

A 4EX Music Composition Model: Design and Evaluation for Informal Learners

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Abstract

China's informal popular music training is uneven, and beginners lack systematic composition pathways. This article aimed to study (1) design and develop a music composition learning model for informal learners (2) examine the quality and efficiency of the music composition learning model. Using purposive sampling, 13 beginners aged 18–25 participated in a pilot implementation, and data were analyzed through expert review and descriptive statistics. The findings addressing the research objectives show that 10 experts confirmed the model's high quality with suggestions for refinement, and the trial exceeded the 80/80 efficiency criterion (85.96/82.22). The model provides a structured and low-threshold pathway that supports informal learners in rapidly acquiring basic composition skills and expressing personal emotions through music creation.

Keywords: Informal Music Learners; Music Composition; Learning Model; 4EX

Introduction

Recent education reforms in China emphasize creativity and innovation as core student competencies. National policy documents and music curriculum standards highlight practical innovation and artistic-aesthetic development (Ministry of Education Curriculum and Textbook Expert Working Committee, 2020). At the same time, non-academic education policies advocate flexible and diversified learning models (China, 2023).

Despite these policy directions, empirical research indicates that informal music training institutions often lack systematic curricula, standardized materials, and reliable evaluation mechanisms, particularly in composition instruction (Yang & Welch, 2023; Wei, 2019; Brophy, 2011). Existing scholarship largely concentrates on formal schooling or professional-level programs,

leaving informal beginner learners underexamined. The absence of empirically validated and structurally coherent models limits both instructional practice and theoretical understanding of how adults without prior training develop composition competence.

University students who are interested in Chinese popular songwriting frequently rely on fragmented self-learning or short-term workshops. Although they demonstrate strong motivation for self-expression, they lack structured pathways that integrate theory, practice, and evaluation. This gap raises a critical question: how can a systematic and feasible composition model be constructed for informal beginner learners?

Therefore, this study aims to design and develop a music composition learning model for informal beginners and to examine its quality and instructional efficiency. By proposing and empirically testing the 4EX Music Composition Learning Model (Exploration–Exercise–Experiment–Exhibition), this research seeks to contribute a theoretically grounded and practically applicable framework for informal music education in higher education contexts.

Research Objectives

1. Design and develop a music composition learning model for informal learners.
2. Examine the quality and efficiency of the music composition learning model.

Literature Review

1. Informal Learning, Adult Education and Music Composition

Adult higher education plays an important role in building a learning society. However, adult learners often face time constraints, institutional mismatches, and courses that do not align with their life conditions. As a result, informal learning is frequently fragmented and constrained by work pressure and limited opportunities (Marsick & Neaman, 2017; Zhu et al., 2017).

In music education, adult learning opportunities are still largely embedded within formal institutional structures. Even when diversification is encouraged, many programmes retain theory-first and discipline-centred curricula. Such structures can create barriers for beginners who seek creative participation without formal training backgrounds (Zhu et al., 2017; Chen & Zhao, 2025). Prospective songwriting learners often lack clear benchmarks or structured developmental pathways.

Although research acknowledges the challenges of adult and informal learning environments, relatively few studies provide structured and empirically validated composition models tailored to informal adult beginners (Maris, 2000). This indicates a need for further investigation into how creative music learning can be organized for adult novices outside formal systems.

2. Music Composition Pedagogy, Learning Theories and Technology

Research on music composition pedagogy in China has primarily focused on formal schooling contexts. Composition is often integrated into adolescent music education or professional curricula (Ho, 2023; Webster, 2017). Action research demonstrates that students can successfully complete basic rhythmic, melodic, and arranging tasks when guided by structured instruction (Webster, 2017).

Constructivist, active, and cooperative learning theories emphasize learner engagement, contextualized practice, and collaboration as core elements of knowledge construction (Bonwell & Eison, 1991; Johnson & Johnson, 1999; Richardson, 2003). Empirical studies show that collaborative music activities can enhance interaction, motivation, and social development (Zhang et al., 2025; Westerlund & Gaunt, 2013; Whitener, 2016; Mursid, 2020).

Technological tools, particularly digital environments, have increasingly influenced music learning processes (Weiping, 2025). However, many applications of active and collaborative learning in music remain focused on short-term performance tasks, listening activities, or classroom-based projects rather than sustained digital composition processes for adult beginners.

Despite the availability of theoretical principles and technological resources, existing literature seldom integrates constructivist pedagogy, cooperative learning strategies, and digital composition tools into a coherent instructional model designed specifically for informal adult learners.

3. Music, Well-being and Creative Songwriting

Well-being is commonly understood as the accumulation of affective experiences across contexts and time. Research on music and well-being highlights the role of musical engagement in emotional regulation, identity formation, and psychological support (Alvarez-Cueva, 2022; Mitchell, 2012; Barrett et al., 2021; Burnard, 2012; Thomas, 2014). Musical activities, including listening, improvisation, and participation in group settings, have been shown to contribute to emotional expression and mental health.

However, much of this literature concentrates on therapeutic contexts or spontaneous creative activities. Structured songwriting courses for non-major adult learners in informal educational settings remain relatively underexplored. Composition education rarely positions emotional expression and well-being as explicit instructional outcomes, nor does it systematically connect curriculum design with broader lifelong learning or university mental health initiatives (Burnard, 2012; Mitchell, 2012).

This suggests a research gap at the intersection of informal adult learning, structured composition pedagogy, and emotional development through songwriting.

Overall, existing scholarship acknowledges the constraints of adult and informal learning contexts but offers limited structured models for beginner-oriented creative music learning. Theoretical discussions on constructivism, active learning, cooperative learning, and digital tools provide important insights, yet these perspectives are seldom integrated into a comprehensive framework for informal popular-music composition. Furthermore, while music-and-well-being research demonstrates the emotional value of musical engagement, it rarely operationalizes songwriting as a structured educational pathway for non-major university students.

These gaps indicate the need for systematic exploration of how composition pedagogy, collaborative learning theory, digital practice, and emotional expression can be coherently organized to support informal adult beginners.

Conceptual Framework

The research study that design and develop a music composition learning model for informal learners and to understand the potential value and influence of informal learners in pop music creation. The study first explains why it is meaningful and necessary to gain insight into how informal learners participate in and influence the process of pop music creation, and then reviews existing relevant research and literature, including achievements in music education, music theory, music composition, and other related fields, in order to analyse the existing literature on the role and influence of informal learners in the creation of pop music and to point out the research gaps and problems that need to be explored.

The conceptual framework based on the theory of constructivism (Bruner, 1960), active learning (Bonwell & Eison, 1991), and the contents of music composition (Webster, 1990), together with the review and analysis of existing research and literature on music education, music theory,

music composition, and informal learners' participation in pop music creation. The details as follows. (Figure 1).

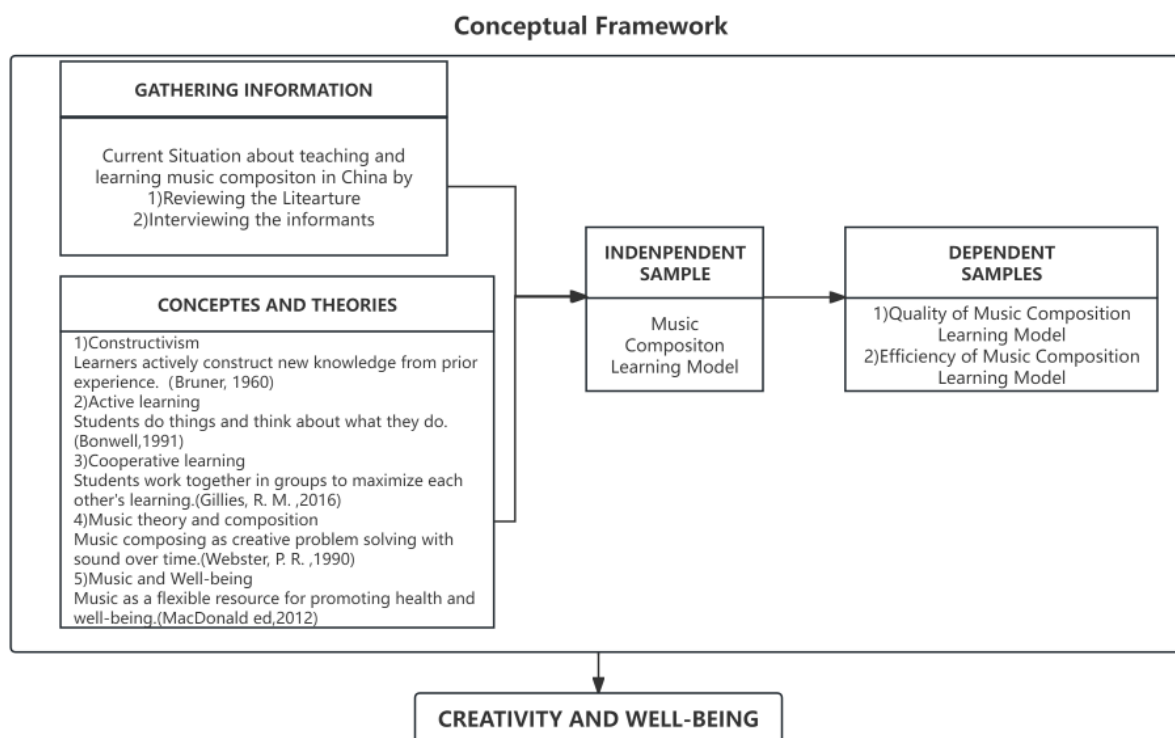


Figure 1 Conceptual Framework (Source: Constructed by researchers)

Research Methodology

This study adopted an experimental research design to develop and validate a music composition learning model for informal beginner learners. The research was conducted in four phases: preparation, design, development, and evaluation. As seen in Figure 2.

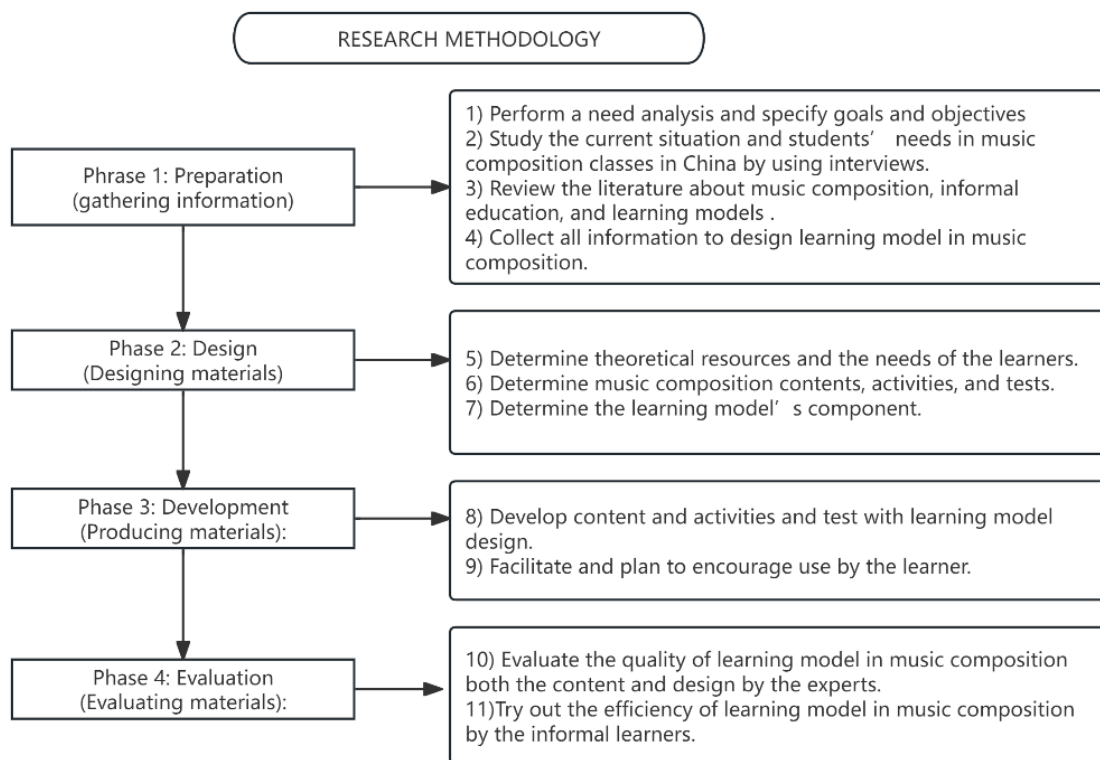


Figure 2 Research Tools (Source: Constructed by researchers)

Phase 1: Preparation

A needs analysis was conducted to clarify instructional gaps in informal composition learning. Twenty-one experts in pop music education and curriculum design were invited, and ten agreed to participate in semi-structured interviews. The interview protocol was validated using the Index of Item–Objective Congruency (IOC), and only items with values above 0.60 were retained. In parallel, a systematic literature review was carried out to synthesize theoretical foundations related to constructivism, task-based instruction, and informal learning. Findings from interviews and literature informed the initial structure of the learning model.

Phase 2: Design

Based on theoretical principles and identified learner needs, the instructional framework was constructed. The curriculum design emphasized suitability for zero-based learners, task-driven progression, collaborative activities, and integration of digital tools. Learning objectives, activities, and assessment criteria were aligned to ensure coherence between instructional stages and expected outcomes.

Phase 3: Development

The instructional materials were developed according to the staged framework. Two rounds of pilot testing were conducted with students similar to the target group to verify clarity, sequence, and feasibility. Revisions were made after each round based on feedback.

Phase 4: Evaluation

The finalized model was implemented with 13 non-music-major university students aged 18–25. During implementation, classroom participation, learning tasks, and student works were collected. Model quality was examined through a focus group of ten experts who evaluated its structure, feasibility, and instructional coherence.

Instructional efficiency was assessed using the 80/80 performance criterion (E1/E2 index). E1 represents the average percentage score from process exercises, and E2 represents the average percentage score from the final creative project. The model was considered effective if both indices exceeded 80%.

Given the small sample size, the empirical validation is exploratory. The purpose was to provide preliminary evidence of feasibility and instructional value rather than statistical generalization.

Through this iterative process of development, expert consultation, and classroom implementation, the study aims to offer a structured and practice-oriented model that supports informal learners in developing compositional skills and expressing emotions through popular music creation.

Research Results

As seen in Figure 3, this finding will explain the research result and analysis in terms of 1) the 4EX music composition learning model; and 2) the quality and efficiency results of the 4EX music composition learning model.

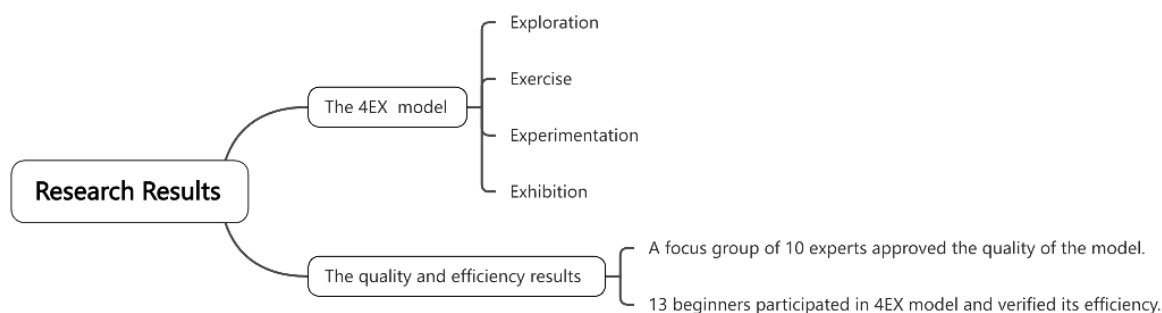


Figure 3 Research Results (Source: Constructed by researchers)

Result 1. Findings Related to Objective 1: Design and Development of the Model.

As seen in Figure 4, To address the first research objective, a structured music composition learning model for informal beginner learners was developed. The details are as follows.

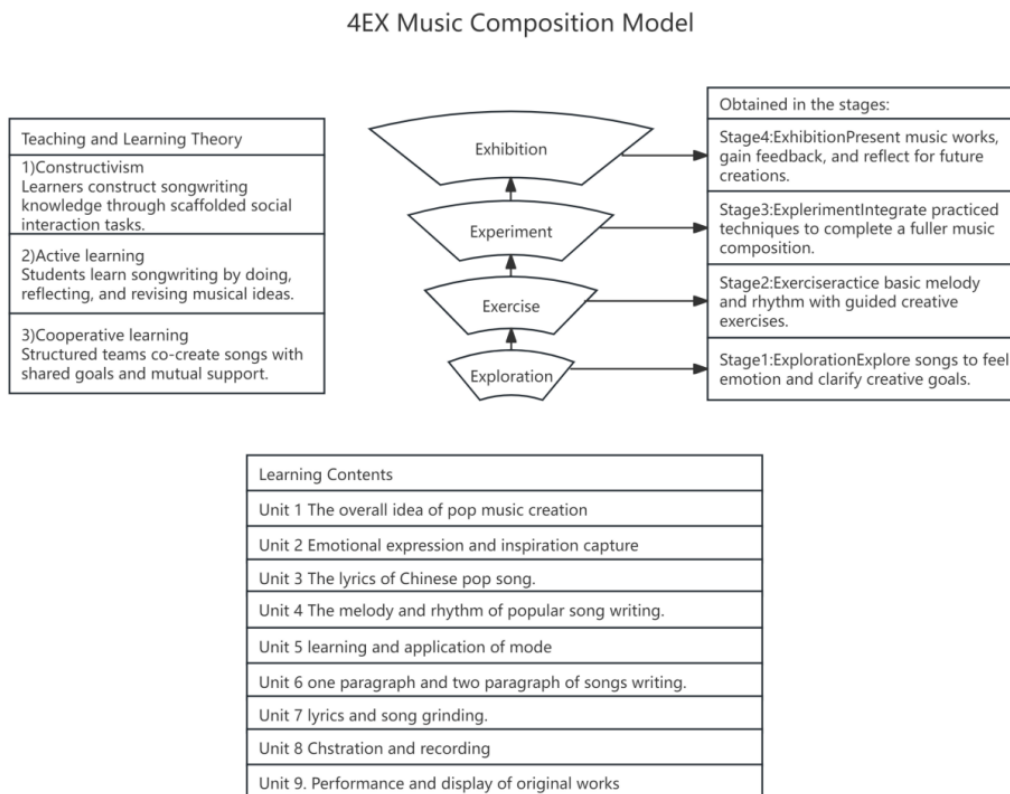


Figure 4 the 4EX music composition learning model (Source: Constructed by researchers)

The model was constructed based on literature synthesis and expert consultation. Expert interviews identified three major instructional needs: reducing entry barriers for beginners, integrating theory and practice, and clarifying evaluation criteria. These needs informed the staged structure of the model.

As shown in Table 1, The resulting 4EX music composition learning model consists of four sequential phases: Exploration, Exercise, Experimentation, and Exhibition.

Exploration focuses on activating creative ideas and understanding basic song structure. Exercise emphasizes skill practice in melody writing, lyric composition, and software operation. Experimentation integrates segmented skills into coherent song sections. Exhibition involves presentation, peer feedback, and revision.

The model operates as a closed-loop system, guiding learners from fragmented skill acquisition toward the independent completion of a full original song. The staged structure directly

responds to expert recommendations regarding cognitive sequencing, practical engagement, and process-based learning.

Table 1 Analysis of the 4EX music composition model

Phase	Key Activity	Example Unit	Theoretical Support
Exploration	Idea generation, guided listening	Unit 1: Overall Ideas of Song Writing	Constructivism
		Unit 2: Emotional expression and inspiration capture	Active learning
Exercise	Skill practice	Unit 3: Fundamentals of Lyric Writing	Constructivism
		Unit 4: The melody and rhythm of popular song writing.	Active learning
		Unit 5: learning and application of mode	
Experimentation	Creative integration	Unit 6: one paragraph and two paragraph of songs writing.	Constructivism
		Unit 7: Song Creation Combination and Emotional Expression	Cooperative learning
Exhibition	Presentation and peer feedback	Unit 8: Chstration and recording	Constructivism
		Unit 9: Work Presentation and Evaluation	Cooperative learning

Result 2. Findings Related to Objective 2: Quality and Efficiency

A focus group of 10 experts reviewed the quality of the 4EX music composition model. Experts reached high consensus that the model's closedloop structure (Exploration–Exercise–Experiment–Exhibition) is appropriate for beginners and effectively bridges theory and practice. They highlighted three areas for optimization: reducing the difficulty of introductory units, incorporating lowthreshold creative strategies (e.g., humming, simple digital tools), and integrating AI as a supportive rather than substitutive tool for composition.

As seen in Table 2, The model was implemented with 13 informal beginner learners. Efficiency was evaluated using the 80/80 performance criterion (E1/E2 index). The obtained efficiency index was: 85.96 / 82.22 Both process (E1 = 85.96%) and outcome (E2 = 82.22%) scores exceeded the benchmark of 80/80, indicating acceptable instructional efficiency.

Table 2 Efficiency of the 4EX model

Index	Total score	$\bar{X}$	SD	Percentage
Index for the process	40	43.38	1.99	85.96
Index for the result	100	82.22	7.70	82.22

Together, the quality and efficiency findings support the effectiveness of the developed learning model.

Discussion

The result indicated that the 4EX model provides a structured and feasible pathway for informal beginner learners, as recognized by both experts and participants. This section interprets these findings in relation to the literature reviewed earlier and clarifies how the results respond to identified research gaps.

1. Learning theory

The literature review highlighted that constructivist and cooperative learning approaches are widely discussed in music education, yet they are often applied to school-aged learners and short-term performance or appreciation activities (Aalbers et al., 2020; Zhao & Wong, 2024; Westerlund & Gaunt, 2013). Few studies provide sustained compositional models for adult informal beginners.

The results of this study indicate that the 4EX structure—context activation, skill practice, creative integration, and social presentation—operationalizes constructivist principles in a long-term songwriting context. Learners activated prior musical experience through familiar Chinese pop songs and internalized knowledge through iterative “listen–practice–revise” cycles in a mobile DAW, which aligns with cyclical creative learning processes described by Burnard (Burnard, 2012).

Furthermore, collaborative songwriting tasks within small groups reflect principles identified in cooperative learning research (Zhang et al., 2025; Mursid, 2020; Whitener, 2016). However, unlike many existing studies that focus on short-term collaboration around pre-existing repertoire (Westerlund & Gaunt, 2013), the 4EX model embeds collaboration within a continuous project of original song creation. In this sense, the findings extend constructivist and cooperative learning applications to adult informal composition contexts, directly addressing the gap identified in the literature review.

2. Curriculum development

Previous research suggests that curriculum development should integrate clear objectives, executable teaching paths, and coherent evaluation systems (Yusoff et al., 2023). However, much of the literature focuses either on content review or formal education contexts (Yang, 2023; Wong, 2024).

The expert validation results in this study confirm that the four-phase structure provides a coherent and operational curriculum pathway. Experts emphasized the clarity of progression from exploration to presentation and suggested refinements such as lowering entry barriers and

integrating user-friendly tools. These findings correspond to the literature's call for executable curriculum structures rather than abstract frameworks (Yusoff et al., 2023).

At the same time, unlike studies situated in formal school systems (Yang, 2023; Wong, 2022), this research demonstrates that systematic curriculum design is also feasible in informal and non-academic music education. Thus, the results contribute empirical support to the need for structured curriculum planning beyond formal schooling, as identified in the literature review.

3. Creativity

The literature emphasizes that music composition enhances imagination, divergent thinking, and expressive ability, particularly among younger learners (Webster, 2017). However, few studies examine creative development among adult informal beginners.

The empirical results show that participants were able to complete structured songwriting tasks and present original works, indicating that composition-based instruction can also support creativity among ordinary adult learners. This directly responds to the gap identified in the literature review regarding the limited focus on adult informal populations.

Rather than treating creativity as spontaneous inspiration, the 4EX model frames it as a structured process of goal setting, construction, revision, and presentation. In doing so, it demonstrates that creative capacity can be cultivated through staged instructional design, extending prior findings beyond school-aged samples (Webster, 2017).

4. Music and Well-being

Research on music and well-being has shown that musical activities can support emotional regulation and psychological health (Alvarez-Cueva, 2022; Mitchell, 2012; Barrett et al., 2021). However, much of this literature focuses on improvisation, listening, or therapist-led interventions rather than structured songwriting courses for non-major adult learners.

In this study, learners engaged in emotionally oriented songwriting tasks and reported positive experiences related to self-expression. The use of low-threshold compositional tools and collaborative environments is consistent with findings on improvisational participation and emotional engagement (MacDonald, 2013; Mastnak, 2017).

Nevertheless, unlike music therapy studies that emphasize clinical outcomes (Mastnak, 2017), the present research situates songwriting within an educational context. While emotional benefits were observed through interviews and expert feedback, the study acknowledges that standardized well-being scales were not employed. Therefore, the results provide preliminary support

for the educational role of songwriting in emotional expression, while further measurement-based research is needed.

In this respect, the findings respond to the literature gap identified earlier: structured original song creation for informal university learners remains underexplored in relation to both musical and emotional outcomes.

Taken together, the discussion demonstrates that the 4EX model integrates principles from constructivism, cooperative learning, curriculum development, creativity research, and music-and-well-being literature into a coherent instructional framework. The empirical findings provide exploratory evidence that such integration is feasible in informal higher education settings. By offering a staged, digitally supported songwriting pathway for adult beginners, the study addresses the lack of empirically validated composition models for informal learners identified in the literature review.

Beyond its theoretical contribution, the findings suggest broader implications for informal music education in higher education contexts. By providing a structured and low-threshold pathway for composition, the 4EX model addresses the uneven quality and fragmented learning conditions identified in prior research. It offers a practical framework for universities and non-academic music programs to support beginner learners who lack formal training but seek creative expression.

In addition, by embedding emotional expression within a staged compositional process, the model illustrates how creative practice can be integrated into student development initiatives. This may contribute to ongoing discussions on aesthetic education, lifelong learning, and student well-being in contemporary educational environments.

New Knowledge from Research

Based on the empirical results, the 4EX model can be understood as a staged instructional mechanism in which structured progression supports both skill acquisition and emotional expression among informal beginners. The high efficiency scores (85.96/82.22) indicate that the four interconnected phases—Exploration, Exercise, Experimentation, and Exhibition—function as a closed learning loop: initial contextual activation reduces entry barriers, guided skill practice builds technical competence, creative experimentation enables integration of knowledge, and public presentation reinforces reflection and social validation. Expert feedback further suggests that lowering task difficulty and integrating accessible digital tools enhance feasibility without

weakening instructional rigor. Rather than serving merely as a curriculum framework, the model operates as an iterative system that links pedagogical structure, digital practice, and collaborative processes. In this way, the findings demonstrate how structured composition stages can mediate between informal learning conditions and measurable instructional outcomes, offering an explanatory model for beginner-oriented popular music creation in higher education contexts. The detail as shown in Figure 5,

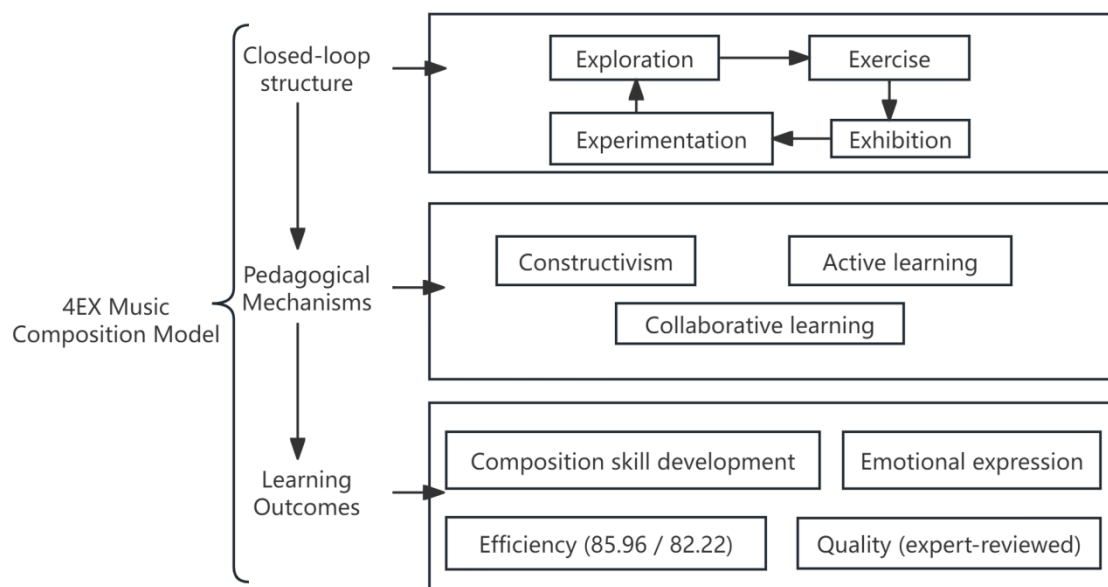


Figure 5 Contributions of this study (Source: Constructed by researchers)

Conclusion

This study developed and empirically tested the 4EX music composition learning model for zero-based informal learners aged 18–30, grounded in active learning, constructivism, and cooperative learning theories. Feedback from 10 experts affirmed its effectiveness in skill acquisition and emotional expression, with recommendations to lower barriers, add user-friendly tools, and incorporate process–result–audience feedback assessments. An experiment with 13 participants achieved mean process and result scores of 85.96 and 82.22, surpassing the 80/80 benchmark, highlighting strengths in composition while noting needs for vocal and originality training. Academically, it contributes a closed-loop model, enriching informal music composition education research.

Suggestions

Future research should adopt longitudinal designs to examine the sustained effects of the 4EX model. A pre-test/post-test framework with delayed follow-up would allow researchers to track changes in compositional competence, creativity, and emotional expression over time rather than relying on short-term efficiency indicators.

Emotional outcomes should be assessed using standardized measurement tools instead of interviews alone. Instruments such as the Emotion Regulation Questionnaire (ERQ) or Positive and Negative Affect Schedule (PANAS) could provide quantitative evidence of changes in affect and regulation. Combining validated scales with qualitative data would strengthen the empirical basis of the model.

Further studies should test the model across different learner groups and contexts using quasi-experimental or comparative designs. Examining stage-specific contributions within the 4EX structure may also clarify which elements most strongly influence learning outcomes.

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