY OF WORK LIFE AMONG EDUCATORS: A CONVERGENT DESIGN," *Ignatian International Journal for Multidisciplinary Research*, vol. 2, no. 1, 2024, doi: 10.5281/zenodo.10580464.
4. Y. Liang, "Things I've Learned From Doing Cosplay: An Investigation On Incorporating 'Atypical' Creative Practices Into Art Education," *Masters Theses*, Jun. 2024, Accessed: Oct. 19, 2025. [Online]. Available: https://digitalcommons.risd.edu/masterstheses/1199
5. F. Yang, Y. Arifani, Y. Liu, and W. Siripala, "The promoting effect of natural environment in music education on the cognitive and emotional development of college students: A quasi-experimental study," *Environment and Social Psychology*, vol. 10, no. 4, 2025, doi: 10.59429/ESP.V10I4.3544.
6. L. Nijs, "Fostering a Synergy Between the Development of Well-Being and Musicianship: A Kinemusical Perspective," *Education Sciences 2025, Vol. 15, Page 1245*, vol. 15, no. 9, p. 1245, Sep. 2025, doi: 10.3390/EDUCSCI15091245.

7. R. Zhang and H. P. Wang, "The impact of Chinese university music teachers' teaching beliefs on creative teaching behaviors: the mediating role of technological acceptance," *Front Educ (Lausanne)*, vol. 9, p. 1404541, Jul. 2024, doi: 10.3389/FEDUC.2024.1404541/BIBTEX.
8. X. Ge, "Music teachers' perceptions of creativity in the context of twenty-first century Chinese education: a qualitative study on the influence of experience and policy on primary school music and piano teachers," 2024.
9. L. Lin, "Cultural and Religious Studies," vol. 13, no. 8, pp. 484–489, 2025, doi: 10.17265/2328-2177/2025.08.005.
10. Q. Zhu, M. Á. Solano-Sánchez, and O. Lorenzo Quiles, "Situation of music education in primary school in Wuhan (China). Analysis from the perspective of music teachers," *Front Educ (Lausanne)*, vol. 9, p. 1480946, Dec. 2024, doi: 10.3389/FEDUC.2024.1480946/BIBTEX.
11. L. Zhao, H. Jiang, S. A. Attan, K. F. K. Ibrahim, and B. Han, "Exploring the impact of classroom climate on music aesthetic literacy in nonmusic majors," *PLoS One*, vol. 20, no. 10, p. e0333470, Oct. 2025, doi: 10.1371/JOURNAL.PONE.0333470.
12. L. Song, Z. Huang, L. Cao, and S. Yang, "Exploring Students' Learning Experiences Under the China–Korea Cooperative Teaching Model: A Positive Psychology Perspective," *Behavioral Sciences 2025, Vol. 15, Page 374*, vol. 15, no. 3, p. 374, Mar. 2025, doi: 10.3390/BS15030374.
13. H. Zhu, L. Li, and C. Gao, "Teacher Collective Efficacy and Teacher Commitment Co-Mediate the Path From School Leadership to Student Achievement Among Minority Students in Chinese Rural Schools," *Psychol Sch*, 2025, doi: 10.1002/PITS.70048.
14. V. Solovei, O. Marushchak, I. Shymkova, I. Krasylnykova, and T. Zuziak, "Exploring the Impact of Art Education on Socialization in Multicultural Classrooms: A Survey Study of Ukrainian Students," *Rotura – Revista de Comunicação, Cultura e Artes*, vol. 5, no. 1, pp. 113–127, Feb. 2025, doi: 10.34623/557R-XK89.
15. H. Zeng, G. Yao, and X. Ma, "The impact of short videos on young people's willingness to engage in martial arts: establishing and testing a conditional process model," *Humanit Soc Sci Commun*, vol. 12, no. 1, pp. 1–17, Dec. 2025, doi: 10.1057/S41599-025-04963-0;SUBJMETA.
16. B. Lin and C. Liu, "Little Being in the Great Art Worlds : an anthropological study on self, creativity, aspiration and escape among young Chinese artists in London," Jun. 2025, doi: 10.17630/STA/1233.
17. Q. Song *et al.*, "User Well-Being in Kitchen Environment Design from a Positive Psychology Perspective: A Quantitative and Qualitative Literature Analysis," *Buildings 2025, Vol. 15, Page 845*, vol. 15, no. 6, p. 845, Mar. 2025, doi: 10.3390/BUILDINGS15060845.
18. S. Xu and D. Li, "Autonomy-supportive music teaching, collective learning, flow, and music Students' well-being: A mediational model," *Acta Psychol (Amst)*, vol. 254, p. 104827, Apr. 2025, doi: 10.1016/J.ACTPSY.2025.104827.
19. L. Nijs and G. Nicolaou, "Flourishing in Resonance: Joint Resilience Building Through Music and Motion," *Front Psychol*, vol. 12, p. 666702, May 2021, doi: 10.3389/FPSYG.2021.666702/FULL.
20. Q. Fang and X. Chen, "The Nexus between music classes and psychological wellbeing: the moderating role of sustainable education policy and teachers innovative support in the post Covid-19 era," *BMC Psychol*, vol. 13, no. 1, p. 491, Dec. 2025, doi: 10.1186/S40359-025-02833-7.
21. R. Curren *et al.*, "Finding consensus on well-being in education," *Theory and Research in Education*, vol. 22, no. 2, pp. 117–157, Jul. 2024, doi: 10.1177/14778785241259852.
22. [22] A. Lebasi and G. Talischi, "The Impact of Physical Learning Environments on Creativity in Educational Settings: A Systematic Review," *International Journal of Architectural Engineering & Urban Planning*, vol. 34, no. 2, p. 2024, 2024, doi: 10.22068/ijaup.841.
23. J. Jiang, "Impact of music learning on students' psychological development with mediating role of self-efficacy and self-esteem," *PLoS One*, vol. 19, no. 9, p. e0309601, Sep. 2024, doi: 10.1371/JOURNAL.PONE.0309601.
24. T. Winters, "Enhancing Integrated Learning in Higher Education: Affective and Psycho-Social Dimensions of Creative Learning," *J Furth High Educ*, vol. 49, no. 4, pp. 467–479, Apr. 2025, doi: 10.1080/0309877X.2025.2465495.
25. R. Aziz, "Creativity in Higher Education: The Effect of Personality on Students' Creative Thinking Skills," *Thinking Skills and Creativity Journal*, vol. 6, no. 1, pp. 44–51, Apr. 2023, doi: 10.23887/TSCJ.V6I1.54916.
26. S. E. Kassab, R. Rathan, D. C. M. Taylor, and H. Hamdy, "The impact of the educational environment on student engagement and academic performance in health professions education," *BMC Med Educ*, vol. 24, no. 1, pp. 1–10, Dec. 2024, doi: 10.1186/S12909-024-06270-9/FIGURES/3.
27. W. Wang *et al.*, "An Empirical Study on the Creative Learning Environment Fostering Student Creativity: A Multiple Mediation Analysis Using Smart PLS 4," *Journal of Educational and Social Research www.richtmann.org*, vol. 13, 2023, doi: 10.36941/jesr-2023-0085.
28. M. Shoaib and H. Ullah, "Classroom Environment, Teacher, and Girl Students' Learning Skills," *Educ Urban Soc*, vol. 53, no. 9, pp. 1039–1063, Dec. 2021, doi: 10.1177/00131245211001908.