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Arts Based Research and Digital Technologies as Fulcrums for Educational Transformation

La investigación basada en las artes y las tecnologías digitales como puntos de apoyo para la transformación educativa

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Abstract

This article outlines the ways in which Arts Based Educational Research (ABER) has informed the art teacher training program in the Aristotle University (AUTH) School of Visual and Applied Arts in Thessaloniki, Greece. ABER informs my research, as well as my teaching practice in which I employ methods such as art sketchbooks in a quest to encourage a lasting synergy between the Teacher and the Artist identities. This article also presents the theoretical underpinnings of such arts-based approaches employed both in educational research and teaching methodologies. The main goal is to build a mentality in which the sensibilities and methodological advancements gained through the art students' artistic practice will form the basis for their future arts-based educational approaches as teaching artists, and moreover, researchers. Furthermore, I present instances of EU-funded projects, (namely, Come2Art and CREAMS) in which the integration of new

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
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Monográfico Extraordinario XII
Octubre 2026

media, or digital technologies, such as extended reality (XR) with the aim of enhancing art students' creativity and consequently, serve as pedagogical tool. In CREAMS, art students are provided with XR-based tools and applications that enable them to create virtual art exhibitions, exploiting the capabilities of digital environments to foster interactive, meaningful engagement. This is achieved primarily by adding multimodal contextual resources linked to artworks. The main digital application is inspired by the visual narratives explored during the art teacher training and in a symbiotic manner, in turn, inform my teaching practices. The article concludes with a third research project (FIREFLY) and finally summarises the findings and possible insights gained to provide useful inspiration in the wider field of arts education researchers and practitioners.

Keywords: Art Education, Arts-based research, Educational methodology.

Resumen

Este artículo describe las formas en que la Investigación Educativa Basada en las Artes (ABER) ha informado el programa de capacitación de maestros de arte en la Escuela de Artes Visuales y Aplicadas de la Universidad Aristóteles (AUTH) en Tesalónica, Grecia. ABER informa mi investigación, así como mi práctica docente en la que empleo métodos como cuadernos de bocetos de arte en una búsqueda para fomentar una sinergia duradera entre las identidades del Maestro y el Artista. Este artículo también presenta los fundamentos teóricos de tales enfoques basados en las artes empleados tanto en la investigación educativa como en las metodologías de enseñanza. El objetivo principal es construir una mentalidad en la que las sensibilidades y los avances metodológicos obtenidos a través de la práctica artística de los estudiantes de arte formen la base de sus futuros enfoques educativos basados en las artes como artistas docentes y, además, investigadores. Además, presento ejemplos de proyectos financiados por la UE (a saber, Come2Art y CREAMS) en los que la integración de nuevos medios o tecnologías digitales, como la realidad extendida (XR), con el objetivo de mejorar la creatividad de los estudiantes de arte y, en consecuencia, servir como herramienta pedagógica. En CREAMS, los estudiantes de arte reciben herramientas y aplicaciones basadas en XR que les permiten crear exposiciones de arte virtuales, explotando las capacidades de los entornos digitales para fomentar un compromiso interactivo y significativo. Esto se logra principalmente agregando recursos contextuales multimodales vinculados a las obras de arte. La aplicación digital principal se inspira en las narrativas visuales exploradas durante la formación docente de arte y de manera simbiótica, a su vez, informan mis prácticas docentes. El artículo concluye con un tercer proyecto de investigación (FIREFLY) y finalmente resume los hallazgos y las posibles ideas obtenidas para proporcionar inspiración útil en el campo más amplio de los investigadores y profesionales de la educación artística.

Palabras clave: Educación Artística, Investigación basada en las artes, metodología educativa.

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

1. Introduction

This article conveys and elaborates on the main points of the presentation made at the 8th International Conference on Artistic Research and Arts Based Research under the auspices of the University of Girona (Girona, 20-22 November 2024). It outlines the ways in which Arts Based Educational Research (ABER) has informed the Art Teacher Training program at the School of Visual and Applied Arts, Faculty of Fine Arts, Aristotle University (AUTH) of Thessaloniki, Greece. ABER has been employed in my research, notably during my doctoral research which resulted to one of the very first arts-led PhDs in Art Education (at the Institute of Education, University of London, 2011). This experience informs, as a point of reference my research and practice as University Lecturer responsible for the Teaching Training Program that concerns Art Students. Therefore, an outline of its underpinnings and methodology is offered in this article.

My main concern, based on my own research interests and teaching approaches, is to enhance a synergy between the Teacher and the Artist identity and foster respective methodologies for learning, and meaning making in the field of art education. I therefore present furthermore in this article, the arts-led methodology employed at the AUTH School of Visual and Applied Arts, that invests in the creation of Art Sketchbooks with a strong personal, autobiographical dimension. This is an integral part of art students' hands-on training in respective methods in art education, alongside other approaches in which their artistic practices and research converge with their nascent educational methodology.
The main goal is to build a mentality in which the sensibilities and methodological framework, gained through the art students' artistic practice, will form the basis for their future arts-based educational approaches as teaching artists. Moreover, I focus on the ways in which art students explore through their artistic creativity, connections between art and pedagogy. In this context and as part of EU-funded research projects (namely, Come2Art and CREAMS) I present the integration of new technologies and especially Extended Reality (CREAMS project) as tool for the enhancement of art students creativity both as a tool for their own advancement and as prospective means for supporting their future school students' own creative journeys.

In this specific project (i.e. CREAMS) Art Students are provided with Extended Reality (XR) tools and applications that enable them to organize art exhibitions that do not only use ICT to show their work but most importantly exploit the capabilities of XR as fulcrum for generating more meaningful audience engagement, with the inclusion of digital resources that show their research and artworks in context through the use of multimodal material. The way digital tools are developing has been informed and inspired by the arts-based often autobiographical visual narratives explored during the Art Teacher Training that is based on ABER and influenced by A/r/tography. In fact, art students who at the same time are trainee art teachers provided constant feedback and most importantly shaped much of the final functions and form of the tools through their input.

The article concludes with an overview of the actual outcomes of these research programs with reference made to the insights gained that may be useful for the wider art education community, as well as to the possible direction for future research.

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

Arts led research in art education: Instances of research and practice

> "[Practice] is unaware of the principles that govern it and the possibilities they contain; it can only discover them by enacting them, unfolding them in time"
>
> Bourdieu, P. (1990)

Arts-led research in both art and art education strongly relates to theoretical frameworks that underpin the very concepts of knowledge and practice. t Pierre Bourdieu, a sociologist who exerts major influence in the field of arts-based research mainly through his conceptualisations of the two key terms, cultural capital (Bourdieu 1985) and embodied practice (Bourdieu 1990). I see fit to make a couple of introductory remarks, initially, on the importance and relevance of Arts-led research today using this quotation. His contention draws attention to the importance of practice as a form of knowing, and of producing knowledge, as well as a way of thinking - Bourdieu says that practice can discover what it is unaware of, by enacting it. He therefore seemingly gives to practice the status of a thinking subject, pointing towards its capacity to act as a vehicle for thought; this quote has often been brought forward by the proponents of a paradigm shift that has added legitimacy to practice-led or arts-led methodologies of research initially in the field of visual arts.

In a recent lesson, I used this quotation to highlight the fact that art students can enrich their pedagogical practice, or for that matter, the educational research that they may undertake in the future, by using the ways they generate knowledge as artists; that is to say, by means of creative, highly personal, exploratory journeys. As Bourdieu shows, art practice is a vehicle for heuristic knowledge, a term that describes the process of learning through discovery. Bourdieu eloquently explains that art practice discovers the principles that govern it through unfolding them in time. Time is an essential dimension, and this quotation highlights the importance of the creative process rather than its result.. Emphasis on the temporal, procedural aspect of unfolding the possibilities that govern practice shows that knowing is doing, enacting, (or, making, in the arts); something that contradicts the tenets of result-driven educational curricula which reflect the sectors of business, production, and more widely, economy where efficacy is judged by the end result and immediate turnout while stigmatising mistakes[1]. Exploring educational practices in the ways teachers with arts background explore possibilities in their artistic research, as a process, necessitates time, affords instances where things can go wrong, and aims at discovering the possibilities that art practice contains through discovery, even by trial and error.

At this point I would like to draw attention to another aspect of this conceptually dense quote; namely its reference to the 'possibilities that the principles which govern practice contain' (emphasis added). Here, art practice, and more specifically artworks, through which it materializes, are seen not as end points of a procedure but as bearers of

1 As Ken Robinson (2007) eloquently puts it in a now famous TED talk about creativity and (art) education. See https://www.youtube.com/watch?v=iG9CE55wbtYCt=346s

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

infinite possibilities to be discovered and disseminated. This brings to the fore the notion of the prototype as formulated by Graeme Were (2010). Graeme Were (2010, p.267-272) delineates the nature and significance of the prototype as a nexus of relations, ideas and intentions which functions as agent:

> One of the crucial issues raised by prototypes is how they present us with the capacity to generate variation. Such questions have been tackled head on in anthropology in the work of Alfred Gell (1998), who examines artefacts and prototypicality. For Gell, artefacts are agents capable of acting in ways analogous to persons through their facility to engender social relations. They are designed with complex intentionalities in mind, so much so that the design of an artefact cannot exist in isolation; rather, Gell argues that an artefact encompasses a set of ideas that are carried through the various possible forms it can take on.

The temporality of the prototype is ambiguous: it encapsulates the preceding instances of practice, while it points to its own future modifications. In effect, it functions as the agent that will bring these advancements about, by providing itself as the platform for their realisation. This is the function and intention of art practice, and by extension of arts-led educational research in the field of art education: to generate ideas, reformulations, and above all, social relations as fulcrums for advancement.

In the same vein, art teachers can learn through discovery about the principles that govern teaching and learning through the arts, by enabling arts-led methods to unfold in journeys of self-reflexive practice.

Starting the delineation of my practice I see fit to provide some context in relation to my own background. After training as an artist, I had the opportunity to study at a postgraduate level at a very encouraging environment that promoted and still promotes the concept of Practice-led educational research: namely, the Institute of Education, University of London -now part of UCL. There, at the end of each year students following an optional art-based route will show their work, often installations, that are the visual component of their research that also has a theoretical aspect, interrelated with the artworks produced during and as result of their educational research. I was encouraged to do my PhD following an arts-led route moving into almost uncharted territory as I started several years before, a time when Arts based educational Research (ABER) as a methodological paradigm was not well established and its legitimacy remained under question especially in the domain of social sciences.

My practice-led research there (MA, PhD, Postdoc) took the form of a synergy between theoretical investigation and art installations, reflecting and amplifying my theoretical investigations which in turn brought new energy and confidence into the creation of installation artworks. So, this was a two-pronged effort of two symbiotically related methods: thinking through art and thinking through language on the principles that govern art education.

The opening statement of a book chapter that related to my doctoral thesis, that also reflects the main concerns of the tutors supporting the PhD (Nicolas Addison mainly, and Lesley Burgess) is the following:

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

> All too often art teachers in schools find that their art practice falls away as the demands of teaching take over from their own creative practice. But is this separation inevitable? The teaching artist' might prevent this disjunction by crossing the borders between art and art education. What I propose here is a hybrid field in which the hierarchical distinctions, for example between teacher and learner, word and image, are questioned and the voices of students legitimised. (Dafiotis, 2012)

The hybrid identity of the teaching artist as a concept, is pivotal in my research and practice as an academic working at a School of Visual and Applies Arts preparing future generations of art teachers who are at the same time, visual artists. The teaching artist is envisaged as an active agent, who adapts, incepts, and re-configures arts-led methods according to his or her aims and sensibilities. A teaching artist who uses the methods that allow art to keep certainties and dogmas off balance can create open, dialogic as well as reflexive spaces where art practice, art pedagogy and art education meet. Mörsch (2007), who managed 'documenta 12' (2006) arts-led educational projects, favoured co-authored, 'team-based' research approaches. Such dialogic, non-hierarchical approaches incorporate a reflexive element, as they investigate 'not only the limits to the concept of the voice but also its deconstruction via manners of presentation' (p.39). Although significant time has passed form such calls from the early period of establishing arts-based educational methods as valid, there is still the need to defend, promote and foster the inclusion of such methodologies.

Before proceeding with presenting instances of art education-related research in which new digital media and emerging technologies such as extended reality applications, I think it is important to better situate my educational practice and philosophy with reference to one arts-led doctoral/postdoctoral research at the institute of Education, University of London.

The practice-led methodology employed encompassed a series of installations that have been constructed as 'sites for meaning making'[2] vis- à-vis art education. These installations have embodied, communicated as well as reshaped my understanding of relevant theory. Furthermore, my studio practice evolved in such a way that it has allowed me not only to discern art's pedagogic potential but also to break new ground in my own artistic practice. People can learn from an artwork when it is evident that its maker has learned in the process of making it; when it embodies learning. In other words, arts-led methods in education necessitate that artists enrich and advance their ability as artists in the process.

The last installation (The Benevolent Trap', 2010) marked a turn towards relational aesthetics. It became a hub where postgraduate students from several departments converged and held discussions, exchanged opinions or simply spent time. This space had initially been envisaged as a hybrid between a relational artwork and a collaborative installation in which viewers were encouraged to intervene, reconfigure the space and

2. A principle that is explained by a key educationalist and practising artist, Nicholas Addison as follows: '… the art work is not a repository of meaning but a site for meaning-making' Addison (1999, p.36).

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

give new directions to the project. As the installation progressed over a period of four weeks, it became a relational space. The constellation of visual texts instigated numerous conversations within an environment which functioned as a 'discussion machine'. It was an un-decidable space inviting participants to revisit methods, roles, and thereby, think on their subjectivities. In this perplexing but also convivial space, participants made their own connections. They often left a mark, by means of making or by conversing.

Several discussions took place within this ambivalent space, due to its existence. There was a widespread sense amongst the users of the space that the 'The Benevolent Trap' provided and embodied physically, conceptually and institutionally a place where things happened differently. As an un-classifiable, yet thought-provoking and emotionally 'charged' space, it left open the question of whether it was a happening, a prototype, an installation/relational artwork, -or all of these at the same time.



Image 1. Installation The benevolent trap. Institute of Education Studios, 2010. Photographer: Peter Thomas

The benevolent trap doubled as a relational space for reflection, as discussions were held there over a month, and as an installation artwork that mapped out concerns relating to art education. Small drawings, sketches items created a nexus or a rhizome to use the term Deleuze and Guattari introduced, (1988) and that influenced heavily Arts Based Educational Research (ABER) and in particular A/r/tography (Irwin et al. 2006). This rhizome of points of interest invited the viewer or participant to connect, reflect upon and even contribute. It was seen as a discursive space that encouraged dialogue but also a space where affects circulated as numerous small instances of drawings and other visual material were meant to elicit both emotional and cognitive responses.

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026



Image 2. Installation The benevolent trap. Detail. Institute of Education Studios, 2010.

In this eloquent drawing on the cardboard lining the walls, created as a contribution by Nicholas Addison, the central figure is Deleuze whose notion of rhizome underpins this effort to bring together the methods of art practice and those of educational sciences in a hybrid continuum. At front Socrates, a tribute to the Socratic method of proving a context for people to think rather than dictating what to think. As O'Sullivan (2010) puts it, Art as opposed to other domains of human activity, and especially sciences, is not focused on knowledge -something that clearly relates to the core differentiation between art education and other school subjects as well.

> Art is not, I would argue, ultimately concerned with knowledge – or, at least, with what passes for knowledge…Art, it seems to me, might be better thought of as an event that interrupts knowledge – that breaks information. In fact, art is one of the very few things we have left that is able to creatively make this break (O'Sullivan, 2010)[3]

Empowering future artist/teachers in tertiary education: methods and theoretical underpinnings

At this point, I turn to the ways in which art practice is involved as an integral and core part, of the way I work with new artists who aspire to become art teachers. I will present as example, the arts-led methodology employed that invests in the creation of Art Sketchbooks. This method which is widely employed especially in English speaking countries and introduced in Greek formal education (mainly secondary schools) as well, is characterized by its emphasis on process as it unfolds in time following the entire school year as a

3. See https://www.simonosullivan.net/articles/stuttering-and-stammering.pdf

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

reflexive matrix as students use its pages to record, annotate, comment on and visualize their concerns, efforts and achievements. They do so by employing a multimodal approach combining texts, symbols, imagery drawings, studies and other visual/textual notes. Thus, they explore the possibilities of putting diverse modes of representing and elaborating meaning together, in synergy, in pages that are both aesthetically and conceptually charged. Thus, art sketchbooks are not the epitome of multimodal visual texts but also of the notion of intelligent making, i.e., the concomitant exploration of aesthetic solutions with the conceptual elaboration of issues outside the arts, through the arts. They have a strong personal, autobiographical dimension as part of art students' hands-on training in respective methods in art education, as an approach in which their artistic practices and research converge with their nascent educational research and practice. The main goal is to build a mentality in which the sensibilities and methodological advancements gained through the art students' artistic practice will form the basis for their future arts-based educational approaches as teaching artists. The following three pages come from an art student's art sketchbook in which she explores notions of built environment, e.g. urban landscapes. These are addressed as both indicators and active agents that reflect but also inform specific (social) mentalities, starting from organically developed, grass- roots, improvised architecture that has no prior planning, to carefully orchestrated city plans that are strict and geometrically stratified. She investigates, comparatively, and through artistic means and in writing, the structural, compositional as well as sociological aspects of cityscapes elaborating on their origins and impact.

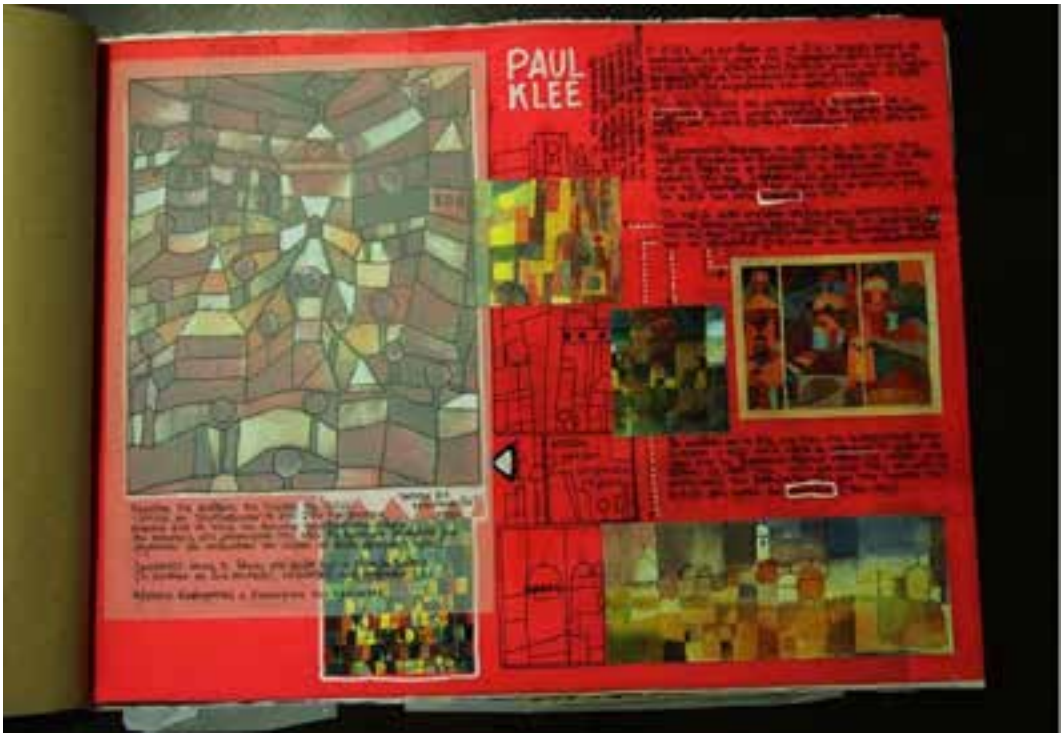


Image 3. Art sketchbook page. Art Student: Sofia Spirliadou. Photo:Dafiotis, P.

Tercio Creciente

Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096

Monográfico Extraordinario XII

Octubre 2026

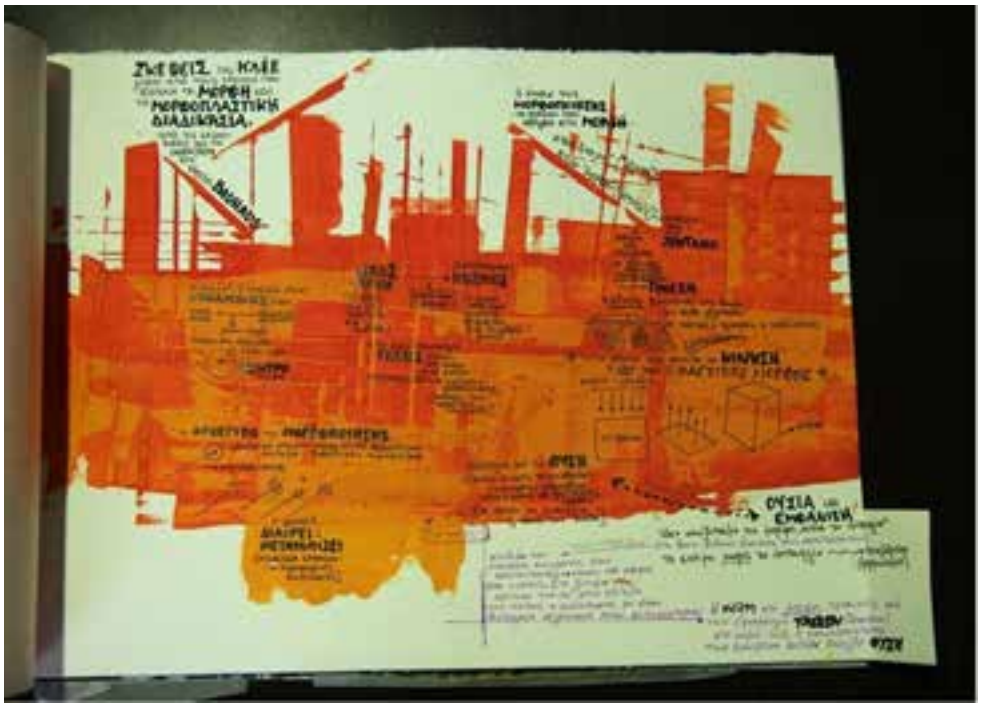


Image 4. Art sketchbook page. Art Student: Sofia Spirliadou. Photo: Dafiotis, P.



Image 5. Art sketchbook page. Art Student: Sofia Spirliadou. Photo: Dafiotis, P.

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

A different thematic, artistic and investigatory approach is reflected on (and embodied in) the following two indicative pages of another art sketchbook in which the art student elaborates on family photos as artificial, constructed visual accounts and narratives that according to her comprise a distorted projection of family.

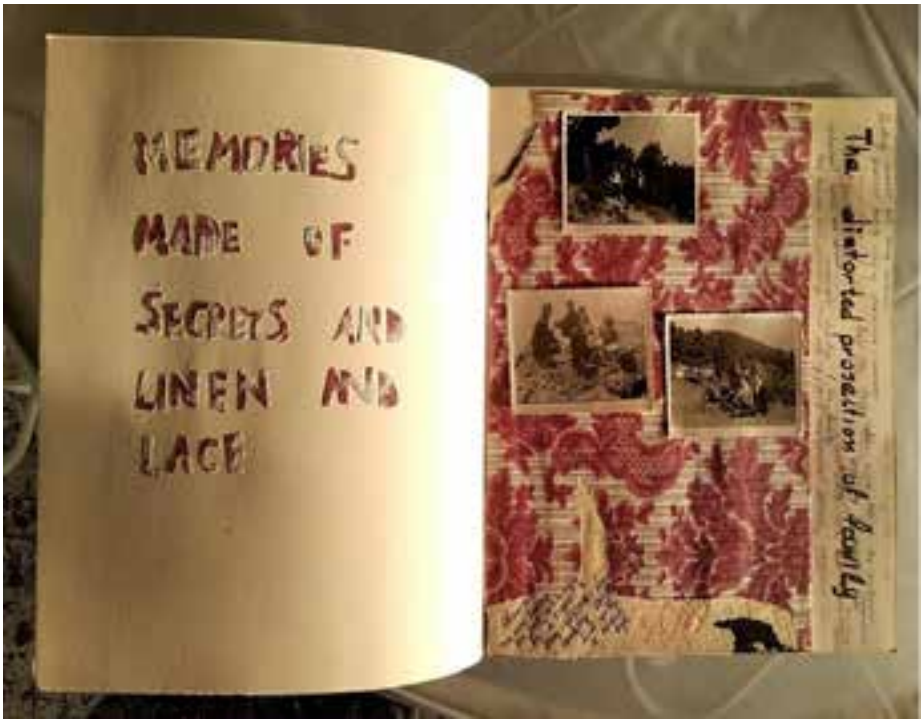


Image 6. Art sketchbook page. Art Student: Kozakopoulou Michalitsa. Photo: Dafiotis, P.



Image 7. Art sketchbook page. Art Student: Kozakopoulou Michalitsa. Photo: Dafiotis, P.

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

She adopts a rather poetic and ambiguous yet affective stance, while notably in both cases there is a palpable effort to expand quite literally into the third dimension through unfolding papers with drawings, or semitransparent elements that add layers of meaning.This aspect is important as it provided inspiration for the research projects in which art sketchbooks inform digital platforms and applications in which art students frame their art practice into three-dimensional space using extended reality (augmented and virtual reality) and employing additional layers of information, texts, imagery, in an interactive and multimodal way, documenting and presenting their artistic research in the form of virtual exhibitions as will be explained in the following section.

Educational Research Projects in the field of Art Education and Cultural Heritage

In this section three research projects will be presented, the first of which in greater details, given that it relates more directly with the use of new technologies as fulcrum to empower art students in their learning as well as providing them with methodological inspiration in their practice as future art teachers. The first research project bears the acronym CREAMS (https://www.creams-project.eu/) and its full title is 'Scaffolding Creativity of Arts Students: Framework, Toolchain, and Educational Material on how to Create their Own Virtual Exhibitions'. The project's stated aim is to educate and create awareness of various stakeholders in the Higher Education domain with regards to scaffolding creativity of arts students and deploying a robust and innovative framework and open-source tools for virtual exhibition creation.

The artworks in these virtual exhibitions are regarded as sites for meaning making for the viewers and artists. They were encouraged to further frame them with additional multimodal and interactive resources that become almost part of the artwork given that these can be also emotionally, aesthetically and conceptually charged. This is inspired by the methodology and philosophy of the art sketchbook in which artworks correlate in the hybrid space of the spaces with annotations, commentary in written text as well as preparatory sketches, visual notes, studies. This approach, that in virtual exhibitions expands into the third dimension, is strongly related to the notion of in-depth description, inspired in turn by the concept of thick description (Clifford Geertz, 1973).

Art students who also train as art teachers are invited to exploit the ability of new media to support a dynamic and in-depth interpretative/explanatory presentation of their artworks, in a digital space which itself acquires aesthetic, semantic and conceptual characteristics. This approach aims to make the encounter with the artists' work more attractive, meaningful and educationally beneficial. The works are treated as visual texts for which the approach of thick description, a term introduced by the prominent anthropologist Clifford Geertz and which has had an influence on the ways of approaching texts.[4] According to this approach, cultural texts are described with numerous

4. See term thick translation: Appiah, Kwame Anthony. "Thick Translation". In Ed. Lawrence Venuti. The Translation Studies Reader. London: Routledge, 2000. 417-429).

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

footnotes and explanations with reference to their details (and the connections between them), in order to map their meaning in the most complete way possible. The student's artworks are, likewise, approached and treated as visual texts, which with the use of the technological means available, can be presented using many different media and ways of communicating meaning in accordance with the preferences, priorities and sensibilities of each art student. In these virtual exhibitions, art students can map meanings, connections, information, references, thoughts that enrich the contact with their artworks and offer an in-depth dimension of more substantial contact with them. For Geertz, as Sturge (2007, p. 80)[5] explains,

> Each detail is worth studying and each detail is important in order to understand the other details and the contextual whole. If such complexity is difficult to interpret, it is also difficult to convey in the linear and skimpy medium of the written word (emphasis added)

This reference shows the inability of speech alone to convey the semantic richness of texts, let alone visual texts/works of art, and foregrounds the necessity of non-logocentric, multimodal approaches especially in art education (be that secondary or tertiary as is the case in a School of Fine Arts) or for the same matter in art teacher training.

Art sketchbooks are used by art students during the teacher training not only to learn, by employing it, a state-of-the-art method but also to bridge their artistic research and by extension identity, with that of the nascent art teacher methodology of researching and enriching teaching approaches. They are now invited to expand these reflexive practices not the digital milieu. They hitherto document and advance their process of artistic practice and research, through a multimodal synthesis of notes, sketches, drawings, photos, and symbols. Albeit typically 'analogue' these sketchbooks inspired digital apps developed through the CREAMS project, in which the principles of connecting artworks with influences, aspirations, pertinent issues and each artworks process of development as an idea, can now be interactively approached by online viewers and users of portable devices. An example of interactively accessed additional visual/textual material that literally surrounds an exhibit, providing more context than the typical (and existing) description on the (virtual) wall, is provided in the images below, the first (image 8) shows the artwork as shown in a virtual galley and the second (image 9) illustrates the additional resources that emerge once the user clicks on it.

5. Sturge, Kate. Representing others: Translation, Ethnography and Museum. Manchester: St. Jerome, 2007. Pp. 80-83.

Tercio Creciente

Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096

Monográfico
Extraordinario XII

Octubre 2026



Image 8. Screen shot from a virtual exhibition created on the CREAMS platform. Artworks by Panagiotis Dafiotis.



Image 9. Screen shot from a virtual exhibition created on the CREAMS platform. Artworks by Panagiotis Dafiotis.

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

This approach empowers art students to reflect, present and disseminate their work but also offers a strong tool that can be used to scaffold art lessons as well, thus fostering methodologically, trainee art teachers. Art students can therefore explore the possibilities offered by a specifically designed platform and tools, tailored around their needs, not only as a fulcrum for their own learning, but also as something that can be used in their practice as art teachers as well.

As mentioned, this toolchain and main platform is built around the art students' needs, in its development was based on itinerary, formative as well as summative evaluation that took place through diverse means, namely, focus groups, questionnaires, semi-structured interviews, usability hands-on tests, thereby leveraging their input and assessments.

This was a complex task undertaken across a range of participating Art Schools, that involved planning and designing the Evaluation Methodology as well as delivering User Evaluation Studies. As leading institution for this part of the research project, the Aristotle University of Thessaloniki (AUTH) and in particular the School of Visual and Applied Arts, undertook the main effort to assess the tools and methods for scaffolding virtual exhibitions of art students as these tools developed (formative evaluation) and in their final form (summative evaluation). Formative User Evaluation Studies and the Summative User Evaluation took place on the basis of the Evaluation Methodology that accrued mainly from (the undertaken during the initial stage) literature review/desk research, as well as from findings and conclusions drawn from early Focus group Studies (Dafiotis et al., 2025).

More specifically the main objectives of the key, validation and assessment processes were the following:

- Verify and validate results from the literature through real-world case studies with key stakeholders at different European Higher Education Institutions (HEIs).
- Define quantitative and qualitative metrics for user acceptability.
- Set the specifications of the CREAMS Platform framework assessment.
- Design and deliver formative as well as summative evaluation user studies with participating HEIs.

An example of a method that was used as it was deemed apposite for arts-related digital tools and platforms, is a thorough questionnaire that measures user experience (User Experience or UX) in interactive digital environments; namely the User Experience Questionnaire (UEQ) developed by Laugwitz et al. (2008). Its key feature is that it measures pragmatic (i.e., usability related) as well as more personal, subjective aspect such as the degree of novelty or pleasure gained from the online experience a fact that render this evaluation tool more adequate for arts content. Another distinctive characteristic compared to most related questionnaires, is that it measures user experience based on different scales corresponding to areas of interest. Specifically, the 26 questions of the

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

full questionnaire[6] are divided into 6 scales, which are as follows: overall attractiveness, efficiency, perspicuity, dependability, stimulation and innovation. In turn, scales belong to broader fields. More specifically: the first broader field relates to pragmatic or practical qualities (pragmatic qualities), which are related to efficiency (ease of use), perspicuity that in fact, relates to the (degree of) ease of getting used to the system, and dependability (degree of control). The second field concerns the so-called hedonic qualities. These include the scale of stimulation, i.e., how exciting and motivating the use of the application is, and that of innovation, which concerns how creative, inventive and innovative the digital interaction environment is.

Main suggestions from focus groups and questionnaires that were incorporated into the platform/tools are indicative of art students' priorities and concerns:

- Improvement of visual appeal, realism and ability to manipulate the virtual spaces, as well as in relation to functionalities such as log-in.
- Provision of guidance in real time, through error messages and problem resolution suggestions, as well as creation of simple and targeted manuals preferably in the form of short videos, and tutorials similar to those found in e.g. games.
- Ability to add context, i.e., text, visuals, multimodal material as additional layer(s) that provide viewers with more information and background knowledge on the artworks, the inspiration and the creative process behind them, and issues they elaborate on.

An indicative proposal from a user experience evaluation participant (initials: K.K.) suggested that access to additional resources could take the form of floating interactive, i.e., clickable or selectable texts, multimodal resources that may surround the viewer in a virtual space in which they will find themselves once selecting an artwork -as opposed to a static menu. This opens up the possibility of teleportation into a spatial environment dedicated to contextual resources that may function as a space within a space (gallery of artworks) that in effect adds a further layer and extends existing virtual art rooms. In this envisaged resource, dedicated space texts (as suggested by K.K.) could be animated, i.e., the text could be unfolding as if being typed in real-time. In contrast, the aesthetic aspect of both the letters and the overall appearance of the text should be given prime importance. Likewise, other resources, e.g., visuals, would ideally acquire some aesthetic appeal not only in terms of their actual contents but also in the way they appear to the viewer. Participating art students see the viewers' aesthetic experience as something that is not limited to the actual extents of their artworks but as encompassing the space in which these appear. Moreover, the same applies to contextual resources: Their visual appearance and rendering as well as the virtual environments that host them should be visually appealing.

6. Note that there is also a short version of UEQ available.

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

In this three-fold interactivity approach, artworks, additional resources/material, and (respective) spaces of their presentation all acquire an aesthetic aspect and function that, in turn, conditions the visitors' experience. This extensive reference to an instance of participants' input in the evaluation highlights the specificity of assessing an extended reality (XR) experience based on interactivity within contemporary art exhibitions. A key aspect of contemporary arts is that, as described by the highly influential theorist Rosalind Krauss (1999), artists operate in the zeitgeist of the post-medium condition; that is to say, the pervasive hybridization of diverse media (e.g., photography, installation, video, drawing). This affects the virtual exhibition spaces as young artists see digitised (uploaded) or even more, born-digital artworks as form of practice that transcend traditional stratifications between media. These digital/digitized artworks are not seen as something that is simply presented in a virtual spatial context, framed by additional (interactively accessible) multimodal material. Art students, conversely, perceive all these elements and factors as constitutive of a holistic XR experience that is coextensive with the artwork -as a digital hybrid form that unifies artwork and contextual resources. This brings to mind the derridean (Derrida, 1987) notion of the "Parergon" i.e., something that surrounds the artwork e.g., a physical frame that nevertheless becomes also to an extent part of it, and therefore has an ambiguous role, both a framing device and a coextensive aspect of it.

In the era of the so-called crisis of representation, especially regarding the visual arts, the shift is towards presenting the unforeseen, and, in this respect, tertiary art education is a very distinctive field: The educational culture of measurable learning objectives gives way to a precedence of scaffolding art students creativity in ways that may empower them to generate new artistic ideas and frame them with contextual resources through imaginative, or groundbreaking uses of the new digital modalities available to them. In this approach emergence and negotiation of new possibilities takes center stage (Addison, 2014).

However, this article does not wish to glorify XR technologies and hybrid approaches as panacea, as indeed contradictions and issues arise through investment in new technologies that may mediate but can also diffuse rather than amplify direct contact with the artwork. An academic and widely acknowledged practicing artist at the AUTH School of Visual and Applied Arts has shown reservations about using XR experiences to showcase one's work or in fact her own. This is not to be seen as a technophobic mentality but as a stance, which relates to a skepticism towards what can be seen as an overinvestment in mediating artworks, especially through technological means, thereby deducting the encounter with the physical artwork from its direct, bodily, sensuous and even emotional aspect.

The question that arises is in what ways XR art exhibitions, instead of functioning as mere mediating devices under the economy of representation, could conversely embody in their digital form the presentation of a new rhizome of affects, thoughts, sensations and interactions. This is an aporia that points towards futurities in which the new technologies which inevitably become part of the ways we construct and communicate meaning can

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

empower learning through and about the arts in ways that the equilibrium of gains and losses[7] is positive rather than negative.

Another example of empowering young adults through familiarizing them with contemporary art by way of a month-long series of theoretical as well as hands-on seminars that culminate in a participatory artwork that takes the form of an temporary installation in public space as an intervention under the notion of Creative place making is presented at this point . This research project, named Come2Art (https://cultureactioneurope.org/projects/come2art/) prioritised the empowerment of young student who did not have an arts background but did have manifestly a strong interest in the arts. The participants, with the help of experts, built a capacity to both engage with and produce artworks thereby enriching their Cultural Capital (a term introduced by learning about Bourdieu as mentioned) . I co-developed the theoretical framework and taught modules of this project, supporting as well, trainers and trainees throughout the process. Building social and community resilience was key in this project's aims, and while the inclusion of digital technologies for the most part was limited to the use of MOOCS and online resources, it nevertheless was underpinned by a curriculum developed especially in the project as well as diverse uses of digital media used in the artworks produced, ranging from digital photography-based installations to video pieces projected in public space.



Image 10. Detail from one of installations created through Come2Art in Thessaloniki. Screenshot from one of the partner's (namely ActionAid, Greece) site: https://actionaid.gr/ta-nea-mas/come2art-dimioyrgontas-anthektikes-koinotites-me-ohima-tin-tehni

7. See a text by Gunther Kress (2005) a key figure in the field of Multimodality in which he explains that every different choice of modality entails gains and losses: Gains and losses: New forms of texts, knowledge, and learning.

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

In this context, and with these questions in mind, this article turns its attention to ways in which cultural education and the arts can be empowered into a very different audience, namely elderly users who wish to relate to heritage through extended reality. Another funded research project namely, 'Fostering virtual heritage experience for elderly' (FIREFLY) , in which I had also a role, albeit peripheral in this case, investigates the Importance of XR technologies in cultural heritage for engaging older adults. Its main focus is on the following two aspects:

- Developing interfaces and immersive experiences suited older populations, enhancing engagement and accessibility.
- Exploring the specific requirements of older adults using XR in cultural heritage contexts.

Moreover, its main goal is to address the gap in research and technology design tailored to the needs of the elderly, assess the impact of XR-based cultural resources with a view to improving pertinent tools and thereby empower them in their quest for meaningful engagement with arts and culture through emerging technologies such as virtual reality. This is an indicator that non typical education in the arts, is a continuous effort and a challenge, that societies that wish to be truly inclusive, need to address given the ever- increasing portion of the population that is comprised of senior citizens.



Image 11. Screenshot from the research project's site

In all three projects, albeit to differing degree, digital platforms ranging from VR installations, to simply MOOCS or XR experiences, have clearly the potential to empower, foster and sustain long-lasting engagement with arts and culture. This can be achieved on the condition that integral characteristics of the digital media are leveraged to the full. However virtual exhibitions are not treated as simulacra of a direct encounter with an

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

artwork in the physical space, but as ways to expand the ability to interactively gain access to a constellation of pertinent contextual resources in an exhilarating and meaningful ways. This approach can both attract viewers, and offers another tool for artists to present, frame and eventually reflect on their artistic practice and research.

A common denominator of art sketchbooks, the CREAMS project (which is influenced by them), as well as practice-led forays in the context of Come2Art, is the confluence of multimodality and arts-led approaches in learning through art education. Digital media offer a new pathway for engagement in all the above instances as well as in community empowerment as manifested in the projects Come2Art, and to degree, in FIREFLY. These projects showcase how learning, culture and social resilience are aspects that are inextricably related as the notion of cultural capital illustrates.

Dichotomies between image and text, art and science as well as emotion and cognition are kept off balance in meaningful uses of new media in a quest to leverage digital technologies for Community engagement through formal and non-formal educational settings and concomitant learning experiences.

Overview of insights gained and concluding remarks

This article presents a spectrum of art-led approaches and teaching methods inspired by them, offering a rather kaleidoscopic overview of my personal research and practice trajectory. The aim is not to showcase my work in a self-referential way, but conversely to offer instances of practice that may offer inspiration or serve as a toolkit for ideas for the wider art education community. Therefore, in this section, summarises the insights gained, providing an overview of the findings with emphasis on what elements can be useful takeaways for fellow practitioners in the field. Firstly, the employment of art sketchbooks as a methodological platform at the art teacher training programme, has managed to achieve two key things: art students felt that the acquisition of knowledge in methods that can be employed in art education can also help them reflect on (and advance) their own artistic investigations and development. As they were encouraged to situate their practice, and elaborate on their priorities, influences, aspirations/research objectives through a highly multimodal milieu, they felt according to their own words, a much better sense of orientation amongst possibilities, and were empowered in their quest to give shape to their artistic investigations through a reflexive use of the methods provided. Art students involved are typically in their fourth year of study, just before the demanding phase of structuring and consequently presenting their final degree show (fifth year). While investing time and effort in studying pedagogical matters in the field of art education initially could be seen as a divergent task, that can be even antagonistic to their main effort that is focused on their artistic work, methods of acquiring methodological knowledge in art education, while simultaneously employing and advancing elements of their own arts-led research, resulted in a synergetic relation between acquiring strengths as art teachers and as artists. This enables a more functional and positive relationship between the artist and the art teacher identity as these facets demonstrably, do not have to

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

be antagonistic. In their own words, art students very often express how their experiences during art teacher training empowered them as artists as well, and a tangible result is the increased effort they put into investigating in more depth the field of art education, many undertaking postgraduate studies in Greece or abroad, aspiring to become researchers.

The research projects outlined had also a positive impact as they involved heavily trainee art teachers/art students (CREAMS) or more peripherally (Come2Art) offering nevertheless a point of reference for socially engaged practices in informal, adult art education. CREAMS opened new digital dimensions in the creation of virtual presentations of the art students' work that enabled them to tap into the potential of XR to generate engagement, sense of presence in the virtual environment, and most importantly enhance meaning making through interactive means (Dafiotis et al., 2025; Koukopoulos et al., 2022; Sylaiou et al., 2024). Students who used these digital tools despite early usability problems managed to employ XR applications fostering curatorial, contextualisation, and communication skills while familiarising themselves with technologies that can help them to interact with their supporting tutors (using the platform as a learning aid), show their work to a wider public (communicate their work efficiently), and last but not least, use such means a teaching tool for their own students as future art teachers. The results have been very encouraging in terms of their ability to support their creativity, reflexivity and overall artistic development, as the use of these tools were evaluated constantly throughout the process, by art students (Dafiotis et al., 2025). As was the case with art sketchbooks (that heavily inspired CREAMS), multimodality was key: the use of multimodal communication expanded into the digital and virtual modalities offering means to situate one's artistic research and practice beyond logocentric or traditional ways of structuring the presentation of a body of artistic work through an exhibition. This ability projected into contexts of typical education (e.g. secondary schools), in an analogous way, has the potential to greatly foster the respective creative journeys of the students of the trainee art teachers, who went through the experience of employing such methods. This is the subject of future research in which uses of such tools by trainee art students can be introduced in public schools within the context of already established cooperation frameworks and protocols.

Come2Art, involved several young members of the public, in the framework of informal adult art education resulting in the creation of strong social bonds, amongst the group of participants, who employed the newly gained language of contemporary art with emphasis on creative place-making to convey their outlook within the fabric of the urban environment. More specifically, participants acquired theoretical as well as practical skills, that enabled them to create site-specific installations elaborating on gender-related issues regarding notions of safety, inclusion as well as self-image and identity. Through a developing investigation of possible means and artistic media, the elaboration of conceptual, social, gender-related issues developed in parallel in a way in which arts formed the base for highly personal investigation. At the same time their trainers some of them postgraduate students were themselves trained through a specifically created curriculum. Therefore the project had a two-fold positive social impact in providing means for social resilience: it provide a group of young participants (mostly

Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

undergraduates in non-arts related schools) with advanced skills increasing, so to speak, their cultural capital (Bourdieu,1985), while at the same time providing valuable teaching experience and pertinent accreditation to young trainers on the basis of an essentially arts-led philosophy of learning about and through the arts.

Lastly, FIREFLY as a research project successfully investigated ways to enhance the sense of inclusion for the elderly, as they were provided with the opportunity to enjoy virtual experiences related to cultural heritage (Sylaiou et al., 2025). Albeit not an arts-led project per se, FIRLEFLY underscores the ability of digital, multimodal means that include visual representations and experiences of exceptional high quality and sophistication. In FIREFLY, the digital reconstruction of cultural heritage sites was based on meticulously acquiring geospatial data (Stylianidis et al., 2025) on the basis of which an accurate and quite crucially, visually appealing and affective reconstruction of heritage buildings in an immersive virtual word. The instance on detail, as well as on aesthetics generated a virtual experience of the past through the means of the future synergized scientific accuracy with affect. The participants, according to findings through interviews as well as via monitoring brain activity and other physiological indicators, were demonstrably engaged, gaining from the experience on cognitive as well as emotional levels, while at the same time feeling more socially included. It has to be stated that the creative element invested in digital representations of the past resulted in visual renderings that could be deemed bordering to artistic production.

This latter instance of research shows the importance of supporting learning in the wider field of culture and the arts, with emphasis on methods that foster inclusion but at the same time put in synergy different media, technological means. It shows along with the other research initiatives the importance of bridging diverse domains ranging from artistic practice to educational sciences, or the wider cultural field in a comprehensive manner that widens the scope of arts-led educational research. Directions for future research include a further investigation of the impact of arts-led research through methods that relate to A/r/tography, with the use of XR in a two-fold effort to enhance art students' creativity while at the same time providing them with tools to inspire respective creative investigations to their students. This is a quest based on the constant need to ensure that the artist persona and the art teacher identity are put in synergy rather that antagonistic, and this quest can only be addressed with the creation of methodological toolkits that can help achieving the triangulation of the artist/researcher/teacher identities that underpins much of the contemporary arts-based educational research. XR and other, emerging technologies cannot be ignored without the peril of missing the opportunity to enrich and expand methods that in turn can support inclusive, creative trajectories shaping the landscape of art education in the future.

Tercio Creciente

Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096

Monográfico Extraordinario XII

Octubre 2026

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Tercio Creciente
Revista de Estudios en Sociedad, Artes y Gestión Cultural
ISSN: 2340-9096
Monográfico Extraordinario XII
Octubre 2026

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