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Social Interaction in Teaching Models for Enhancing Students' Creativity in the Ideation Process of Visual Arts Education: A Scoping Review

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ABSTRACT

The ideation process in Visual Arts Education (VAE) requires students to explore visual references, generate alternative ideas, justify artistic decisions, and refine initial concepts into coherent visual outcomes. However, students' ability to develop creative ideas does not depend solely on individual imagination or technical skill; it is also shaped by the quality of pedagogical guidance provided throughout the learning process. In this regard, social interaction approaches may support creativity during the ideation process. Nevertheless, limited studies have explained how these approaches are systematically integrated into teaching models that support the ideation process across different educational levels and art-based contexts. This scoping review maps current literature on social interaction approaches that support creativity and idea development in VAE and related art education contexts. Guided by Arksey and O'Malley's scoping review framework and the PRISMA-ScR reporting guideline, searches were conducted in Scopus and Web of Science for peer-reviewed empirical studies published between 2020 and 2025. Following screening and eligibility assessment, nine studies were included in the qualitative synthesis. The findings show six recurring approaches: teacher facilitation, community and co-creative learning, scaffolding and guided support, digital-mediated interaction, and student-centred learning. The reviewed studies consistently indicate that creativity is enhanced when interaction is intentionally structured throughout the ideation process. The review therefore supports the need for a teaching model that integrates social interaction elements to guide ideation systematically.

Keywords: *scoping review, social interaction, ideation process, creativity, Visual Arts Education*

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1 INTRODUCTION

Creativity and idea development are fundamental to learning in Visual Arts Education (VAE) because students are required to transform observation, imagination and visual references into meaningful artistic outcomes (Ismail et al., 2022). In the ideation process, students do not merely produce preliminary sketches; they explore themes (Buruntong et al., 2025), interpret visual possibilities (Forslind et al., 2024), generate alternatives (Swanzy-Impraim, 2025), justify design decisions (Briggs, 2025) and progressively refine ideas into coherent visual solutions (Ismail et al., 2022). This process is particularly important in extended project-based coursework in VAE, where the quality of final artwork is closely shape by the depth and progression of students' early idea development.

The present review is grounded in Social Constructivism, which positions learning as a socially mediated process. From this perspective, students develop understanding through dialogue, modelling, feedback and shared activity, and guided participation (Tomljenovic & Vorkapic, 2020; Cutcliffe et al., 2024; Denee & Cherrington, 2023). Vygotsky's concept of the Zone of Proximal Development (ZPD) explains how students can move beyond their current independent ability when supported by teachers, peers or more knowledgeable others (Vygotsky, 1978). In classroom practice, this theoretical position is relevant because ideas are often developed through both individual imagination and social negotiation.

Recent studies in VAE suggest that social interaction can support creative confidence, collaborative problem solving, reflective thinking, artistic identity and public expression. For example, design thinking in elementary art education has been shown to support empathy and collaborative learning (Montero, 2023), while human mediation in a secondary art school context enhanced creative collaboration through dialogue and teacher mediation (Gregori-Giralt & Menéndez-Varela, 2022). Similarly, recent studies on public art practice, outdoor arts-based interventions, intercultural arts projects and metaverse-based collaborative painting show that creativity and artistic learning are strengthened when students engage in structured interaction, peer collaboration, teacher guidance, shared regulation and reflective dialogue (Guan et al., 2024; Hallam et al., 2022; Song et al., 2025; Wilson et al., 2021).

Despite these contributions, the literature remains fragmented. Many studies report collaborative learning or feedback as isolated teaching strategies, but fewer studies explain how teacher-student interaction, peer exchange, scaffolding and student responsibility are integrated systematically across the stages of ideation. This gap is significant because ideation process requires continuous pedagogical guidance, as teachers need clearer pedagogical guidance on how to facilitate students' idea exploration, visual reference analysis, sketch development, critique and refinement. Therefore, this scoping review maps recent empirical literature on social interaction approaches that support creativity and idea development in VAE and related art education contexts.

1.1 Research Questions

To guide the scope of the review, the following research questions were formulated.

- RQ1: What empirical studies from 2020 to 2025 examine social interaction approaches that support creativity or idea development in VAE and related art education contexts?
- RQ2: What forms of social interaction are most frequently reported, particularly teacher facilitation, community and co-creative learning, scaffolding and guided support, digital-mediated interaction, and student-centred learning?
- RQ3: What creative or learning outcomes are associated with these social interaction approaches?
- RQ4: What gaps remain for developing a structured teaching model to enhance creativity during the ideation process, particularly in secondary VAE coursework?

2 MATERIALS AND METHOD

This study adopted a scoping review design because the purpose of the study was to map the extent, characteristics and gaps of existing literature. A scoping review is appropriate when a research area is broad, conceptually diverse or insufficient consolidated. The review was guided by Arksey & O'Malley, (2005) methodological framework, which includes identifying the research questions, identifying relevant studies, selecting studies, charting the data, and collating, summarising and reporting the results. The reporting structure was aligned with PRISMA-ScR to enhance transparency in the search, screening and synthesis process (Pollock et al., 2024).

2.1 Stage 1: Identifying the Research Questions

The first stage involved defining the focus and boundaries of the review. The review focused on empirical literature related to social interaction and creativity development in VAE or related art education contexts. The central concern was not social interaction in a general educational sense, but social interaction that supported creativity, ideation process, artistic expression, or related visual learning outcomes. This focus allowed the review to identify pedagogical constructs that may inform the development of a teaching model for the ideation process.

2.2 Stage 2: Identifying Relevant Studies

Relevant studies were identified through searches in Scopus and Web of Science. These databases were selected because they index peer-reviewed journals across education, arts, humanities, psychology, and social sciences.

To ensure consistency during the screening process, a set of inclusion and exclusion criteria was established before full-text assessment. As shown in Table 1, the eligibility criteria were organised according to publication type, year of publication, language, context, main phenomenon, and outcome focus. These criteria were used to ensure that the selected studies were empirical grounded, recent, and directly relevant to social interaction, creativity, ideation and VAE. Studies that did not satisfy these criteria were excluded from the final synthesis.

Table 1 Inclusion and exclusion criteria

Criterion	Inclusion	Exclusion
Publication	Peer-reviewed empirical journal articles	Conference proceedings, review articles, conceptual papers, books, book chapters, editorials and non-research materials.
Publication on year	2020 to 2025	Studies before 2020
Language	English	Non-English publications
Educational context	Visual arts, art education, art and design education, or related arts-based learning contexts	Studies unrelated to education, arts learning or visual/artistic practice
Forms of social interaction	Social interaction, teacher facilitation, teacher-student interaction, peer collaboration, scaffolding, critique, co-creation or student-centred learning	Studies focused only on technology acceptance, final artwork assessment, technical production or hard-science outcomes without pedagogical social interaction
Creative of learning outcome focus	Creativity, ideation, idea development, artistic identity, creative confidence, collaborative creative practice or related learning outcomes	Studies with no explicit connection to creativity, idea development or visual/artistic learning outcomes

(Source: Ramdan et al., 2024)

The search strategy combined keywords related to social interaction, creativity and ideation, visual arts education as shown in Table 2.

Table 2 Search Strategy and Database coverage

Database	Search focus	Search terms used
Scopus	Peer-reviewed education, arts and humanities, social sciences and art/design education literature	(("social interaction" OR communication OR collaboration OR engagement OR "teacher-student interaction" OR scaffolding OR "peer interaction") AND ("idea development" OR creativity OR ideation OR conceptualisation OR innovation) AND ("visual arts" OR "art education" OR "artistic expression" OR "artistic practice" OR "art and design education") AND (education OR learning OR teaching OR pedagogy))
Web of Science	Peer-reviewed education, arts and humanities, and social science literature	The same conceptual search string was applied and refined using database filters for publication year, language, document type and subject area.

(Source: Ramdan et al., 2024)

2.3 Stage 3: Study Selection

Study selection was conducted through database filtering, duplicate removal, title and abstract screening, and full-text eligibility assessment. The eligibility criteria presented in Table 1 were used to guide the screening process, while the overall selection flow is summarised in Figure 1.

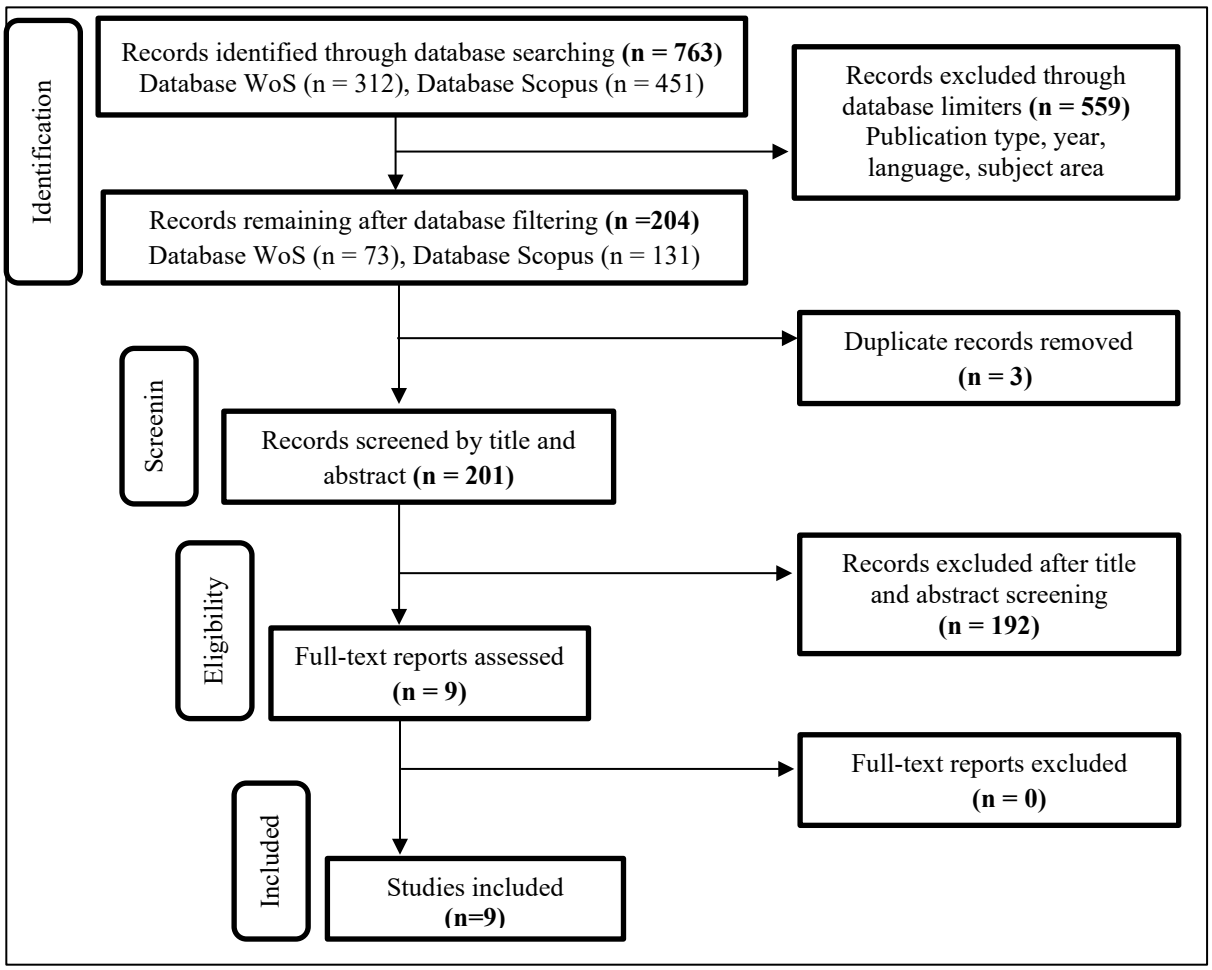


Figure 1 PRISMA-ScR flow of study selection process

The initial search identified 763 from Scopus and Web of Science. After applying database limiters, removing duplicates, and screening records for relevance to social interaction, creativity, ideation, and art education contexts, nine empirical studies were retained for the final synthesis.

2.4 Stage 4: Charting the Data

Data from the included studies were charted using a structured matrix. The charting process recorded authorship, year of publication, country or location, educational level, research design, participants, social interaction approach, instructional construct, creative or learning outcomes, and relevance to the ideation process.

The charted data were then organised thematically according to recurring social interaction elements, including teacher facilitation, teacher-student interaction, peer interaction, scaffolding, student-centred learning, learner responsibility, co-creative practice, and digital-mediated interaction. Since a single study could represent more than one theme, the thematic frequencies were treated as multi-code counts rather than mutually exclusive categories.

2.5 Stage 5: Collating, Summarising and Reporting the Results

The final stage involved collating and summarising the reviewed literature according to study characteristics, recurring forms of social interaction, associated creative or learning outcomes, and gaps in the evidence base. Consistent with the purpose of a scoping review, the synthesis did not assess the methodological quality of each study or determine the weight of evidence. Instead, it mapped the available evidence to clarify how social interaction has been studied in relation to creativity and idea development in VAE and related contexts.

3 FINDINGS

The initial search identified 763 records, comprising 312 records from Web of Science and 451 records from Scopus. Following the application of database limiters relating to publication year, language, document type, subject area, and empirical focus, 559 records were removed, leaving 204 records. Three duplicate records were subsequently removed, resulting in 201 unique records for title and abstract screening. At this stage, 192 records were excluded because they did not focus on Visual Arts Education or related arts-based learning contexts, social interaction, ideation or creativity-related outcomes. The full text of the remaining nine articles was retrieved and assessed for eligibility. All nine articles met the inclusion criteria and were included in the final synthesis, as presented in Figure 1.

3.1 Characteristics of Included Studies

The included studies covered diverse educational and arts-based contexts as shown in Table 3, including elementary, primary, secondary, university, community-based, outdoor, intercultural, and digital or metaverse-supported learning environments. The focus of the studies generally centred on how social interaction supports creativity, artistic expression, idea development, engagement, empathy, identity development, collaboration, and learner participation in art-based learning contexts.

Across the included studies, several recurring social interaction characteristics were identified, including teacher facilitation, human mediation, peer collaboration, guided questioning, group discussion, community participation, co-creative learning, digital sharing, and socially shared regulation. The major themes and sub-themes indicate that creativity was commonly supported through structured interaction, collaborative exploration, feedback, shared artistic practice, reflective dialogue, and student-centred participation. These characteristics suggest that creativity in art-based learning is not limited to the production of final artwork, but is closely connected to the process of interaction, interpretation, negotiation, and progressive idea development.

Table 3 Characteristics of the Included Studies (Source Ramdan et al., 2024)

Publication	Location	Variables / Construct	Social Interactions	Sub-Theme	Theme
Montero (2023) – *Developing Empathy Through Design Thinking in Elementary Art Education*	Elementary art classrooms, USA	Teacher facilitation; design thinking pedagogy; empathy; collaborative learning	Small-group collaboration, guided questioning, student dialogue	Teacher as facilitator; collaborative ideation	Socially Guided Ideation
Varela et al. (2020) – *The Enhancement of Creative Collaboration through Human Mediation*	António Arroio Art School, Portugal (secondary)	Human mediation; interpersonal dialogue; peer collaboration; identity development	Teacher mediation, peer discussion, community participation	Teacher mediation; dialogue-based creativity	Pedagogical Social Interaction
Sušič & Brebrić (2025) – *Educating Children for Creativity and Democracy through a Music and Drama Community of Practice*	Early childhood music–drama studio, Slovenia	Community of practice; democratic participation; dialogue; social scaffolding	Group dialogue, participatory activities, collective creation	Community dialogue; social scaffolding	Community-Based Creativity
Song et al. (2024) – *Creativity, Practical Ability, Self-Identity: Public Art Practice with Primary Students*	Primary school public art project, China	Project-based learning; teacher guidance; peer ideation; identity formation	Teacher guidance, teamwork, peer exchange during mural design	Project collaboration; peer ideation	Collaborative Creative Practice
Hallam et al. (2022) – *"I'm Not the Best at Art?" Outdoor Arts-Based Intervention*	Outdoor intervention programme, UK	Adult scaffolding; experiential learning; peer teamwork; confidence building	Facilitator support, peer collaboration, dialogic reflection	Scaffolding support; experiential dialogue	Scaffolded Ideation
Wilson et al. (2021) – *Red Apples–Green Apples* Intercultural Arts Project	Denmark & South Africa	Intercultural collaboration; creative dialogue; guided facilitation	Cross-cultural group work, shared artistic practice	Intercultural dialogue; collaboration	Intercultural Creative Interaction
de Arriba & Vidagañ (2021) – *Sharing Drawings with Smartphones in the Classroom*	University classroom, Spain	Peer critique; art-based learning; digital sharing for ideation	Peer interaction, public display of drawings, group critique	Peer critique; public ideation sharing	Peer-Driven Ideation
Guan et al. (2024) – *SSRL-Based Collaborative Painting (Metaverse)*	Primary art classrooms, China	Socially Shared Regulation of Learning (SSRL); collaborative painting; peer regulation; creativity measures	Peer collaboration, shared regulation, interactive group painting	Peer regulation; cooperative ideation	Socially Regulated Creativity
Juusola (2023) – *Co-Creative Learning Community Approach*	University–industry collaboration, UAE	Action learning; co-creative learning communities; learner autonomy	Student–teacher–industry collaboration; group problem solving	Co-creation networks; action learning	Co-Creative Learning Communities

3.2 Distribution of Social Interaction Approaches

The distribution provides an overview of which theme or approaches were most frequently represented in the reviewed literature; as it identifies six recurring forms of social interaction: teacher facilitation and mediation, peer interaction and dialogue, scaffolding and guided support, student-centred and co-creative learning, community-based interaction, and digital-mediated interaction.

Based on Figure 2, peer interaction, dialogue and critique appeared as the most dominant social interaction approach, represented in all nine included studies. This indicates that creativity in art-based learning was most frequently supported through peer exchange, group discussion, critique, collaborative exploration, and shared decision-making. Teacher facilitation and mediation was the second most frequent theme, appearing in six studies, suggesting that teacher guidance, adult mediation, and structured questioning remain important in helping students organise, develop, and refine creative ideas. Community and co-creative learning were identified in five studies, while scaffolding and guided support appeared in four studies, showing that creativity was also strengthened through shared artistic practice, guided participation, and supportive learning structures. In contrast, digital-integrated interaction and student-centred learning and learner autonomy appeared less frequently, with two studies each. Although less represented, these themes indicate emerging directions in art education, particularly in relation to digital sharing, collaborative regulation, student choice, and learner ownership. Overall, the distribution suggests that social interaction in the reviewed studies was mainly shaped by peer-based and teacher-supported processes, while digital and autonomy-oriented approaches remain comparatively underexplored.

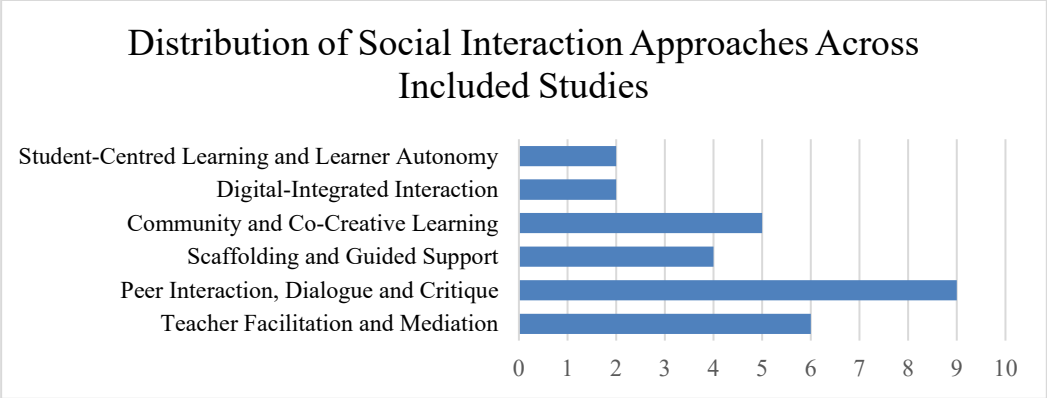


Figure 2 Distribution of Social Interaction Approaches Across Included Studies (Source Ramdan et al., 2024)

3.3 Thematic findings

The thematic synthesis of the reviewed studies generated six major forms of social interaction approaches: teacher facilitation and human mediation, peer collaboration, dialogue and critique, scaffolding and guided support, community and co-creative learning, digital-mediated interaction, and student-centred learning and learner autonomy. These themes were not mutually exclusive because several studies represented more than one form of social interaction. Overall, the reviewed studies indicate that creativity in art-based learning was supported when students were given opportunities to explore ideas with others, receive guidance, negotiate meanings, respond to feedback, and participate actively in creative decision-making.

3.3.1 Teacher Facilitation and Mediation

Teacher facilitation and human mediation appeared as central interactional processes across the reviewed studies. In design thinking-based art education, teachers structured real-world challenges through stages of empathising, defining, ideating, prototyping, and testing (Montero, 2023). Within this process, students generated solutions, discussed ways to refine them, and engaged in teacher-led and student-led conversations before developing prototypes and reflecting on their ideas.

Human mediation was also emphasised in secondary arts education, where teachers supported students through dialogue, affective relationships, respect for students' choices, and freedom in creative decision-making (Gregori-Giralt & Menéndez-Varela, 2022). The study showed that creative collaboration was strengthened when students worked in an atmosphere of trust, empathy, mutual respect, and emotional understanding.

3.3.2 Peer Interaction, Dialogue and Critique

Peer collaboration, dialogue and critique were strongly represented across the included studies. In the design thinking study, students worked in small groups to brainstorm and develop ideas, although some groups needed support to listen to multiple ideas before deciding on one direction (Montero, 2023). This finding indicates that collaboration does not occur automatically; students need structured opportunities to listen, negotiate, and consider alternative ideas during the ideation phase (Gregori-Giralt & Menéndez-Varela, 2022).

Similarly, in the secondary art school study, students learned through observing one another's work, asking peers for opinions, sharing material experiences, and helping each other during the production process. These exchanges allowed students to understand different choices and perspectives, while also strengthening self-reflection and collective learning. In the public art project, peer exchange and teamwork were also important because students developed creativity, practical ability, and self-identity across the stages of design, making, and exhibition (Song et al., 2025).

3.3.3 Scaffolding and Guided Support

Scaffolding and guided support were evident in studies where students required assistance to develop confidence, sustain engagement, and move from early exploration towards more developed artistic outcomes. In the outdoor arts-based intervention, children were guided by facilitators, an artist, a teacher, and a teaching assistant (Hallam et al., 2022). They explored the park, used digital cameras and sketchbooks to capture sources of inspiration, developed design ideas, voted for the final design, and contributed to a public artwork. The youth-led approach allowed children to take an active role, while adults acted as facilitators who supported rather than controlled the process.

This form of guided support is relevant to ideation because students often need prompts, questioning, encouragement, and access to meaningful contexts before they can develop confidence in their ideas (de Arriba & Vidagañ, 2020). In the same study, open-ended questioning encouraged children to reflect on their experiences and seek answers themselves.

3.3.4 Community and Co-Creative Learning

The Community and co-creative learning emerged in studies that positioned creativity as a shared social practice. In the music and drama community of practice, children participated in creative artistic expression through music, process drama, dialogue, collaboration, and democratic participation (Sušić & Brebrić, 2025). The study emphasised values such as freedom of expression, respect for diversity, empathy, cooperation, listening, curiosity, and critical thinking.

Co-creative learning was also evident in intercultural arts projects, public art practice, and university-industry learning communities (Juusola, 2023). The intercultural arts project used visual arts and dance to explore climate change and natural elements, enabling meaningful interaction among children and facilitators from diverse cultural backgrounds. The co-creative learning community involved students, instructors, academic peers, and practitioners in collective learning, active collaboration, and knowledge exchange.

3.3.5 Digital-Integrated Interaction

Digital-mediated interaction was identified in studies that used digital tools to make visual ideas visible, shareable, and open to discussion. In the smartphone-supported drawing study, students used smartphone cameras to immediately share and project drawings in the classroom (de Arriba & Vidagañ, 2020). This supported group learning, engagement, visual discussion, and creativity development.

A more advanced form of digital-mediated interaction was found in the metaverse-based collaborative painting study. The metaverse environment provided an authentic painting context and collaborative space, while the socially shared regulation of learning framework supported collaboration during painting activities (Guan et al., 2024). The findings showed improvements in students' creativity, including adventure, curiosity and imagination, as well as socially shared regulation and positive painting behaviours.

3.3.6 Student-Centred Learning and Learner Autonomy

Student-centred learning and learner autonomy were evident in studies that allowed students to make choices, explore personal meanings, and take responsibility for their creative decisions (Gregori-Giralt & Menéndez-Varela, 2022). In the secondary art school study, students were encouraged to choose themes, materials, and meanings for their artistic objects. Such freedom and flexibility supported students' decision-making, autonomy, self-esteem, confidence, creativity, and reflective thinking.

A similar pattern appeared in the outdoor arts-based intervention and public art practice. In the outdoor intervention, children led exploration, selected sources of inspiration, developed design ideas, and voted for the final design (Hallam et al., 2022). In the public art project, students participated in the design, making, and exhibition stages, gaining competencies in creativity, practical ability, and self-identity.

4 DISCUSSION

This scoping review demonstrates that social interaction supports creativity and idea development in Visual Arts Education (VAE) through six interrelated approaches, which are Peer interaction, dialogue, and critique, teacher facilitation, and mediation scaffolding and guided support, Community and co-creative learning, Digital-integrated interaction, and Student-centred learning and learner autonomy. Across the nine included studies, these approaches did not function independently. Instead, they collectively created conditions in which students could articulate emerging ideas, encounter alternative perspectives, receive feedback, and progressively refine their artistic decisions. This finding supports a social constructivist interpretation of creative learning, whereby creative understanding and ideas may develop through social mediation, interaction and collaboration, the use of cultural tools, and participation within a socio-cultural learning environment (Vygotsky, 1978; Themeli et al., 2026).

Peer interaction, dialogue, and critique extend this facilitative process by exposing students to interpretations and possibilities beyond their initial ideas. The reviewed studies showed that students developed ideas by brainstorming in groups, observing one another's work, exchanging opinions, and discussing alternative visual directions. This interpretation is supported by Sulaiman et al., (2025), whose cross-disciplinary art-learning approach incorporated idea development, critique sessions, consultations, and presentations, enabling students to integrate diverse knowledge and generate more

innovative artistic ideas. Such interaction can strengthen creative flexibility because students are required to reconsider assumptions, explain their decisions, and respond to different perspectives. However, collaboration should not be assumed to generate creativity automatically. Peer activities that are poorly structured may result in imitation, conformity, or unequal participation. Teachers must therefore establish respectful environments and use suitable prompts, critique procedures, and participation structures to ensure that peer exchange contributes to idea development rather than merely distributing task responsibilities.

Teacher facilitation and mediation emerged as the foundation for several other forms of interaction. In the design-thinking art education study, teachers structured real-world challenges through empathising, defining, ideating, prototyping, and testing, while encouraging students to generate and discuss multiple visual solutions (Montero, 2023). Similarly, human mediation in secondary arts education supported dialogue, reflection, respect for students' choices, and freedom in creative decision-making (Gregori-Giralt & Menéndez-Varela, 2022). These findings suggest that teachers contribute to creativity most effectively when they guide the thinking process rather than determine its outcome. Facilitation therefore involves creating conditions for exploration, questioning, and reflection while preserving students' ownership of their artistic decisions.

Scaffolding and guided support were particularly important when students experienced difficulty progressing from early exploration to more developed visual solutions. The reviewed studies demonstrated the value of questioning, demonstrations, visual prompts, sketchbooks, and collaborative decision-making in helping students generate and refine ideas (de Arriba & Vidagañ, 2020). Open-ended questioning was especially relevant because it encouraged students to evaluate their experiences and provide reasons for their visual choices. Nevertheless, scaffolding must remain responsive to students' needs. Excessive guidance may restrict experimentation, whereas insufficient support may leave students unable to move beyond familiar or initial ideas. Effective scaffolding therefore requires teachers to provide temporary assistance and gradually reduce it as students become more confident and capable of making independent decisions.

Community and co-creative learning broadened social interaction beyond the immediate teacher–student relationship. Music, drama, intercultural arts projects, public art, and university–industry activities enabled students to participate in shared artistic practices, negotiate meanings, and encounter diverse cultural perspectives. For example, intercultural arts activities encouraged meaningful interaction among participants from different backgrounds and supported dialogue concerning cultural and environmental issues (Wilson et al., 2021). These findings indicate that creativity is influenced by the social and cultural contexts in which ideas are developed. Co-creative participation may strengthen empathy, communication, and collective responsibility, although it must also preserve space for individual interpretation and artistic ownership.

Digital-integrated interaction provided an additional environment for sharing, discussing, and transforming visual ideas. Smartphone-supported drawing enabled students to share project drawings and obtain immediate responses, while metaverse-based collaborative painting supported communication, shared regulation, and positive collaborative behaviour (de Arriba & Vidagañ, 2020; Guan et al., 2024). These findings suggest that digital tools can extend interaction beyond conventional classroom boundaries and increase opportunities for feedback. However, technology should be understood as a mediator rather than an independent source of creativity. Its educational value depends on how it is integrated with questioning, interpretation, critique, and human judgement. Moreover, the use of drawing and sketching as part of this exploratory process is significant because these practices can strengthen visual perception and facilitate the development of visual and creative thinking (Abdullah et al., 2024). Thus, digital or AI-generated visual references should consequently function as stimuli for discussion and transformation rather than as final solutions to be reproduced by students.

Across these five forms of support and interaction, student-centred learning and learner autonomy represented an important, intended outcome. Students demonstrated greater ownership when they were permitted to make choices, express personal meanings, vote on artistic directions, and take

responsibility for their creative decisions. This emphasis is consistent with Sharuddin et al., (2025) who positioned visual expression through doodling as a multimodal, student-centred pedagogical approach capable of supporting creative thinking, cognitive engagement, and inclusive participation. From this perspective, student-centred visual activities provide students with greater freedom to communicate personal ideas while remaining actively involved in constructing their learning experiences. While for autonomy, importantly, it did not emerge through the complete removal of guidance. It developed when teachers provided sufficient support and progressively transferred decision-making responsibility to students. Therefore, teacher guidance and learner autonomy should not be regarded as opposing pedagogical positions. A structured but flexible learning environment can simultaneously provide direction and protect students' freedom to construct original visual responses.

Despite these positive findings, the literature remains fragmented. Most studies examined individual approaches within different educational levels, artistic disciplines, and learning environments. Few studies integrated teacher facilitation, peer dialogue, scaffolding, community participation, digital interaction, and learner autonomy across a complete visual ideation process. Evidence relating specifically to sustained secondary-school VAE coursework was also limited. Consequently, the existing literature identifies valuable practices but provides insufficient guidance on how they should be coordinated as students' progress from initial idea generation to exploration, evaluation, and refinement. Table 4 summarises these gaps and their implications for a structured teaching approach.

Table 4 Identified Gap

Identified gap	Evidence from review	Implication for the proposed teaching model
Limited research on sustained secondary VAE coursework.	Most studies were in primary, elementary, university, community or digital art learning contexts rather than secondary project-based VAE.	The model should be tested with VAE teachers and students in secondary project-based VAE contexts where ideation develops over an extended coursework period.
Social interaction often treated as a strategy, not a complete model.	Studies reported collaboration, critique or facilitation, but few mapped these elements across sequential ideation stages.	The model should specify stages, teacher actions, student actions, peer interaction points and scaffolding strategies.
Limited integration of digital tools with social constructivist pedagogy	Only two studies explicitly used digital-mediated interaction, and technology was most effective when linked to collaboration and feedback.	Digital or AI visual references should be framed as stimuli for discussion, critique and transformation rather than final products.
Creative outcomes are multidimensional.	Outcomes included creativity, confidence, empathy, identity, engagement, self-regulation and practical ability.	Evaluation of model usability should consider teachers' perceptions of facilitation, student engagement, idea transformation and creative confidence.

Source: D'Armas Regnault et al. (2026)

This fragmentation supports the development of a conceptual framework of socially mediated ideation in VAE. In the proposed framework, teacher facilitation and scaffolding provide pedagogical support, while teacher–student interaction, peer collaboration, community participation, and digitally mediated interaction provide opportunities for social engagement as shown in Figure 3. These conditions activate dialogue, critique, feedback, visual exploration, evaluation, and refinement. As support is progressively adjusted, students may develop greater autonomy and ownership of their creative decisions. The anticipated outcomes include more developed visual ideas, stronger creative thinking, engagement, and confidence. However, the framework represents a conceptual synthesis of the reviewed evidence and should not be interpreted as an empirically validated teaching model.

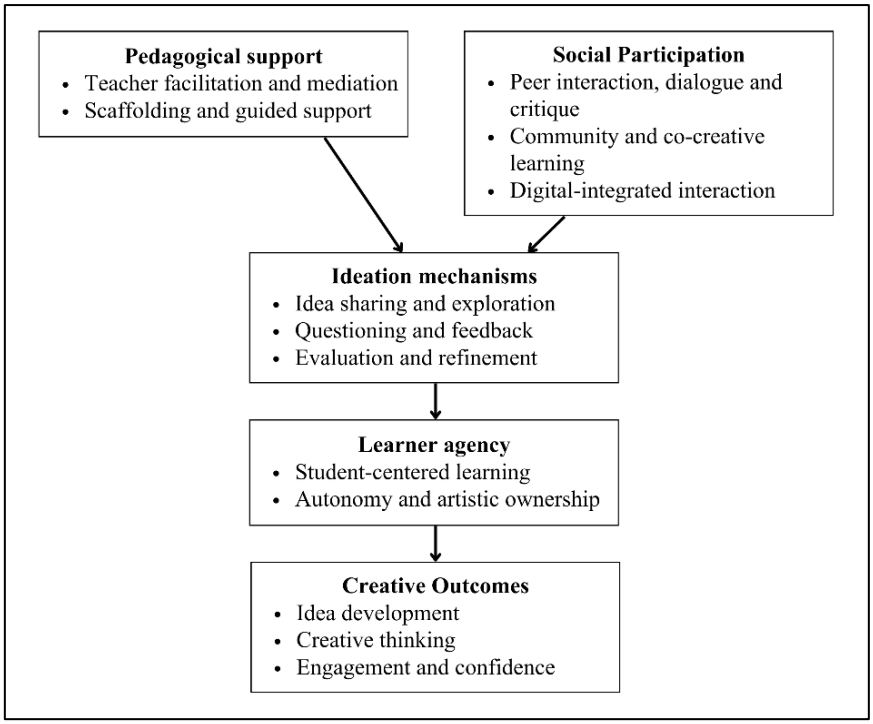


Figure 3 Proposed Conceptual Framework of Socially Mediated Ideation in VAE

The review has several limitations. The search was restricted to Scopus and Web of Science, English-language peer-reviewed empirical journal articles published between 2020 and 2025, and studies meeting the specified disciplinary and conceptual criteria. Relevant evidence from regional databases, non-English publications, conference proceedings, books, and grey literature may therefore have been excluded. The variation in research designs, educational settings, and artistic activities also prevented direct comparison of effectiveness. Future research should investigate how the six approaches can be integrated and sequenced across different stages of secondary-school visual ideation. Empirical evaluation is also required to determine how the timing and intensity of facilitation, scaffolding, peer interaction, critique, community participation, and digital mediation influence students' progression from initial ideas to refined visual outcomes.

5 CONCLUSION

This scoping review mapped empirical studies on social interaction approaches that support creativity and idea development in VAE and related art education contexts. The synthesis of nine studies indicates that peer collaboration, teacher facilitation, community co-creation, scaffolding, digital-mediated interaction and learner autonomy are important pedagogical conditions for creativity enhancement. The review also shows that social interaction is most powerful when it is structured intentionally through questioning, mediation, critique, shared regulation and reflective dialogue. However, limited evidence was found on integrated teaching models that guide social interaction across the full ideation process, particularly in secondary VAE coursework. Therefore, this review supports the need to propose a structured teaching model that helps teachers facilitate students' creative idea development systematically. Such a model can contribute to more process-oriented VAE pedagogy, where creativity is developed not only through final artwork production but through sustained social interaction, visual thinking and reflective transformation of ideas.

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AUTHOR CONTRIBUTIONS

The first author was responsible for conceptualising the review focus. The second and third authors reviewed and approved the final version of the manuscript.

CONFLICT OF INTEREST

The author declares no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

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