

Creative Learning - A Configurative Review of Features and Practices

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ABSTRACT

The idea that learning and creativity are interrelated has experienced a renaissance in the last 20 years. Fashionable and suggestive, the concept of "creative learning" has found traction in educational policy and in progressive classrooms across the globe. This configurative review explores how the concept of creative learning has been understood and put into practice across 112 education studies since 2010. Specifically, the review addresses two questions: First, what are the constitutive features and actions that characterize creative learning? Second, what are the overarching themes that can be identified in the literature? The study reports on the findings of an extensive thematic analysis, which indicated four general approaches to creative learning: namely (1) *creative agency over learning*, (2) *affective and embodied pathways*, (3) *relational ecologies*, and (4) *learning by doing and making*. The review concludes with a discussion of each of these themes, deriving from them a set of practical recommendations and a revised definition of creative learning.

1. Introduction

A minivan is parked at the Altos de Lircay national park, a biological reserve four hours south of Santiago, Chile. The vehicle has been modified to unfold in almost all directions and it is loaded with tables, screens, 3D printers and other fabrication equipment. This mobile lab has traveled over 2.300 kilometers along the Chilean coast, going as far north as Paposó and as far south as Puqueldón. Around it, a bustling workshop is taking place where young people are challenged to invent biomimetic artifacts and to explore human-nature relationships. Some of them are already wearing the "soundmasks" they designed and printed. These cardboard masks block their eyes and augment their ears, extending them outwards and amplifying the world around them. The masks give participants a peculiar look, as if they were now transformed into a different kind of creature. Indeed, one could argue that they are. By reconfiguring their sensory apparatus, they now move, think, and feel a bit differently. All that is left to do now is to go for a soundwalk in the reserve. The goal of the exercise, we are told, is to provide these young people with a "creative learning experience" that is at the same time exploratory and authentic, getting them to "learn with the world", not simply "about it" (Jeldes et al., 2022, pp. 24–25).

Projects like the Aconcagua FabLab are part of a growing and increasingly diverse number of initiatives that enlist 'creative learning' as a pedagogical goal. This historied term, however, is difficult to pin down (Sefton-Green et al., 2011). Simply put, the concept relates to the thesis that creativity has something to do with learning, and vice versa. At its core, this idea suggests that, as individuals nurture their creative abilities, their capacity to assimilate new information also develops. The manner in which this

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relationship has been described by researchers, however, has varied considerably over time (Beghetto, 2016). We can illustrate this debate with two seemingly disparate propositions. At one end of the spectrum, creativity is understood as a catalyst for inquiry, calling to mind Piaget's often-quoted constructivist maxim, "to understand is to invent" (Piaget, 1973). On the other side, we have learning as an outcome of acting creatively in the world, captured by Guilford's pioneering description of the creative act as "an instance of learning" (Guilford, 1950, p. 446). It seems like creativity and learning have indeed much to do with one another, so where is the problem?

While compelling, these formulas can be problematic. Taken seriously, they suggest an oversimplification of the relationship between creativity and learning and a flattening of the conceptual space that these terms occupy. If learning is defined through a constructivist lens to emphasize meaning making, and creativity is understood as personal insight, then the theoretical overlap inherent in the term "creative learning" could call into question the usefulness of the whole construct (Craft, 2005). Despite—or even because—of these theoretical ambiguities, the idea has flourished. Particularly in the last 20 years, creative learning has made its way into educational policy from east to west. Fashionable and suggestive, the term has long served as a banner to defend progressive educational practices (Rosenfeld, 1958), inspiring pedagogical innovations in schools and universities (Sefton-Green et al., 2011). Today, instead of a tautology, this idea has come to highlight the interdependent relationship between learning and creativity, where conditions and processes long associated with creative activity are leveraged to promote and deepen learning (Beghetto, 2016). In this configurative review we explore how the concept of creative learning is currently understood by scholars and put in practice by educators in today's classrooms.

1.1. Aims and research questions

The purpose of this paper is twofold. First, if it was true that creative learning was a term still "in search of meaning" by the turn of the last decade (Craft, 2011, p. 129), we wanted to know if one—or many—have been found in the ensuing years. One goal of this review, then, is to provide a much-needed overview of features and pedagogical actions associated with creative learning in the academic literature since 2010, when the last landmark volumes on the topic were published (Craft, 2006; Sefton-Green et al., 2011). The second aim is to explore the existence of overarching trends and general approaches associated with creative learning. The review has a broad scope and contains a thematic analysis of 112 scientific articles that either offer a theoretical contribution to the field or enlist creative learning as pedagogical priority in an empirical study. Specifically, the review addresses two questions: (RQ1) what are the constitutive features and actions that characterize creative learning? And (RQ2) what are the overarching themes that can be identified in the literature? With that, our goal is to provide a comprehensive synthesis that not only maps the existing landscape of creative learning but also paves the way for future inquiry in this evolving field.

Using a method of thematic analysis (Saldana, 2021), the review produced four themes that characterize the most common approaches to creative learning as reported in the literature, namely "creative agency over learning", "affective and embodied pathways", "relational ecologies", and "learning by doing and making". Respectively, these approaches emphasize (1) greater student autonomy and epistemic responsibility; (2) attention to student affect and added experiential dimensions of learning; (3) collaboration and other relational dynamics involving people, technology, and the material environment; and (4) practical application and engagement. After an in-depth discussion of these themes, we conclude this review with what we consider to be the key implications for researchers and practitioners. We argue that, although these themes suggest a narrowing of meaning and a welcome degree of scholarly consensus, our findings nonetheless illustrate how "creative learning" has remained a generative idea in today's classrooms.

2. Background

Today, creativity occupies a contested but growing space in institutions of learning. The positive, if modest, relationship between creativity and academic achievement (Gajda et al., 2017) is only a small part in a discussion that weaves together perspectives from several disciplines. The concept of creative learning has offered an important step forward in this debate. From its inception, the term implied a rejection of the "either/or" paradigm that conceptualizes learning and creativity as incompatible and always in competition in curricula. From a creative learning perspective, the relationship between learning and creativity would be one of "both/and", with the two sides of the equation being pursued, ideally, as a single educational objective (Beghetto & Karwowski, 2018). Tracing back the history of this idea, however, is no simple task. Understanding and usage of the term has changed almost continuously and, at any given time, competing definitions are the norm. In the late 2000's, the first collected volume on the topic contained no less than 9 definitions (Craft et al., 2008). Three years later, the publication of an international handbook marked another important milestone (Sefton-Green et al., 2011). Creative learning was, at that point, an umbrella term for a plethora of approaches, agendas, and educational philosophies. Among many other things, it came to stand for democratic and student-centered schools, for a defense of arts education, for a hands-on approach to learning, and even for a solution for technical innovation and economic development (Banjali, 2011). How did we get there?

2.1. Creative learning then

If the concept of creative learning captured the imagination of educators in the beginning of the 21st century with a number of landmark publications and government initiatives, usage of the term goes back almost 100 years. Perhaps the earliest articulation of creative learning in print appears in William Book's extensive work *Economy and Technique of Learning* (Book, 1932). There, the author provides a two-stage genetic account of the learning process: a conditioning phase and a creative phase. He describes the first as the

territory of habit formation or suppression, and the second as the stage where "new adaptative responses" are developed by the learner causing them to change "in certain important respects" (pp. 502–503). In Book's theoretical framework, creative learning is linked to the idea of "learning how to learn" (p. 237), an idea which he in turn associated with personal transformation, the development of mastery, and increased ownership over the learning process (p. 519). This perspective—of creativity as an animating principle in the learning process—is echoed decades later by Paul Rosenfeld in his 1958 article *Creative Learning*. Albeit with important differences, Rosenfeld saw creativity similarly as a pragmatic remedy against rote education, stating that any "learning activity must be creative in order to be of any consequence" (1958, p. 418). His work also anticipates a theme that will later be an important aspect of creative learning, namely an understanding of student-centered education as a necessary part of democratic societies (p. 420).

If these earlier references were responsible to give the idea of creative learning some currency, what followed was a wave of scholarship that remains highly influential in how the term is conceptualized today. Even if the term "creative learning" is not rigorously employed by these authors, current research most often credits the early writings of Guilford (1950), Stein (1963), Vygotsky (1967/2004), Kagan (1967), Barron (1969), and Piaget (1973) for laying the foundations for our understanding of how creativity and learning can interact. Piaget would go as far as to place the "creative mind" at the basis of his constructivist epistemology.

2.2. Creative partnerships: imagination, possibility, and dialogue in schools

While the basis of creative learning had been laid, it would take a nudge from educational policies for the idea to spread. It was only after the turn of the year 2000 that the notion gained widespread interest. Billed as "the most ambitious, biggest and longest running arts education intervention in the world" (Thomsom et al., 2015, p. 2), the UK's Creative Partnerships program unleashed intense national dialogue over how creative learning should be defined and how it should be put in practice. Understanding of the term varied greatly, ranging from the minimal notion that creative learning was simply the "use of imagination to develop learning" (Hobbs, 2007, p. 1), to more extensive formulations connected with the guidelines provided by the Creative Partnerships program. Along this line, Craft, Grainger, Burnard and Chappell described creative learning as

significant imaginative achievements as evidenced in the creation of new knowledge as determined by the imaginative insight of the person or persons responsible and judged by appropriate observers to be both original and of value as situated in different domain contexts (Craft et al., 2006, p. 77).

The mark of these definitions is a preoccupation to, on one hand, assert continuity with traditional perspectives on creativity research (Runco & Jaeger, 2012) and, on the other, provide the grounds from which the idea could be operationalized and assessed (Burnard, 2011). Despite the need to balance these demands, the definition marked a subtle innovation: in it we find a greater emphasis on personal knowledge and in imagination. Beyond these formulas, another important mark of creative learning for these scholars is what they termed "possibility thinking"—that is, "what if" questions combining problem finding and problem solving (Craft, 2001; Burnard et al., 2007). Along with the association between creative learning and personal creativity, the orientation towards possibilities and the unknown is one that continues to find relevance in 21st-century education (Beghetto, 2023).

2.3. Creative learning far and wide

Beyond the Creative Partnerships program, the current state of creative learning has been shaped by several original frameworks and a process of diversification led by widespread adoption. Responding to the demands of a highly competitive knowledge economy, governments employed the notion of creative learning to describe a new brand of innovative, adaptable, and entrepreneurial graduates that they sought to produce (Jones, 2011). This has led to new creative learning frameworks in East Asia (Lin, 2011), the Nordic countries (Tanggaard, 2014), and North America (Sawyer, 2015; Resnick, 2017). The concept has also received a substantial reassessment by Beghetto (2016), who has sought to further develop the connection between creative learning and personal creativity. Beghetto's framework focuses on how students develop understandings and explore how knowledge is constructed in both intra-personal and interpersonal domains. In his model of creative learning, these domains are characterized by two new subconcepts, which he weaves into an original definition:

The first, *creativity-in-learning*, refers to the role that creativity plays in the development of personal understanding. The second, *learning-in-creativity*, refers to the role that sharing one's understanding plays in making creative contributions to others [...] Taken together, creative learning can be defined as a combination of intrapsychological and interpsychological processes that result in new and personally meaningful understandings for oneself and others (p. 9).

Beghetto's model also provides a cognitive-constructivist account of how creative learning can be fostered in the classroom. He provides an assessment of the mechanisms by which students *attend to*, *combine*, and *share* information. According to this model, the capacity to associate discrepant information into new and meaningful understandings based on one's experiences is "a hallmark of accomplished creators" (p. 13). Because of the social component of the framework, elements such as intellectual risk-taking, failure, and psychological safety are also considered and have been developed in further publications (Beghetto, 2018; Beghetto, 2021).

While not exhaustive, the perspectives that were presented here are meant to contextualize the findings of this review. As we explore the literature to uncover what the features and actions associated with creative learning are (RQ1), or its overarching themes (RQ2), this introduction will have offered the reader both the historical precedents and the main theoretical references in the field.

3. Methods

We have employed a configurative approach in this review. Configurative reviews are used to interpret and make sense of a diverse body of literature and are compatible with our goal of producing a thematic synthesis of the literature (Thomas et al., 2017). Unlike aggregative reviews, these are more explorative and interpretative, aiming to produce a holistic understanding of the subject, weaving together the threads of multiple studies into a cohesive narrative (Gough & Thomas, 2017). Because of this interpretative and flexible nature, these reviews are especially well-suited to explore educational research (Levinsson & Prøitz, 2017).

3.1. Sampling strategy and inclusion/exclusion criteria

The search was conducted in two large scientific databases: ERIC and Web of Science. Web of Science was chosen for its broad coverage of high-impact, peer-reviewed research, while ERIC provided the review with a complementary and education-focused sample of articles. Both databases were screened for articles containing references to “creative learning” in either title or abstract (TI= (“creative learning”) OR AB= (“creative learning”)), yielding a total of 965 articles, or 747 after duplicates were removed. Screening was carried out using EPPI Reviewer, a web-based review software. This sample was further refined over three rounds of screening and 7 inclusion criteria (Table 1). The initial search was conducted in January 20, 2023, and an additional, complementary search was conducted on August 2, 2024.

The search captured papers with English abstracts, but which were in written in a language other than English. A number of foreign language articles met the criteria for inclusion in the review (N = 8). This group included articles in Spanish (N = 4) and Portuguese (N = 4). Given that both languages offer direct translations of the term creative learning—respectively “aprendizaje creativo” and “aprendizagem criativa”—we saw no reason to exclude these works. On the contrary, since articles on education are often directed at practitioners in national contexts, including these articles gave us further insight into how creative learning is understood. Articles in languages other than English, Spanish, and Portuguese were not present beyond the first round of screening. Ultimately, 112 articles were included in the review to form the corpus of our analysis (see Fig. 1).

3.2. Analysis

Given the interpretative and explorative goals of this configurative review, we have opted to conduct a thematic analysis on the full text of the selected articles. Thematic analysis is a method of systematic identification, organization, description, and interpretation of data which, when rigorously used, can lead to credible and insightful findings (Nowell et al., 2017; Braun & Clarke, 2006). In this review, thematic analysis was conducted over two rounds of coding, which were followed by a processes of categorization and theming of the data. In line with our research questions and configurative approach, our analysis actively sought out divergent perspectives, aiming at a comprehensive showcase of the definitions, assumptions, and interpretations, ensuring that variations in the discourse about creative learning were adequately captured. The review team consisted of an interdisciplinary group with expertise in creativity, education, psychology, and the arts.

3.3. Coding

The analytical process started with the exploratory coding of the data using Zotero, a free and open reference management software. This initial, inductive round of coding was performed by the first author in approximately half the articles included in the review (N = 50) and involved “tagging” articles with tentative codes. This step allowed us to gain familiarity with the literature and, upon discussion between the three authors, to develop a set of 31 codes that were “summative, salient, essence-capturing, and/or evocative” of the data (Saldaña, 2021, p. 5). A second round of coding was then performed over the entire data set. In line with our research questions, the articles were coded for *features* and *actions* associated with creative learning. During the coding process, *features* were understood normatively, as desired outcomes (e.g., increased student autonomy) or qualities (e.g., play or open-endedness). *Actions*, on the other hand, were interpreted as the ways in which outcomes and qualities were pursued in the classroom (e.g., feedback or simulation). While this distinction between features and actions was not always clear cut, this approach was useful to tease out a high-resolution picture of how creative learning was being understood and instrumentalized. In the following table, we provide examples of how codes were extrapolated from the data along with a brief definitions of the code itself (Table 2). The complete codebook for the 31 codes is provided as a supplementary material.

Table 1
The inclusion criteria employed in the review.

Inclusion criteria
(1) The article was published between 2010 and 2024.
(2) The article was peer-reviewed.
(3) The article was an empirical study or theoretical work, not a review or an editorial.
(4) The article was situated within the field of education or creativity research.
(5) The term “creative learning” was used in the text of the article, not just the abstract or title.
(6) The term “creative learning” was used to refer to a pedagogical approach in connection to existing literature on the topic, not merely as a linguistic expression.
(7) The concept of “creative learning” played a significant role in how the study was designed or in the educational actions that were being reported.

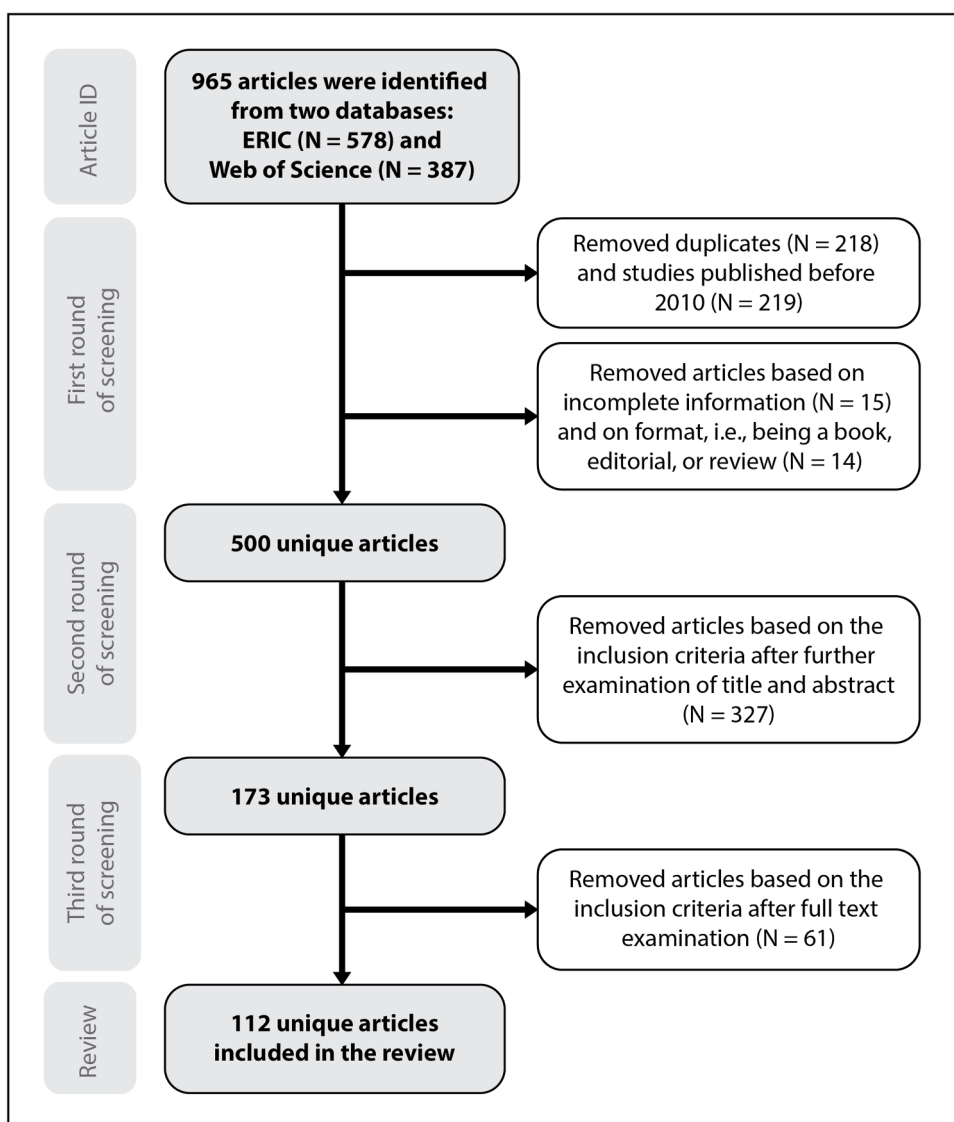


Fig 1. Summary of the identification and screening process.

3.4. Categories and themes

Coding was followed by two other stages of analytic reflection, namely categorizing and theming the data. Categorizing the codes is a step that allows researchers to gain more general, higher-level insight into the object of study (Richards & Morse, 2013, p. 173). While codes are often more specific, relating to observable actions or statements, categories tend to have a more conceptual and abstract quality (Saldaña, 2021, pp. 13–15). Our review ultimately yielded a total of 12 categories, housing 31 codes. These categories describe broad concepts and domains associated with creative learning and are instrumental in drawing connections and configuring codes for further interpretation. As means of example, the codes [feedback], [modelling creativity], [facilitation], [collaboration] and [dialogue] were grouped together under the category of *relation*. While separate these codes allude to specific methodologies, like peer-feedback or providing referenced for creativity through one's own teaching practice, together these codes speak to the myriad of ways in which human interaction is organized and used to potentialize creativity and learning. When this category is further grouped with *technology*, we arrive at the overarching theme of “*relational ecologies*”, which emphasizes the social, material, and cultural forces surrounding the learner. Additional categories that were derived from the codes were *meaning*, *knowledge*, *agency*, *imagination*, *ethics*, *experience*, *affect*, *mastery*, *application*, and *method* (see Table 3).

Table 2

Examples of how codes were applied to the text of the articles.

Codes	Definition	Example
<i>Autonomy</i>	The student is assigned greater control and autonomy over the learning process, both on an interpretative or practical level.	“In order to make learning relevant to the learners, teachers gave students a considerable amount of ‘ownership and control over the materials, techniques and processes’ in order to facilitate innovation.” (Handa, 2015, p. 127)
<i>Motivation</i>	Intrinsic motivation and affective engagement are described as significant components in learning.	“There was very little noise from student conversation but the frenetic energy created by the students realizing their ideas filled the room. [...] What had been achieved was an autotelic activity, with the first real signs that creative learning could foster a sense of intrinsic motivation, drawing out varied and personal meanings for participants.” (Corner, 2012, p. 124)
<i>Collaboration</i>	Collaborative, participatory, and co-creative strategies are present.	“[...] we also explored the conditions students identify as being important to stimulating creativity in a collaborative peer feedback and critique-driven environment.” (Budge et al., 2013, p. 154)
<i>Simulation</i>	Learning is facilitated through a simulated process or environment—as in a virtual task or a role-playing exercise.	“[...] virtual reality/augmented reality could provide a learning environment that highly simulated real situations. An imaginative learning space can help students to enjoy a game-like learning environment and find creative fun in the learning process.” (Chen et al., 2022, p.148)
<i>Feedback</i>	Instructor or peer feedback is used in the study.	“For [the informant], the important feature of this process was that all knowledge was publicly shared as the exercise unfolded, enabling participants to make contributions in relation to the offerings of others.” (Harper, 2022, pp. 22-23)
<i>Meaning making</i>	Students are engaged in an interpretative, constructivist process of meaning making.	“Students interpret new experiences through the lens of their existing knowledge. This sense-making process is a combinatorial and creative process.” (Beghetto, 2016, p. 11)
<i>Open-endedness</i>	Learning activities are open-ended and allow for multiple solutions or outcomes.	“This could be categorized as an open-ended problem with a myriad of possible solutions, especially considering students’ differing points of view.” (Costantino, 2015, p. 1)
<i>Play</i>	Play (as in game-based learning) or playfulness (the general quality of action or interaction) are referenced in the study.	“[...] the benefit of playful imitation in a relational learning space was evident in the first exercise of the opening session: a simple activity called a Totem Build, in which participants were invited to collectively build a monument out of a pile of assorted junk, without verbally negotiating how they might do it.” (Harper, 2022, p. 22)
<i>Reflection</i>	Emphasis is placed on reflective and metacognitive strategies to support learning.	“This positionality illuminates the creative writing workshop as an aesthetic hermeneutic and identifies the process of writing creatively as a reflexive and reflective one; as the writer creates, she is also created by the act of creating [...]” (Howe & Van Wig, 2017, p. 142)
<i>Facilitation</i>	The teacher is described as a facilitator of the learning process, taking on a less active and constructive role.	“The instructor as a facilitator focuses on the process of the group and acts as a ‘critical friend’ who facilitates group work effectively but does not take an active role in the content of the group work and problem-solving.” (Juusola, 2023, p. 104)
<i>Materiality</i>	Learning is facilitated through objects, tools, or the material environment.	“The resistance from the material worked with is central for provoking and enlarging one’s own ways of working.” (Tanggaard, 2014, p. 112)
<i>Skill-oriented</i>	Skills and competencies are listed as priorities or significant outcomes of learning.	“[T]he issue of skills is significant [...] I perceive skills—here understood as vocative and subject-specific—as contributing to confidence and supporting trust.” (Holdhus, 2019, p. 695)

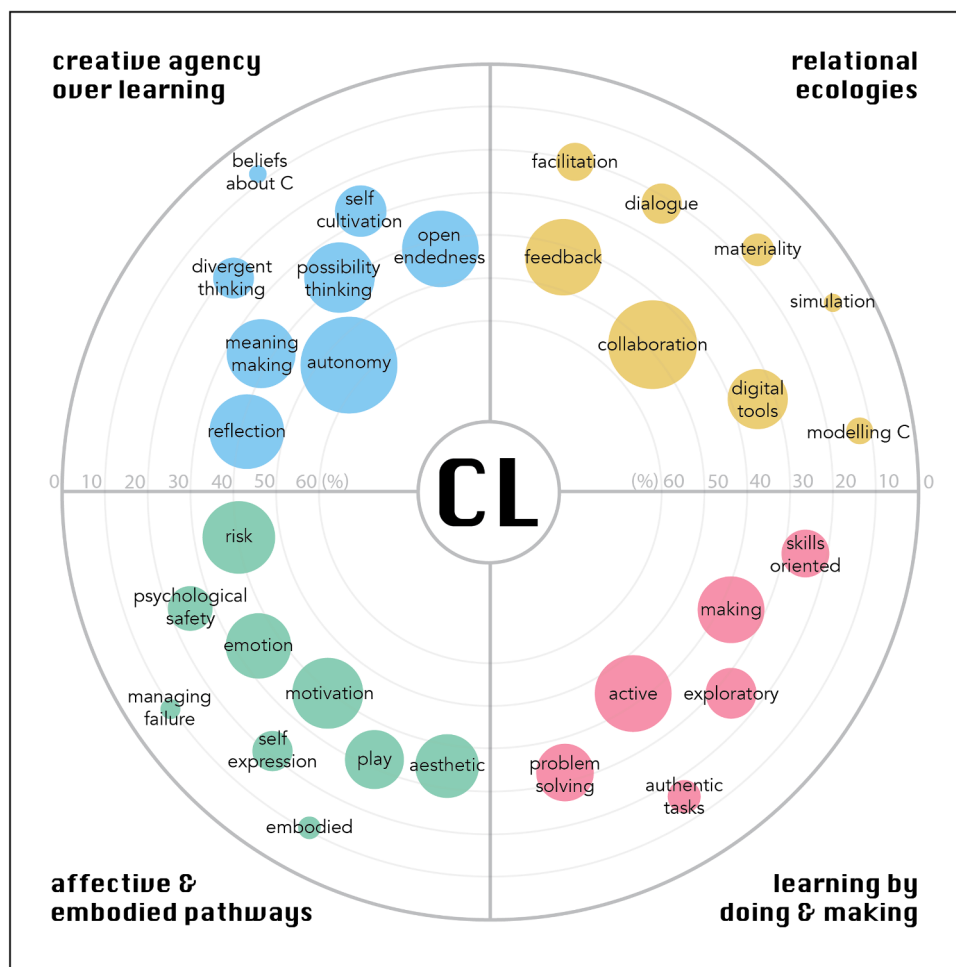
4. Findings

In the course of this configurative review, we have set out to discover what are the features and the practices associated with creative learning in the academic literature. Our analysis of 112 articles published between 2010 and 2024 has discerned four interconnected but distinctive themes which summarize the ways in which creative pedagogies are understood and put into practice. First, we encountered a persisting emphasis on the idea of “*creative agency over learning*”. Often linked to constructivist perspectives on knowledge, this theme is present in much of the literature and highlights the importance of increasing student ownership over the learning process. In classrooms where this approach was prevalent, we found an emphasis on open-ended designs supported greater student autonomy, meaning making, imagination and reflexivity. Another major thread was seen in articles exploring the “*affective and embodied pathways*” that facilitate or hinder learning. Studies in this group emphasize various epistemic roles that affect, play, and artistic experience have in kickstarting creative insight by supporting different modes of learning—e.g., embodied, aesthetic, or emotional. Additionally, we also found that articles frequently emphasized the importance of interaction, a thematic thread we named “*relational ecologies*”. These articles point to the facilitating function of sociotechnical resources and explore both new modes of collaboration and the introduction of new educational technologies. Finally, the idea of “*learning by doing and making*” was also highly significant. This theme was supported by a rich body of literature engaging with active-learning approaches, underscored by the value

Table 3

Organization of codes, categories and themes in the review.

Codes	Categories	Themes
[meaning making]; [self-cultivation]	<i>meaning</i>	“Creative agency over learning”
[beliefs about creativity]; [reflection]	<i>knowledge</i>	
[autonomy]; [open-endedness]	<i>agency</i>	
[possibility thinking]; [divergent thinking]	<i>imagination</i>	“Affective and embodied pathways”
[psychological safety]; [risk taking]; [managing failure]	<i>ethics</i>	
[embodied]; [aesthetic]; [play]; [motivation]	<i>experience</i>	
[self-expression]; [emotion]	<i>affect</i>	“Relational ecologies”
[feedback]; [modelling creativity]; [facilitation]; [collaboration]; [dialogue]	<i>relation</i>	
[digital tools]; [simulation]; [materiality]	<i>technology</i>	
[skill-oriented]; [authentic tasks]	<i>mastery</i>	“Learning by doing and making”
[active]; [making]	<i>application</i>	
[problem-oriented]; [exploratory]	<i>method</i>	

**Fig 2.** Creative learning codes organized by theme are relative presence in the literature. Circle size and proximity to the center indicate how often articles were tagged with a given code.

of hands-on, problem-oriented, and true-to-life experiences in learning. A visualization of these themes, showing the comparative prevalence of individual codes, can be seen in Fig. 2. In what follows, we explore these four approaches in detail.

4.1. Creative agency over learning

The most important theme to emerge from our analysis is the idea of creative learning involving a heightened degree of agency over the learning process. Across multiple studies this notion of empowerment and epistemic ownership is linked to a vast array of pedagogical benefits. While these principles were sometimes valued as an outcome in themselves, more often they were seen as a precondition of student autonomy, personal meaning-making, and open-endedness in classrooms (Kangas, 2010). In this theme, agency is understood as both the capacity of students to influence learning and an intellectual responsibility to partake in the production of knowledge. This increased focus on student agency is commonly linked to transversal goals of developing more democratic learning environments (Hay, 2022) and complex and generative learning dynamics (Sawyer, 2015). The salience of this theme is, to a significant extent, an indictment of traditional learning as “algorithmic” and “poorly engaging,” leaving little room for creative skills to come into play (Karwowski, 2022, p. 268). Against this picture, creative learning is described as “agentic” (Hay, 2022, p. 524) and “personally meaningful” (Beghetto, 2016, p. 9), sprouting from students’ motivations, circumstances, and resources rather than direct transmission from the instructor.

Underlying this constructivist and interpretative perspective of learning is an emphasis on metacognition. Articles in this review often subscribe to use of reflection to spark divergent- and possibility-oriented thinking (Craft et al., 2014; Núñez-Gómez et al., 2020) as well as to unpick student’s epistemic assumptions about learning and creativity (Ho, 2021). This is a literature rich with original reflective exercises. A distinctive example is Burnard’s “Rivers of Experience” tool, which prompts pre-service music teachers to chart and narratively interpret the critical phases in their “creative learning journey” (Burnard 2012, p. 167). In speaking about her own experience with the tool, she draws attention to the ways in which it has

illuminated the trajectory of my career in a way that set me off on a path of reflection on particular phases, making sense—often for the first time—of choices taken and preferences made, which subsequently involved a reassessment of my priorities (p. 176).

She described the creative insights engendered by the tool as a “testament to the catalytic way in which the act of reflection [...] provokes thought and demands action” (p. 177). An analogous example, reported by Malka (2022), involves the use of a method called ‘photovoice’ as a creative learning tool. In this study, students involved in social work were asked to present a daily photograph as means of starting a dialogue in their seminar group about critical topics. The author proposes that creating and discussing the photovoice journals brought about “an awareness of cultural sensitivity principles, dialogue, reduction of power relations, knowledge exchange, and respect for local knowledge”, all of which are important hallmarks of social work (p. 15). In these studies, and indeed across the whole theme of “creative agency over learning”, we could corroborate what creative learning advocates have defended, namely that these practices, especially when geared towards reflection and sense-making, “function not only as vehicles for creativity but also as means for agency, responsibility, and self-determination” (Holdhus, 2019, p. 697).

4.2. Affective and embodied pathways

If facilitating reflection and greater student agency are important tenets of creative learning, a significant correlate is the affective risks associated with novelty and personal expression (Sawyer, 2019; Beghetto, 2021). Indeed, concerns with psychological safety were commonly reported in the literature (Beghetto, 2016; Holdhus, 2019; Hernández-Romero & Sun, 2021). We have interpreted these concerns as part of an overarching focus on the experiential and emotional underpinnings of learning, and thus named the second theme “affective and embodied pathways.” This theme includes articles dealing with often-overlooked drivers of learning, such as the embodied (Anderson, 2018; Bird & Sinclair, 2019), the aesthetic (Aerila & Rönkkö, 2015), the playful (Kangas, 2010; Howard, 2021), and the humorous (Handa, 2015; Aerila et al., 2023). More than anything, articles in this group are characterized by an effort to multiply modalities of knowing in the classroom, drawing attention to the ways in which pedagogical opportunities are opened by practices emphasizing sensing, feeling, and expressing.

Unsurprisingly, a significant number of articles in this group deal with the arts, with studies dedicated to music (Beineke, 2018), drama (Bird & Sinclair, 2019), dance (Mattsson & Gripson, 2024), and narratives (Pantaleo, 2019). But if the association between creative learning and the arts was to be expected, what is interesting is the way in which approaches from these domains have trickled down into other areas. From the use of African aesthetics to motivate computing projects (Eglash & Krishnamoorthy, 2011), to the pursuit of flow states in astronomy classes (Chen et al., 2022), to an exploration of the affective and ethical implications of ontological metaphors in nursing education (Milton, 2012), what emerges is a mosaic of experience-oriented and methodologically flexible practices.

4.3. Relational ecologies

From a socio-cultural perspective, creativity is always mediated and relational (Glăveanu et al., 2020; Ness & Dysthe, 2020; both outside of this review). Indeed, across the articles that make this study, creative learning is often explicitly pursued as a product of interaction—with people (Hunter et al., 2014), with material resources (de Bortoli & Castaman, 2020; Randolph et al., 2016), through media (Palenque, 2016), and against the backdrop of a given cultural environment (Agbozo & ResCue, 2021). Under the articles that make up the theme of “relational ecologies”, the mediated and interactive character of learning is thoroughly explored. Indeed, we find

that it is often in the emerging possibilities provided by new social and technical interactions that creative learning takes place (Jeldes et al., 2022).

On one side, this theme encompasses frameworks that emphasize facilitation, collaboration, and dialogue. For instance, a model for peace education based on relational hermeneutics (Alnufaishan, 2020) characterizes creative learning as actionable new understandings sparked by critical self-reflection, consideration of other perspectives, and integration of divergent "cultural horizons" (p. 90). Another example is found in Chappell and Craft's "creative learning conversations" (2011). Their framework addresses the stringent culture of academic performance in England through a dialogic model of 'bottom up' community engagement in schools. While these models provide unique visions of creative change, they stand in a continuum of socially mediated interventions, along which we find strategies like peer-feedback (Beineke, 2018), mentoring (Davies, 2013), and co-creation (Kumpulainen et al., 2014). Together, they form an extensive repertoire of relating that characterizes one half of this theme.

The other side of this theme centers on technical mediation. A significant number of studies deal with the how tools—both physical and digital—shape, augment, or reconfigure possibilities for learning. From the experimental use of augmented reality (Lu, 2010), to problem-solving LEGO workshops (Al-Jayyousi & Durugbo, 2020), and online communities of learning (Gabaree et al., 2020), technologies are often used to facilitate inquiry and provide experiences that would not be viable otherwise. Virtual worlds are a good example of how such experiences can be facilitated, as shown in a study of how virtual field trips offer students a more exploratory and situated learning experience (Fitzsimons & Farren, 2016). On their virtual trip to Mecca, a participant described the experiences of moving around, of taking part in religious rituals, and remembering everything afterwards in vivid detail (p. 12). Another thread underscoring the relevance of technical mediation is the growing use of generative artificial intelligence in educational contexts. Recent studies highlight the role of AI as a "relational artifact" capable of infusing divergent and metacognitive elements into students' creative processes (Lim et al., 2023). Taken together, these studies offer us great examples of how students learn *in* and *through* relation, interacting with each other and with their technical landscape.

4.4. Learning by doing and making

The final theme that we have identified is the idea that creative learning is not a process that precedes action—that is, not something that needs to happen before students are tasked with a problem or a project—but something that is driven by a practical and authentic engagement with subject matter. Often informed by constructivist ideas, articles under this theme employ a great repertoire of learning principles. Among other pedagogical priorities, these studies emphasize hands-on work (Kangas, 2010), practical heuristics (Budge et al., 2013), problem- and project-based learning (Hong et al., 2013), co-creation (Bird & Sinclair, 2019), tinkering (Xanthoudaki & Blanton, 2021), and authentic tasks (Rosen et al., 2020). Because of their generative character, constructionist projects tend to be carefully designed and follow principles that are, by now, familiar in other themes in this review. One of them is the concept of "wide walls". According to Presicce and colleagues, wide-walls activities

do not have a "right answer" or a specific similar outcome expected for everyone. On the contrary, [they] allow for a vast diversity of projects as an outcome and promote multiple pathways into the learning experience" (2020, p. 701).

Another important principle is that tasks should have a "low floor" and a "high ceiling," allowing for students to undergo meaningful educational experiences at a variety of levels and multiple end goals (Presicce et al., 2020, p. 701). Together, these principles allow projects to "meet" students at their stage of development, while making room for diverse skill sets and motivations. The challenge, for educators, "is to succeed in creating intuitive [projects] that offer openness and freedom" (Jeldes et al., 2022, p. 28).

WeScratch workshops are a case in point. A response to the COVID-19 pandemic, they consist of online hands-on meetings where participants can develop computational thinking through coding projects and along with peers from all over the world (Presicce et al., 2020). The workshops avoid long lectures on programming—learning happens as participants grapple with the programming language itself, Scratch, which was designed to be as intuitive, inviting, and playful as possible. The three-step template for these meetings is simple: participants *greet*, *make*, and *share*, always with a pragmatic orientation (697–698). Initiatives like this are emblematic of this final theme, and they highlight learning as a practical and creative process—a perspective that models how learning happens outside of classrooms but which is often downplayed in traditional schooling (Campos de Almeida et al., 2022).

4.5. Thematic connections and summary

Thinking about creative learning through these themes is helpful because they organize what is otherwise an expansive landscape of practices. In this synthesizing effort, however, we risk losing sight of the connective thread that defies those thematic boundaries and losing, with that thread, a more transversal understanding of what makes creative learning a compelling idea for so many educators. It is essential to not treat these themes as not silos of disciplinary practice, but dynamic perspectives on learning that share a relatively stable set of priorities: student autonomy, imagination, reflection, interaction, affect, practical application, and so on. Building on previous definitions, particularly Beghetto's (2016), we suggest that, at its core, *creative learning is a learner-driven process that emphasizes epistemic agency, interaction, and direct creative engagement with the subject matter. It is an eclectic approach to learning that mobilizes affective, sensory, and intellectual resources to produce new and meaningful understandings for the learner.* We find this characterization to be in line with both practice and theory, and to carry useful implications for educators.

5. Discussion

We begin this discussion where we started: with those students at the Altos de Lircay reserve, exploring their landscape through the “soundmasks” they had designed. Learning *with* the world, not *about* the world (Jeldes et al., 2022). Where does a project like the Aconcagua FabLab Aconcagua FabLab fit in our findings and what does it tell us about creative learning? Despite its focus on practical design and prototyping, the lab bridges several of the themes we have identified. At a first glance, it might seem like a typical “maker” workshop that democratizes fabrication technologies by giving young people a first design experience, but it goes beyond that. Like many of the studies we have reviewed, the initiative is multifaceted. Extending beyond the traditional constructivist blueprint, it incorporates reflexive and experiential components, cobbling together methodologies from several disciplines into a highly compelling and open-ended educational proposition. While the center of gravity is its creative engagement with technology, the experiential and reflexive dimensions of the exercise are not ornamental nor auxiliary. In fact, they add dimensions that safeguard the initiative from falling into disciplinary traps—in this case, a fetishizing and uncritical relationship with technology (Kaufman & Glăveanu, 2023).

The codes and themes presented in this review are useful because they answer our original questions and outline general trends in how creative learning is operationalized. Taken together, our findings offer insight into the practices and values that are associated with this term, providing a rich picture of the many ways in which seemingly disparate approaches can be linked. This is an important insight to emerge from this review. Creative learning often reaches out across thematic boundaries, with eclecticism being the norm rather than the exception. This explains why most studies in this review consistently pushed back against categorization and why codes like *autonomy*, *collaboration*, *active*, and *open-endedness* came up so consistently across themes. What this means is that, at the individual level, studies would be best described as an overlap of several of our themes—e.g., “*making in relation*”, “*affective pathways towards agency*”, and so on. We are brought to conclude that a distinguishing feature of creative learning classrooms is precisely their readiness to weave together such a diverse set of priorities, methods, and goals.

The picture of creative learning that has emerged is a complex one. The concept has spread far and wide, propelled by national educational agencies on one hand and, on the other, practitioners and scholars who found in this concept a useful notion with which to reimagine education (de Oliveira & Gallardo-Echenique, 2015, p. 78). Like creativity itself, creative learning is perhaps best understood as dynamic and culturally situated idea (Glăveanu et al., 2020). This dynamic perspective would, at least in part, explain the longevity of a term which is effectively a century old. If no single framework of theory has become synonymous with creative learning, the term’s association with personal creativity, meaning-making, relationality, and hands-on learning has proven to be enduring. It is also useful to think of “new and meaningful understandings” (Beghetto, 2016, p. 9) as a creative learning outcome precisely because it suggests a process that is both dynamic and authentic to the learner, while pedagogical pathways are left open. The question facing educators is how to go about it—how to create the right conditions and how to sow the seeds of creative insight. The themes that have been uncovered in this review offer some answers.

5.1. Practical implications for educators and future research

A number of recommendations can be derived from our findings. Educators interested in fostering creative learning should strive to promote student autonomy. Empowering students with an adequate level of epistemic agency can function as a foundation for many of the virtues associated with creative learning—such as reflexivity, use of the imagination, meaning making, problem-solving, and motivation (Hay, 2022). One key pedagogical strategy to shift agency towards the students is the use of open-ended or ill-structured problems, which encourage students to creatively construct knowledge against a set of constraints rather than to pursue a single “correct” answer (Constantino, 2015). Another important principle is the use of practical, hands-on tasks—like real-world problem-solving—that can also make learning more creative, engaging and relevant (Kangas, 2010; Presicce et al., 2020). Creative learning practitioners should also strive to promote new “relational ecologies”—i.e., new ways in which students, teachers, and the technical environment can be put in relation by a pedagogical design. When properly orchestrated, interaction is an almost inexhaustible source of ideas, differences, and affordances that students can draw from for their own development (Gabaree et al., 2020). With the rapid development and uptake of generative artificial intelligence, we expect these relational ecologies to be one of the most important areas of research in creative learning scholarship.

Finally, we also call on both educators and researchers to consider how the affective and experiential domains impact learning. Learning always carries an affective and embodied dimension, but these modalities of experience have been traditionally neglected or impoverished by our education systems. As seen in this review, creative learning practices should aim to consider the affective demands that are placed on students and to cultivate modes of knowing that can complement critical engagement. This can be done by addressing the emotional risks involved in learning (Budge et al., 2013), taking steps to recontextualize failure (Smith & Henriksen, 2016), facilitating self-expression (Aerila et al., 2023), and making room for embodied and aesthetic experiences in the classroom (Anderson, 2018). While these recommendations mirror the thematic structure suggested by our analysis, we should also stress their transversal and mutually supportive character. We should think, for example, that creative learning pedagogies are empowering precisely *because* they are engaging, collaborative, and stimulating; or that they are experientially rich *because* they are relational, reflexive, and true to life.

5.2. Limitations

This review has important limitations stemming from its configurative approach and epistemological position. In choosing to explore variation of understanding and practice, we adopted a relativist perspective that resists clear-cut definitions and critical

assessment of its parts (Gough et al., 2012). Our goal was never to produce such an assessment. Autonomy, reflexivity, motivation, added modes of experience, leveraging human interaction and technology, practical engagement—all of these are known to be important components in learning. Still, practitioners looking at the review for inspiration will have found a number of tried-and-tested approaches that exemplify the changes creative learning scholars have been calling for (Beghetto & Kaufman, 2014; Sawyer, 2015). The projects that have been highlighted offer us, if not a roadmap, a set of success cases from which researchers and educators can draw from. Educators will without a doubt be able to locate themselves somewhere in the constellation of practices that we have identified here. Our hope is that this study may suggest new ways to enrich their classrooms and a more complete understanding of what creative learning is or can be.

6. Conclusion

This configurative review sought to present a much-needed overview of features and practices associated with creative learning in the academic literature since 2010. After carrying out a thematic analysis of 112 articles, we have identified 31 codes and 4 overarching themes that characterize the ways in which creative learning is discussed by scholars and pursued by educators. The themes that have been uncovered in this review emphasize that creative learning is commonly pursued through:

- (1) greater student agency and responsibility over meaning-making processes;
- (2) additional dimensions of learning experiences—e.g., the embodied, affective, aesthetic;
- (3) new relational ecologies involving people, tools or the material environment; and
- (4) practical and authentic tasks, underscored by making and problem-solving principles.

While these trends are useful to understand general approaches, we have also argued that these findings should not be taken as a prescriptive guide. Instead, this study has aimed to provide an eclectic picture of how creative learning is understood today, contrasting these general trends with the generative possibilities that underscore much of the literature on the topic. We have argued that a distinctive feature of creative learning seems to be an effort to weave together diverse sets of educational priorities, methods, and goals. We have suggested that this eclectic approach not only sets creative learning classrooms apart, but that it safeguards learning from disciplinary shortcomings.

CRedit authorship contribution statement

André Rabello-Mestre: Writing – review & editing, Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Ingunn Johanne Ness:** Writing – review & editing, Supervision, Conceptualization. **Vlad Petre Glăveanu:** Writing – review & editing, Supervision, Conceptualization.

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Data availability

No data was used for the research described in the article.

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