Sustainability and creativity through mail art: A case study with young artists in universities

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ABSTRACT

Universities around the world are making considerable efforts to contribute to sustainable development through their institutional frameworks, education, research or community awareness. This article discusses how young artists connect with sustainability problems through an analysis of individual artistic creativity (visions, sources of inspiration, messages and communicative strategies) by means of a novel interpretive arts-based research methodology: mail art. A collection of mail art individually created by 29 young artists who also provide self-reports on the meaning of their work, the creation process and its intent are analyzed using a qualitative content analysis methodology complemented by an aesthetic inquiry into the artistic qualities and creative techniques of the collection. The research concludes that the collection reproduces but also produces messages promoting a sustainability culture. It promotes individual actions for sustainability with everyday creativity using expert knowledge and describes visions and attitudes expressed by young people to detect gaps and to develop a more informed education for sustainable development in universities. Although there are individual differences, the participants generally show appropriate values -such as universalism-, and a desire for ethical action within an ecocentric worldview, displaying constructive hope. However, the collection stands out for a collective, global and future-oriented, versus individual, local and present-oriented framing, running the risk of becoming visions that can delay transformative actions. Some of the most conclusive recommendations of the study are the need to work on the issues of equity and equality in universities today, to enhance the critical perspective of students and to change their current role from that of merely observers to agents for change.

1. Introduction

In the first decade of the century, policy-makers began to highlight the value of creativity as an "infinite source of innovation" (European Commission, EC, 2008). The European Commission recognized in 2009 that 'Europe's future depends on the imagination and creativity of its people' (EC, 2008, 2009). Creativity is also increasingly relevant in global sustainable development (SD) strategies. Achieving the 17 SDGs of the UN's 2030 Agenda and the European Green Deal objectives requires more than ever the commitment of all actors and countries and the full development of innovation in all fields (UNESCO, 2017; EC, 2019).

Many organizations, even universities, fail to grasp that art can fuse science, technology and innovation and embody them in social and human contexts (Poldner et al., 2017) to promote transformative actions (Cheng, 2019). Scientists have paid little attention to creativity (Sawyer, 2012) and a multidisciplinary approach has been lacking to facilitate its understanding and reinforce its potential (Sternberg and Lubart, 1999).

This research responds to two research gaps in the academic literature: the limited empirical evidence on the connection between art, creativity and sustainability, with its associated implications for action, and the scarcity of studies based on arts-based research methodologies. The article makes two contributions in this respect, one empirical and the other methodological.

Firsly, the study explores the connection between the concepts of creativity and sustainability. Creativity has been defined in the literature in many ways (Choi et al., 2020) by means of multiple theoretical perspectives with different assumptions and methods (Hernández-Torrano and Ibrayeva, 2020). Creativity is conceived as the ability to see possibilities that others haven't noticed (Craft, 2005) and to generate

products that are novel (i.e., original) and appropriate (i.e., useful) within a specific sociocultural context (Plucker et al., 2004). This individual ability can vary within contexts and the variations in creative products can be characterized according to levels of creative magnitude (Kaufman and Beghetto, 2009). Creative products and processes can also be oriented to inspire actions or provide solutions for sustainability (pro-sustainability solutions) (Brem and Puente-Díaz, 2020).

Higher education institutions are making considerable efforts to offer an education for sustainable development (ESD) (UNESCO, 2012; Veiga et al., 2017) and are adopting sustainability practices in different domains (Lozano et al., 2015; Ramos et al., 2015). But universities are not using the potential of arts-based learning experiences within an interdisciplinary approach to sustainability (Leal Filho, 2000; Shiel et al., 2016) and SD is still perceived as a "complement" rather than an integral aspect of higher education (Veiga Ávila et al., 2017). This study provides a new approach to overcome some of the most relevant barriers identified in this case such as confusion about the concept of SD and its practices, the narrow vision of the notion of SD, the scarce centrality of sustainability in university disciplines, curricula and research -especially in the field of arts and humanities-, the prioritization of instrumental learning over critical thinking and creative actions, and the lack of participation and engagement of students (Sanz-Hernández and Martinez-Alfaro, 2020).

Secondly, this article also contributes to the discussion on the value of arts-based research methods to researchers interested in pro-sustainability creativity and proposes a methodological contribution that combines qualitative content analysis of authors' texts with an artistic inquiry into Mail Art (MA). MA is a current practice within the area of expressive creativity (such as the visual arts or literary arts), less used than other lines or currents within the framework of net.art but which can easily be integrated both as a methodological approach to data collection, analysis and transfer, and as a learning experience in ESD.

This study has been developed within the framework of the CirculArt Project. This is an initiative of a multidisciplinary group of teachers and researchers called the Circular Society Lab at the University of Zaragoza (Spain) (Sanz-Hernández and Martinez Alfaro, 2020). Its objective is to promote research and learning experiences to stimulate change towards more sustainable societies through the arts. 'Mail me art' is the first of the arts-based research experiences designed in this project.

The CirculArt Project assumes that individual creativity is not only a unique product of a mental process mediated by individual personality or environmental situations, but also a skill that allows creators to bring a different perspective, to assume individual responsibility for pro-sustainability and to communicate ideas through new expressive forms.

In this context, 'Mail Me Art' is also an experience of 'Art in research' (Wang et al., 2017) that enables inquiry in which artistic methods are used as a supporting research tool to identify the individual pro-sustainability creativity and actions of young artists. The specific research questions are: What visions and positions do young artists and students have on sustainability? What sustainability messages do they communicate? What creative and communicative techniques do they use?

The article is structured as follows. The second section presents the main literature that links arts, creativity and sustainability, and shows the specific analytical proposal presenting art both as an object of study (individual artistic creativity in transformative ESD) as well as a research tool (through MA). The third section explains the case study and the methodology used. The results and discussion are presented in the fourth section and the conclusions in the fifth.

2. Background and analytical framework

The arts can be used for two different purposes, firstly as a means to know certain dimensions of reality ('art in research') and secondly as a learning and communicative experience to transform these realities ('art as a tool for change').

'Art in research' is an inquiry based on arts-based methods. To date, there has been relatively little methodological reflection on this issue (Coemans and Hannes, 2017), although researchers from various disciplines have successfully adopted these methods in their work, generally within the qualitative tradition (Kara, 2015; Coemans and Hannes, 2017; Van der Vaart et al., 2018). It is a transdisciplinary approach which crosses borders of theory and methodology (Chilton and Leavy, 2014), and answers research questions that cannot fully be answered using more traditional research methods such as interviews or surveys (Dunn and Mellor, 2017).

Recent systematic reviews (Coemans and Hannes, 2017; Wang et al., 2017) have shown the large variety of art genres used as a part of methodologies to generate data. They reported many studies using visual arts through drawing, painting, photography (photovoice or photocomics), animation, literary art, performing art (such as theater, dance or music) and other multiple forms such as collage through upcycling or installation art. However, there are no studies in this regard using MA.

The perspective of 'Art as a tool for change' appears in studies that stress the key role of the arts as a driver for societal transformation (Bentz and O'Brien, 2019) because of their capacity to shift mindsets and behaviors. Some of these contributions emphasize the potential of art to improve womens' empowerment (Coholic et al., 2017), rural empowerment (Anwar McHenry, 2011), resilience in vulnerable places, communities or families (Coemans and Hannes, 2017; Foster, 2012) and, in general, transformative engagement in regional transitions (Stuiver et al., 2013). There are also numerous studies that highlight the role of art in improving the health and wellbeing of disadvantaged groups (CohenMiller, 2018; Coholic et al., 2017). However, there are few which analyze the role of art to achieve more inclusive and sustainable societies and economies (Pearson et al., 2018) and sustainable ecosystems (Stocker and Kennedy, 2011).

Much of this academic literature on 'Art as a tool for change' is found in the field of educational research (Eisner, 2006; Leavy, 2015, 2017; O'Donoghue, 2009), claiming the urgent need for creativity in the face of current environmental problems (Sandri, 2013; Stables, 2009) and highlighting the effectiveness of art to develop essential skills for SD (Rieckmann, 2012; Molderez and Ceulemans, 2018).

Despite all this, university experiences in this regard are scarce (Aalto, 2017; Bentz and O'Brien, 2019). Creativity often appears in the curricula of arts, science, technology and languages, but seldom in that of SD, ignoring the fact that artistic creativity can contribute to sustainability or "pro-sustainability" (Cheng, 2019). Art can be used as an innovative approach to sustainability problems. It empowers individual and collective deliberation, it can contribute to the development of solutions, it makes learning easier and it activates societal transformation (Lineberry and Wiek, 2016; Bentz and O'Brien, 2019). This is achieved in part by its ability to connect the cognitive with the emotional (Ivanaj et al., 2014; Stucker and Bozuwa, 2012; Shrivastava, 2010) and to draw bridges between indifference and action, between resistance and projects based on constructive hope (Ojala, 2012). But how to reinforce the connection between art, creativity and sustainability? To understand this question, we review the literature that links art, creativity and sustainability, by considering both the individual and institutional level (i. e. individual differences and barriers in universities). Then we show the analytical framework in this case study.

2.1. Connecting creativity with sustainability problems: individual differences

It has been argued that the radical change that characterizes the early 21st century demands creativity in response and creative engagement within education (Walsh et al., 2017). In addition, there is a general recognition of the important responsibility of universities as key actors for sustainable development through interdisciplinary research and teaching (Rieckmann, 2012; Wals, 2014; UNESCO, 2016). The

human and social capacity to imagine and envision enables creativity to be placed at the service of sustainability. Conversely, the challenges of sustainable development demand and stimulate creativity from different trans-disciplinary and intercultural perspectives. Creativity is a skill that is enhanced in the scientific, technological, business, social and artistic-cultural fields (D'Orville, 2019). However, the kind of creativity required to connect with sustainability problems that would be most appropriate in each educational context is not so obvious, especially as this would depend on the individual differences between students. The academic literature has abundantly analyzed the mediating factors that explain these differences and which therefore may be considered in the design of curricula in Higher Education. Here we focus on two groups of mediating factors that are detailed below: a) beliefs and thinking, and b) skills and abilities to creativity.

A) Firstly, each individual connects with sustainability problems in different creative ways according to three elements with dependence on one another: "creativity, critical thinking and ethical reasoning" (Paul and Elder, 2009: 117). Here we refer to values, critical position and orientation to ethical action.

Values are beliefs or general principles "typically expressed in terms of good or bad, better or worse, desirability or avoidance" (Leiserowitz et al., 2006). These general principles guide people's perceptions, goals, attitudes and behavior (Bardi and Goodwin, 2011). Sustainable development, at the most abstract level, emphasizes three frequently competing values: economic development, environmental protection, and social progress/equity, so that individuals and societies that support such values and make decisions are forced to choose between them (Leiserowitz et al., 2006).

At the global level, the General Assembly of the United Nations adopted a set of fundamental universal values for the new millennium: freedom, equality, solidarity, tolerance, respect for nature, and shared responsibility (Leiserowitz et al., 2006). The 2030 Agenda for Sustainable Development adopted these in 2015, highlighting equality, freedom, human dignity and justice, but setting out a vision for SD putting equality and non-discrimination at the center of its efforts (UN, 2015). To translate these shared values into actions, the declaration created a set of more specific goals (17 SDGs) related to five pillars: people, prosperity, planet, peace, and partnership.

At the personal level, the Schwartz scale has been widely accepted and adopted to analyze ten broad core values recognized by a multitude of cultures (self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, benevolence and universalism) (Schwartz, 2012). Findings from both earlier research (Myyry and Helkama, 2001) and recent studies based on the Schwartz scale of values (Bask et al., 2020) have shown that universalism is the main value found among students correlating positively with favorable attitudes towards sustainability. Universalism is connected with the motivation of understanding, appreciation and protection of the welfare of all people and of nature (Schwartz, 2012).

People can contribute by assuming a critical position and using creativity to challenge mainstream thinking (Mitchell and Walinga, 2017). The critical position can be explained through a number of key concepts from critical theory -such as reflexivity, critique and social action/engagement (Kearins and Springett, 2003), with potential for changing the lens through which individuals and society have traditionally viewed the world and relationships with nature. In this sense, some authors propose a 'critical creative process' that involves the integration and synthesis of the usual duality separating creative thinking and critical thinking (Runco, 2003; Paul and Elder, 2009; Cheng, 2019). The concept of critical creativity (Brodin and Frick, 2011; Titchen and Mccormack, 2010) promotes "using cognitive criticism and creative imagination to deconstruct, reconstruct and transform prevailing practices and knowledge" (Cheng, 2019: 2).

Finally, the nexus between creativity, sustainability and arts is

consolidated if creativity is guided by an ethical reflection and action (Paul and Elder, 2009; Rolston III, 2012; Walsh et al., 2017). Taking as a reference framework the 2030 Agenda, ESD should attend to an "ethic of global citizenship and shared responsibility" (UN, 2015). Thus, an ethical pro-sustainability action pursues changes for the benefit of society and the environment, empowering through the messages it communicates, and promoting new meaning-making (Garrison et al., 2015) and more collective sustainable lifestyles (Brown et al., 2019).

B) Secondly, each individual is able to contribute to a wide range of pro-sustainability solutions and actions (Brem and Puente-Díaz, 2020) within different levels of creativity (Kaufman and Beghetto, 2009), according to their personal skills and abilities.

The traditional concepts of little-c (i.e., everyday creativity) and Big-C (i.e., genius creativity), first articulated by Csikszentmihalyi (1988), have been expanded with another popular creativity framework proposed by Kaufman and Beghetto (2009) called the Four C model. This model includes four constructs that differentiate between levels of creativity magnitude to understand the variations in creative products: Big-C (genius-level creativity), Pro-c (professional creativity), Little-c (everyday creativity, without use of expert knowledge) and Mini-c (individuals building their own knowledge in the learning process).

Based on the rationale of the four-c model of creativity, Brem and Puente-Díaz (2020) argue for four levels of individual sustainability actions (mini-s, little-s, Pro-S and Big-S). Mini-s actions are intrapersonal and represent a core element of individual learning about sustainability. Little-s, Pro-s and Big-S are interpersonal and differ in impact, novelty and usefulness. Big-s actions can cause the most drastic change in our lifestyle.

These types of individual sustainability actions explain how people can contribute to a sustainable future for all and why it is up to every individual to do so.

2.2. Connecting creativity with sustainability problems: barriers in universities

Universities are certainly faced with numerous barriers to implementing a learning and research context for sustainability where artistic creativity is present.

Firstly, the main blocking component is that sustainability does not have a unique discourse or a consensual conceptualization, but rather competing conceptions. Perhaps the most quoted definition of sustainability in the political, institutional and scientific sphere was published in the "Brundtland Report" (WCED, 1987), and adopted by the United Nations (UN), proposing a global mobilization so that "development meets the needs of the present without compromising the ability of future generations to meet their own needs".

The concept of sustainability must be understood as a process of reflection and action towards objectives that cannot be fully achieved but that guide societies towards change and improvement (Williams et al., 2017). The open notion of 'needs' as a central part of the definition of sustainability has been feeding that reflection, leading to an unprecedented rich debate on planetary sustainability (Lamberton, 2005) and regarding the needs of future generations in relation to the consumption of exhaustible sources and limited resources.

The debate has incorporated different ideological positions and visions. One of those visions, tinged with a certain Malthusianism and neo-Malthusianism, incorporates the idea that in the near future the planet will be unable to provide the resources necessary for future generations, because of the growth of the world's population, and it urges a drastic reduction in consumption.

Another vision, "entreprenuerialism" (Cox and Ziv, 2005), shows high confidence in the human capacity for innovation. Its essential feature is anthropocentrism and it seeks to make social and ecological objectives compatible and integrated, often combining economism with

technological optimism, but with a clear focus on human needs.

Ecological sciences also include another approach called ecocentrism, which bases human well-being on environmental sustainability itself (Hueting, 1986). Finally, some authors have incorporated a democentric vision that highlights the centrality of public deliberation for the establishment of sustainability models (Arias Maldonado, 2004).

The debate has also sparked interesting criticism that highlights: a) the null relevance of uniting the two terms, sustainability and development, under a single concept (SD), called the ethical paradox of the concept (Jabareen, 2008); b) the internal contradictions of the term SD (Redclift, 1987; Dresner, 2002), due to the incompatibilities in the interaction between economic development and environmental deterioration, or between the culture and lifestyles of contemporary societies (Sneddon et al., 2006; López-Pardo, 2015); c) suspicion about whether SD really seeks to transform productive trends and unsustainable social and cultural practices; d) the disagreement about what should be sustained (planet, people, economies), and e) the sustainability operation itself (its measurement and its translation into specific objectives and phases for its achievement) (Sachs, 1999).

The above intense debate shows competing conceptions about where the transformation should go (Axon, 2020) and what should be emphasized: structural changes to production and consumption (D'Alisa et al., 2015), technological innovations and progressive policy (O'Brien, 2011) or networks of civic movements and grassroots action to construct wider change (Stirling, 2015).

The academic literature also warns about the effects of the delays in action that some discourses and debate can produce, leading to a "deadlock or a sense that there are intractable obstacles to taking action" (Lamb et al., 2020: 1). Lamb et al. (2020) identify a list of climate delay discourses that raise objections or denials in the ambits of agency and responsibility, the scope of the changes, the high costs and the question of whether there is still time.

Even so, many authors agree on the concept's ability to animate transitions (Axon, 2020) because of common elements including the balance between the three dimensions of sustainability (social, economic and environmental), the importance of attending to political and institutional, scientific-technological and cultural environments, intergenerational and intragenerational equity (Stymne and Jackson, 2000), individual and collective responsibility, rationalization in the use of resources and the redefinition of the relations between people and nature. This integrative conceptualization can help to lay common foundations for working with art, creativity and sustainability in universities to contribute to social transitions and SD.

The second barrier is the commitment (institutional and individual) to change because, on the one hand, sustainability initiatives have usually questioned the way things have been done (Thompson and Green, 2005), and on the other hand they demand novel methods whereas traditional teaching methods are generally only prepared for routine tasks (Veiga Ávila et al., 2017) and not for creative experiences. The same occurs in the research domain where arts-based research methods should be further explored (Leavy, 2017). Added to the above is the fact that the vision of sustainability is narrow and tends to be related more to science and technology than to social and cultural aspects (Pierce, 2014), hence sustainability is absent in many curricula in the arts and humanities.

Finally, the third notable barrier is a dominance of "top-down" approaches to sustainability which barely focus on the actors' perspectives, despite the fact that the key principles of sustainability emphasize the need for people and their participation to be at the heart of sustainable transformations (Axon, 2017, 2020). There are studies with children addressing their concerns for the future (Holden et al., 2008), exploring their environmental understandings (Sorin et al., 2012), or redefining the connection between people and their environment (Coemans and Hannes, 2017; Vigurs and Kara, 2017), but arts-based studies focused on the perspective of youth and students in particular are scarce. They can be very useful for sparsely addressed facets such as

students' visions of SD concepts and sustainability in universities or their perceptions of responsibility. The perception of where the responsibility resides for addressing socio-ecological transitions is important because responsibility, action and collective participation in sustainability initiatives can act as motivators for others. This is what Axon calls the principle of the "othering" or the "I will if you will" phenomenon (2020), which the author frames within an exponential increase in public engagement with sustainability.

2.3. An analytical proposal to connect art, creativity and sustainability

There are two relevant theoretical approaches in the study of individual creativity, the end-product approach and the cognitive approach, seeing creativity as a thinking skill and process that results in a creative product or work or output (Sternberg and Lubart, 1999.)

Firstly, it is necessary to consider the end-product approach to creativity. For the analysis of the artistic work (artistic product), the sociology of art offers two conceptual tools. On the one hand, it emphasizes the discursive nature of the artistic product (Wolff, 1992), affirming that through the messages it contains and expresses, the creative product reflects, reproduces and represents the social context, since creativity is constructed. Some authors have even valued artistic objects as one more actor (Heinich, 2001). On the other hand, the artistic work edifies the social framework (Fucase, 2010), so that art could act as a relevant driver and enabler towards sustainability transitions. Thus, artistic practice is not only reproductive but also assumes a transforming function (Bourdieu, 1988). In this study, the artistic works are "rich sources of inspiration and holistic meaning" (Poldner et al., 2017: 3). They acquire the role of mediators and are considered as powerful expressive artefacts of reflection, awareness, and protest (Molderez and Ceulemans, 2018).

Secondly, there is other approach to creativity as a process. The cognitive approach is possibly the most prominent research area in the creativity debate emphasizing internal mental processes, but there are also several schools of thought and phase-oriented studies (EC, 2009) that organize the creative process into stages and steps including both external and internal manifestations (Sawyer, 2012). Here, the creative process refers to how people create within a sociocultural context (Plucker et al., 2004) and includes psychological cognitions and behavioral manifestations during the development of a unique and useful product or idea (Rubenstein et al., 2018).

According to reviewed literature, the analytical proposal in this study incorporates elements of the two above approaches to understand how individual creativity (as a creative mediating process) contributes to the process of building the individual and social meanings of sustainability and SD and how it could promote sustainability actions (Fig. 1).

Although in this study we have only focused on the (re)production of messages through individual creativity ('what and how'), a complete general framework is shown in Fig. 1 to facilitate the understanding of the general process of meaning-making for sustainability through MA. We identify four recognizable stages: a first phase of learning experiences and internalization of sustainability messages, a second phase of reflection by the artist, which takes shape in the third phase which is an individual creative act, finishing in a fourth phase being a communicative action referring to how the audience receives the artistic product and its ability to mobilize for change. Thus, art is conceived in two senses: as a learning process and a communicative process.

In this study, we pay attention to the individual creativity (third phase) with the focus on students and young creators because this allows us to analyze the representation of sustainability that they embody in artistic works (postcards) and to explore how the young engage with sustainable living and sustainability projects and how they connect with sustainability issues (Wolf and Moser, 2011).

The main sociological approach to the young artists' views and themes that guide the creative process (narrative patterns) is
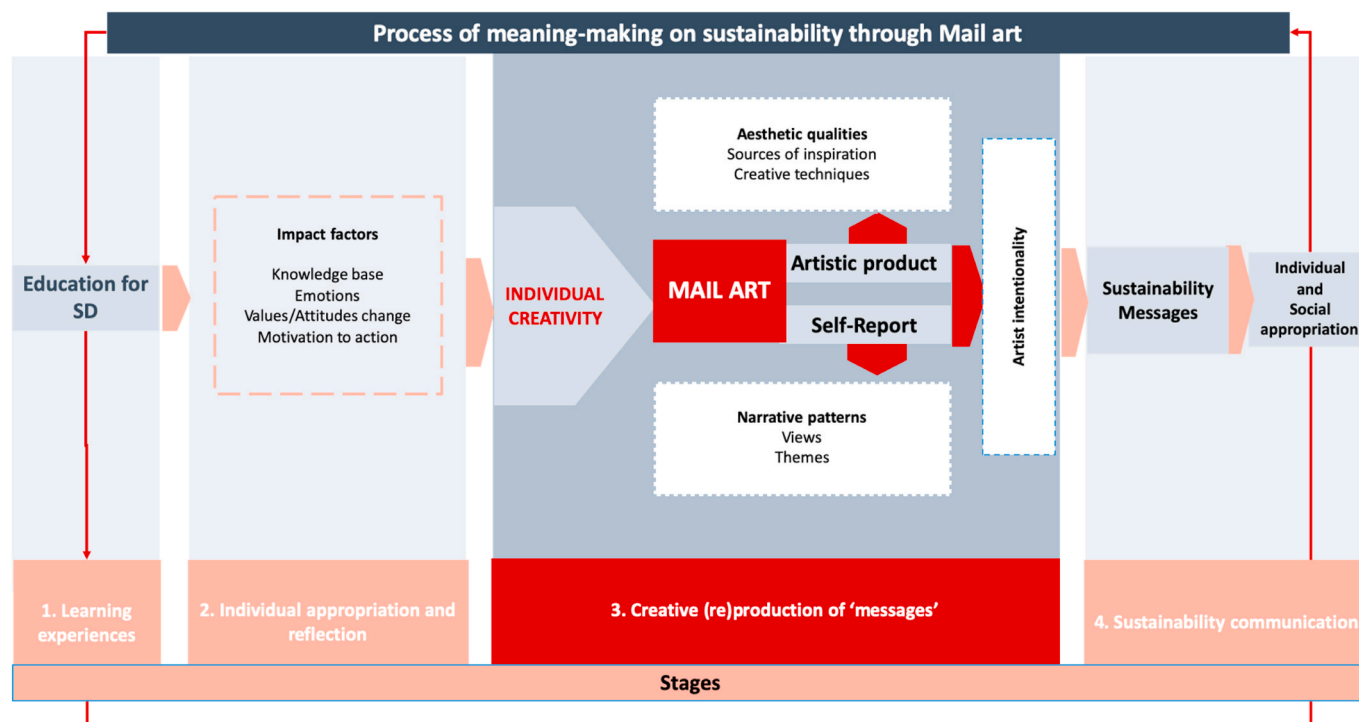
Fig. 1. Analytical framework of creativity for sustainability through MA.

supplemented with an aesthetic perspective incorporating some specific creative process strategies to support and facilitate the generation of the creative products. Individuals may deliberately follow a structured creative process strategy like Sawyer's eight stages (2012) or the four sequential practices of Poldner et al. (2017), but they also can implement isolated strategies (Rubenstein et al., 2018), as Root-Bernstein and Root-Bernstein (2001) or Michalko (2006) suggest.

The finding of sources of inspiration involves the discovery of the element that provides the multi-sensory aesthetic qualities that will be managed in the creative and communicative process of sustainability (Poldner et al., 2017). Seeds, trees or childhood experiences are sources of inspiration. The source of inspiration materializes in a tangible product through the choice of artistic techniques for constructing the artifact and the elaboration of the connection between the phenomenon/inspiring element and the sustainability message containing the main themes and the artist's views. Poldner et al. (2017) distinguish three main creative techniques turning a sustainability message into a tangible product: preservation, transformation and adding novelty. From these authors, the present study suggests three main creative techniques of materialization of the essence of sustainability in an artistic MA product that express and communicate in the most efficient way: preservation of traits (the artifact maintains the original characteristics or aesthetic qualities of the inspiration source such as colors, materials or shapes), adaptation (some characteristics of the inspiration source are reinterpreted and the aesthetic qualities can change) and transformation (the artifact has new aesthetic qualities).

3. Case study and method

MA is a different way of making and consuming art. It is an artistic exchange network that works through the traditional mail system, begun in New York in the 1960s. Since then, many artists have engaged in a common reflection on the paradigm in which contemporary art is immersed, multiplying their narrative possibilities and the topics covered.

In the research design of this study, MA also acts as a methodological tool or arts-based research method that ensures the research objectives

are achieved. MA as a methodological approach assumes interpretivism as an underlying paradigm accepting that reality is (at least partly) subjective and socially constructed by subjects according to their own frame of reference. Knowledge is generated by interpreting subjective social constructions such as languages, meanings, instruments and the actions of subjects. Arts-based research methodologies are well suited to qualitative research methods because of their emphasis on interpretation and on generating hypotheses rather than testing theories or establishing causal inferences (Sovacool et al., 2018).

Compared to other arts-based research methods, MA shows many strengths, especially for data collection. Table 1 identifies the strengths and weaknesses to help understand the benefits of this methodological approach.

Furthermore, MA was chosen because of the possibilities offered by the medium both in production and storage, for its low cost, for the domestic nature of the creation and construction of the product, and finally for its communication possibilities, allowing both interpersonal and intimate communication.

Young people from Spanish universities or graduates under 35 years of age were invited to participate in 'Mail me Art', with two sole criteria: the artistic products (APs) should be able to be inserted in an envelope to be sent to third parties, and the creations presented should revolve around sustainability. The invitation faced each artist with the challenge of interpreting and arguing the sustainable approach in a simple way.

The invitation was issued in November 2019 through the Circular Society Lab website, social networks and directly in the art classrooms of the University of Zaragoza. 29 young people, mostly Spanish (only one from Chile), women (21 compared to 8 men), and art students (27), voluntarily responded to the 'Mail me Art' call. Most of them (22) were aged between 20 and 25, (5 were in the 25–30 age range, and 2 were over 30 years of age). The participants had from November 2019 to February 2020 to create their piece of art.

The final collection, consisting of 29 APs (Appendix A), displayed features with a wide range of meanings. For this reason, the authors were asked to accompany their APs with a self-report (SR) where they explained their message of sustainability, contributing their interpretation of the creative process.

Table 1
Strengths and weaknesses of mail art as art-based research methodology.

Mail art as art-based research methodology	
Strengths	●Added value when it comes to answering research questions that cannot (or, at least, not fully) be answered using more traditional research methods ●Research focus on interpretation ●Improves understanding complex subjective processes difficult to grasp with other techniques. ●Appropriate for qualitative evidence; brings insight into under-studied topics; identifies new insights and categories. ●Appropriate for research with a theoretical emphasis on discourse and meanings. ●Focuses upon a wide range of research questions. For exploratory and/or multidimensional research questions. ●Appropriate for exploring associations between visions, preferences, attitudes, beliefs, lifestyle and identity of subjects. ●Data collection from exceptional groups or small populations (although it can also be applied to larger samples) ●Accesses both individual and collective meanings ●Provides access to remote and dispersed groups at reduced cost
Weaknesses	●Biased towards qualitative research methodologies ●Less precise research objectives. Research objectives moderately defined a priori. ●Data collection also raises questions of "sample" size. Appropriate for small samples, although larger samples can increase the breadth of perspectives and strengthen both internal and external validity. ●Limited to the perspective, agenda and biases of those who produced the artistic artefacts. ●Risk of bias, including a tendency for participants to provide meanings that they see as socially desirable, or desirable by the interviewer. ●Limited to the perspective, agenda and biases of those who produced the artistic artifact. ●Participants may find it difficult to create their artistic artefacts. ●Vulnerability in the data analysis phase to researcher bias. ●Data collection cannot always be guided by explicit criteria. ●May misinterpret actor interpretations and meanings. ●Time-consuming analysis (compared to other more systematic techniques). ●Generalizability. ●Narrow scope (it can be improved with the integration of other methods).

Source: Authors from Kara (2015), Leavy (2017), Wang et al. (2017) and Sovacool et al. (2018).

Once the students' artistic works (products and self-reports) were collected and collated, a combination of two analytical tools was used. On the one hand, an SR content analysis was carried out, assigning codes simultaneously to the analysis. This allowed the indexing or labeling of key issues in the data (Ritchie and Lewis, 2003). An analysis of the interactions between the codes was then carried out, supported by the MAQDA program, a tool for qualitative data analysis. It should be noted that this analysis was not a hermeneutical exercise in interpreting the meaning that the viewer attributes to the AP or a social explanation of the representation (Heinich, 2001). It is an exploration of the meaning that the actors themselves attribute to their work (meaning, motivation, intent) and the sustainability messages they contain (visions and themes). On the other hand, an aesthetic inquiry based on the work of Poldner et al. (2017) was carried out, collected in a database and focused on the relevant aesthetic qualities of the APs (topic for source of inspiration, colors, shapes, materials used, other sensory qualities such as touch or sight, and the artistic techniques used).

4. Results and discussion

The analysis of the texts and works reveals the young artists' visions and meanings related to sustainability. These are reflected firstly in the selection of the sources of inspiration and the creativity techniques, which also allows inquiring into the creative characterization of the creative products in this collection, and secondly in the selection of the content and the communication strategy of the messages, which informs about how young artists connect with sustainability problems.

4.1. The creative characterization of the 'Mail me Art' collection: Sources of inspiration and individual creativity techniques

'Mail me Art' required some degree of creativity by all participants. The dominant level of creative magnitude of the 'Mail me Art' collection is found between mini-c and little-c because many artists displayed a certain degree of expertise in MA, a new field for them.

APs are new and meaningful to them (intrapersonal vision) but for many of them the fact that the product was valuable to others is also relevant (interpersonal vision).

A small number of young artists incorporated innovative elements both in their sources of inspiration and in the creative artistic techniques deployed, approaching a more professional and mature approach in their work (pro-c). They produced sustainable postal art using living raw materials such as seeds, earth, water, wood, flowers and natural inks. The use of these elements conditions the state of the works since some are designed to transform and others will inevitably change.

The sources of inspiration provide information about the elements of sustainability selected by the artists as a starting point for the construction of their work. Among these, elements and concepts linked to the landscape (flowers, trees, rivers, etc.), memory, the human being, sensory experiences or new technologies stand out. The artists have worked with various aesthetic qualities such as color, shape, materials, and other sensory qualities such as sight or touch. The materials used in the collection were paper, cardboard, earth, glass, seeds, wood and packaging. Sometimes the use of materials for composition is in turn a message that calls for the circularity and reuse of materials (eg. AP5, AP6, and AP11), recycling (AP3), and reduction (AP4). Finally, the most used artistic techniques were collage (11 works), photography (9) and design (6), while in some of them several techniques were combined (eg. photography and collage). Moreover, two artistic works used watercolor and two others created installations. Finally, one work is an engraving and another a ceramic.

Three main creative techniques were identified in the 'Mail me Art' collection. Fig. 2 shows three examples to illustrate them.

- Preservation of traits. A large number of the APs resorted to this creative technique that involves maintaining the original characteristics of the inspiration source by preserving aesthetic qualities such as colors (AP2, AP4, AP20), materials (AP12, AP26), shapes (AP18, AP20, AP29), or other sensory qualities (AP4).
- Adaptation. This technique involves the aesthetic adaptation of some of the characteristics of the inspiration source and can be observed in nine APs.
- Transformation. A third group of techniques involves an aesthetic transformation of the qualities of the elements that served as a source of inspiration, but still maintaining the ability to convey a message about sustainability. This is the smallest group which comprises four APs (3, 5,14, 23).

4.2. How do young artists connect with sustainability problems? Content and intent of sustainability messages

In the self-reports (SRs), the artists captured both their experience in the process of creating and the meaning and purpose of their postcards. As the study was designed through MA, all the artists' interventions have a recipient and therefore a communicative intent. Even so, there are notable differences in the topics covered and the intentionality expressed by the authors (communication strategies).

4.2.1. Sustainability themes and messages

As was logical in a research design with volunteer participants, all the participants show a medium or high connection to sustainability issues. There is a high degree of acceptability of the SD model among the

PRESERVATION

"The planet is a home that provides the basic elements for life (air, land, water)."
(SR-12)

ADAPTATION

"The postcard is imprinted with leaves, bark and seeds. Only the trace remains, there is no trace of the original, like a fossil (...) what burns is lost, it no longer exists, it is ash in the wind. " (SR-11)

TRANSFORMATION

"Postal is completely built with different wastes (newsprint and coffee grounds) that take on a new shape and utility. The seeds it contains will germinate and remain in time, not only in the memory of the person who receives the postcard." (SR-3).

Fig. 2. Main creatives techniques in the 'Mail me Art' Collection.

young artists, although questions from the most critical positions increase the real power of the SD model to modify or transform the hegemonic model of development. From the literature review and the analysis of the SRs, sustainability issues have been identified that are specified in 13 relevant sustainability messages (Appendix B). Several can appear in each work.

These messages inform about sustainability views. The extent to which the artistic products lean toward the different sustainability views differs because notions of sustainability and SD are subject to considerable dispute. Despite this, a predominant vision has been identified. It is characterized by: recognition of a reality of destruction (destructionism), confidence in change (constructive hope), acceptance of responsibility of all humanity (distributed responsibility), future orientation (futurity) and predominance of the global scale (global focus).

4.2.1.1. Destructionism. The APs are created within the framework of the very present dichotomy of destruction (eg. ashes) vs. reconstruction of the planet (for example, seeds). Sometimes both visions merge into the same AP (SR-14).

The most repeated sustainability message in the collection (14 occurrences) has to do with the existence of serious threats that put sustainability at risk, such as climate change, pollution and the depletion of resources, framed within the asymmetric relationship and the exercise of domination and violence that is established between the human species and nature and/or the planet (SR-28). The binomial man as an individual or collectivity (society or species) and the planet are the protagonists of the collection, appearing in 21 out of the 29 works which address issues such as destructive human practices, irreparable damage, overexploitation or abuse of resources. Resources are the central element of four APs (4, 12, 22 and 28) that fundamentally include the idea of the finiteness of natural resources. Only once was the economic notion of efficiency incorporated (AP4). The framing of the collection is fundamentally ecocentric. These artists have placed their interpretation in a perspective of excesses in the use of resources by present generations

(with certain nuances of the neomalthusian view) while none focus on current social behavior in a positive sense.

4.2.1.2. Constructive hope. The message of planetary sustainability in a positive sense is artistically expressed under the concept of 'life' (an inspiring theme of the entire collection represented in a third of the collection). The idea of construction appears to a lesser extent than destructionism and is linked to trust in the human species to redefine links with nature and to act. The participants give relevance to the message about the need to change to more sustainable lifestyles as a necessary step in sustainability transformations, emphasizing the importance of emotional engagement with sustainability issues and the power of culture.

The participants have paid special attention to cultural dimensions but scant attention to science and technology to reverse the situation and by no means hint at the technological optimism common in academic, business or political literature. Interest in the cultural context is shown in two directions. First, the value of the legacy is discussed, taking the form of 'lessons from the past' (memories, memory and collective imagination) to be safeguarded with '*respect and care*." (SR-20). It is here that the weight of the emotional dimensions emerges most clearly, demonstrating their expressive power and efficiency (SR-3). Secondly, a global cultural change is called for. The proposed change must lead to the search for a balance between man and nature, and between nature and culture.

4.2.1.3. Global focus. The multiple visions of sustainability that the collection includes are located in a predominant spatial coordinate that is the global scale (there are few works that stop locally, eg. SR-25). At this level, art has served various artists to *"revise the concept of sustainability"* (SR-15) and to expose some of the contradictions of the notion of SD revealed by academics.

Some APs express the permanent struggle of the SD model "*to balance the environment and our consumption*" (SR-5), and the accelerated imbalance with the *"normalization of the unsustainable"*, in a world

where immediacy is facilitated by the new technologies (as an expression of lifestyle habits) and consumerism (SR-15). Others contain messages about *"sustainability that reminds us that any form of organization based on abundance is not an option."* (SR-27). These are messages that invite reflection on practices such as 'voluntary decrease' (SR-20), or that emphasize the costs of unsustainable lifestyles: *"Our growth, entertainment and our journey on earth are not free of cost"* (SR-10).

4.2.1.4. Responsibility. The analysis traced to what extent the messages called for personal commitment and action. 12 of the 29 APs contained an explicit message inviting the receiver to participate and be part of change through action.

The idea of responsibility is transversal in many works, although the two essential planes, individual and collective, are made explicit only in SR-7 and SR-20. Both notions, responsibility and action, generally go hand in hand, but the creative idea does not always focus on them. Three relevant themes appear in this sustainability message: the need to assume the individual role, the relevance of the community (*"sustainable development … is the fruit of a common intention",* SR-5) and the vision of what society should be/do. When young artists think of contemporary society, they only do so to criticize two of its characteristic features: society is fundamentally consumerist (SR-15) and hedonistic (SR-10). For the future, artists would like a more collaborative society (SR-19), in dialogue with nature (SR-5), aware of overexploitation (SR-19) and of excess waste generation (SR-3) and, in short, a "More humane and supportive" society (SR-20).

A third of the creators express their responsibility as agents of change, and they convey the message of "being still on time" to encourage mobilization towards action.

However, future oriented responsibility and the distributed responsibility of all humanity (collective and global) predominate: *"We must unite to save (the planet) through a change in consciousness, mentality and actions"* (SR-3). The sense of urgency and emergency conveyed by the recently intensified social movements worldwide have not played the leading role in this collection that may have been expected.

4.2.1.5. Futurity. The temporal coordinate permeates all the works and a third of the collection uses the notion of 'time' as an inspiration, often to express the idea of continuity: "*Yesterday sends an alert message to our today, so that we think and reconsider what we want to teach and leave behind to our future*" (SR-18).

The past is a source of inspiration materialized in the notion of 'memory' or 'imaginary' (in six of them), but the notion of futureness prevails, present in seven APs, linked to the message of the importance of leaving sufficient and high quality resources to future generations, so *"That our children do not have to solve the problems that we have generated as parents"* (SR-3).

On the few occasions when the present time is spoken of (SR-28; SR-3; SR-11), the message ties in with the idea of running out of time for reconstructive action and warns about time limits, although words such as urgency, emergency or crisis are not used and the idea of 'being still in time' prevails: *"We are still in time to change our perspective and learn"* (SR-28).

In short, many participants pay more attention to the need to guarantee a future than to take action to solve sustainability problems in the present. The responsibility assumed is nevertheless placed on all humanity, thus avoiding individual agency. Something similar occurs when placing problems in the realm of the global perspective. Globality, responsibility and futurity could become discourses which delay action (Lamb et al., 2020).

4.2.2. Artists' intentionality and communication strategies

The predominant vision described above is completed with an interpretation of how the participants communicate their sustainability messages.

In eight SRs, the artists have incorporated a personal opinion about the role that art has in relation to sustainability (3, 4, 5, 6, 14, 15, 16, 19) and its ability to promote reflection, awareness and protest (Molderez and Ceulemans, 2018). In the individual creativity process, there may or may not be an intentional motivation to promote external change. In the 'Mail me Art' collection, the main recipient of the postcards is society in general, except in the case of a letter 'addressed to the environment' (SR-5). In 15 SRs, the authors themselves have expressed their intention; the rest have been analyzed by three different researchers using an interpretive approach in order to identify the strategy used. The results are presented below (Table 2).

- *Reflective communication strategy.* Many participants have chosen a reflective strategy to communicate their sustainability messages. Half of the collection features a reflective approach; this is the most numerous. The artist reflects and invites the participation of the receiver or spectator in the said reflection (SR-2). Frequently this reflection arises from different questions that the artists ask themselves as a starting point to create their work. For example: *"What is our responsibility within the current great environmental problem?"* (SR-7). There is also a smaller group of contributions with a more intimate and individual speech about the artist's creative experience, or the artist's role (SR-23).
- *Awareness communication strategy.* Awareness messages include arguments to convince people of the need to assume responsibility and agency. When the APs include the purpose of raising awareness, the work is usually expressed in the first person plural (e. g. 6, 10, 14, 17, 21, 28, 29) adopting a social/collective approach (this also predominates in the critical or protest approach, as we will see), moving from the individual to the collective, or integrating both (SR-20; SR-21; SR-25; SR-28).
- *Critical communication strategy or protest.* This is mainly related to a recurring theme such as the collective co-responsibility for the destruction of the planet (SR-1), irreparable damage to nature (SR-21) and self-destruction (SR-1, SR-21, SR-17). It is sometimes recalled that mistreating nature calls into question our value as a species or as citizens of the world (SR-1), and also undermines individual and collective health (SR-17). Some artists accuse the human species of "*citizencide*" ("ciudicida" in the Spanish version of SR-1) for attacking themselves; others demand the restoration of the ecological debt, and *"of all that was lost. Everything that burned"* (SR-11). Finally, others mention little-addressed issues such as the commodification of nature and interregional inequality in the world: *"Sustainability for whom?"* (SR-1).

In general, this is not simply expressive criticism, it is an invitation to

Table 2
Classification of works according to the artists' intentionality and communication strategy.

Artist intentionality-Communication Strategy>	Description	Artistic Works (N = 29)
Reflective	Artistic work is a reflective process around an aspect of sustainability. The artists express themselves in this way and sometimes invite the public to be part of the messages contained in their work.	2, 5, 7, 8, 9, 10, 12, 13, 14, 16, 19, 23, 24, 25, 27
Awareness	The artist highlights the value of the work to awaken consciences, sensitize the public or transfer lessons.	3, 4, 6, 18, 20, 26, 29
Critical	The artist adopts and expresses a particularly critical attitude towards some of the aspects associated with sustainability.	1, 11, 15, 17, 21, 22, 28

collective awakening and active positioning:*"I try to awaken a critical and sensitive or reasoned vision against the normalized aberration of unsustainability."* (SR-15).

4.3. 'Mail me Art' as actions for sustainability and educational implications

Higher education can adopt different ways of stimulating the nexus between creativity and sustainability as well as influencing or changing values and actions (Bask et al., 2020). Collins and Kearins (2010) invited their students to live in an eco-village. We invited young artists and students of the arts to develop their individual creativity through MA. This was a good starting point for understanding some of the mediating and reinforcing factors of the nexus between creativity and sustainability. The results reflect various implications for ESD within the Arts.

Firstly, ESD should address the level of students' creativity (e. g. according to the Four C model of Kaufman and Beghetto, 2009). Brem and Puente-Díaz (2020) argue that to achieve a necessary transformation and to generate effective and creative solutions, the curricula of higher education should attend to personal values, ethics and reflection in the learning process, even if the impact and reach of the actions are not significant. In this sense, the 'Mail me Art' participants contribute to pro-sustainability actions at the mini-s and little-s level (Brem and Puente-Díaz, 2020). In the majority of cases the creative products will be of low impact, but all the mini or little actions for sustainability in the collection have the intention of moving from the intrapersonal to the interpersonal level through communicative experiences when expressing their ethical, critical, creative, proactive and focused views to convince society and to promote cultural change in order to tackle sustainability problems.

The mini or little actions for sustainability can be seen as preliminary steps to higher impact creativity and actions for sustainability. However, the really important issue is their essential role in both individual and social learning processes. With their messages and limited solutions, these young artists are 'part of the socialitation process of sustainability and part of the development of a culture of sustainability' (Brem and Puente-Díaz, 2020: 6).

Secondly, ESD should encourage creativity with values more closely connected with sustainability, such as universalism (Bask et al., 2020). Individuals do not understand and internalize this value until they identify the survival needs of individuals and groups and the scarcity of natural resources (Schwartz, 2012; Bask et al., 2020). In this sense, the main sustainability messages in the collection (1, 2 and 3) (Appendix B) display a remarkable degree of internalization of the value of universalism by the participants.

Thirdly, ESD should also encourage students to develop ethical creativity that is also mindful of its consequences (messages 4, 6, 8 and 12). Participants understand how their own decisions and behavior influence the sustainability of the planet and recognize that humanity is jeopardizing this sustainability for future generations (messages 1, 3, 5, 8 and 13). In contrast to the competitive mentality that pervades most education systems, a system that fosters creativity guided by ethical action is empowering and offers far greater shared hope for the future (Walsh et al., 2017) (messages 6, 7 and 9).

Fourthly, a critical perspective is essential for transformative learning for change (Kearins and Springett, 2003; Vare and Scott, 2007; Sterling, 2011; Mulà, 2017; Bentz and O'Brien, 2019; Bask et al., 2020). In this regard, teachers have to choose which orders of learning and change to pursue. Sterling (2011) identifies three orders depending on whether a weak or strong view of sustainability is sought: 1) "More of the same", based on transmissive pedagogies transferring knowledge, 2) "doing better things" based on a review and possibly change of values from a critical perspective, and 3) "seeing things differently" based on a paradigm change. When SD calls for radical change, a critical position should form part of the critical skill-set ESD should seek to develop in students (Kearins and Springett, 2003). In the present study, the

participants' positions are more reflective than critical (Table 2). Therefore, the educational challenge is to stimulate critical creativity (Chen, 2019), considering all information from a critical perspective to advance towards transformative learning (Sterling's third-level order). In addition to this, it is necessary to change the young artists' current role. Currently they are aware of the problems but remain merely observers, and their visions are centered on globality, distributed responsibility and delayed actions.

Finally, in ESD it is necessary to choose between the competing conceptions of SD (Axon, 2020) and the competing values that support them (Leiserowitz et al., 2006).

Some important SD issues are not present in the artistic works in the collection because of the way young artists and students view sustainability. The participants think of sustainability as being principally environmental and keep both social progress/equity (message 13) and economic growth (no message) in the background. In relation to the five pillars of the 2030 Agenda, they have a vision of SD which is very centered on the planet, highlighting respect for nature and an ecocentric worldview (messages 1, 2, 3, 4, 5, 7 and 8) but paying little or no attention to the other SDG pillars. There is a lack of references to issues such as social conflict, the inclusion of the world's most disadvantaged populations or the question of equitable accessibility to natural resources and their benefits. The artists have frequently valued the "rights" of future generations to inherit a healthy natural environment from current generations, to have resources that guarantee their existence, well-being and a good quality of life; but they have not paid attention to the needs of the most disadvantaged people, groups and territories today. For example, the socio-economic differences between the different regions of the world or inequality between countries appears as a central message on only one occasion (SR-1). The considerable attention given to intergenerational equity contrasts with the absence of references to intragenerational equity at present. This demonstrates the need for universities to address the current demands of disadvantaged groups and regions, while anticipating future needs.

In relation to the contexts of sustainability, the absence of references to the institutional or political framework is also noteworthy, as is the scarce prominence of both the economic dimensions and the scientific-technological environment, despite the weight that the global debate on sustainability is placing on these areas. Only four of the contributions refer to technology, but more as a tool rather than as a context or dimension.

An ESD aligned with current universal values, ethics and objectives (UN, 2015) should address with greater attention issues that are barely reflected in the collection (equity, equality and justice). The possibility of achieving a change in values even in the short period of time that students are in education (Myyry et al., 2013) provides opportunities for and imposes responsibilities on universities and their teaching (Bask et al., 2020).

5. Conclusions

This case study is situated at the intersection of university education, research on individual creativity, and sustainability communication. This under-researched area of investigation can provide a better understanding of the ways in which the young interpret, engage with and communicate sustainability and SD. Moreover, the study has illustrated that artistic experiences in ESD -through the activation of the meaning-making process in the area of sustainability-can be instruments to acquire values on the relationship between humans and ecosystems, to promote critical ecocentric creativity, to encourage the assumption of individual responsibility and one's own role in the global community, to advance the activation of creativity to devise better and more creative future solutions and scenarios, and finally to foster the construction of new forms of sustainability messages that integrate cognitive, affective and behavioral dimensions.

This work distinguishes itself from other similar studies by drawing

from artistic and social inquiry around sustainability with new theoretical and methodological approaches. It can encourage students, teachers and education administrators to expand their methodological horizons in their studies or teaching of sustainability. Including creative learning experiences such as MA into the higher education curriculum can help both students, new artists and 'receivers' to reconceive the role of humans on the planet to tackle the huge challenges associated with sustainability. The incorporation of new learning methods to stimulate creativity is a necessary response to growing demands for innovation in present and future societies within the SD framework.

This formative practice of reflection, research, creation and communication, from a transformative educational approach, could be completed and improved in four ways. First, with the incorporation of larger samples. Second, with the incorporation of the collective dimension of socialization following on from the individual creation, which would give students the opportunity to exchange their creative techniques and visions of sustainability, reinforcing the learning experience in the CirculArt Project. Third, with an analysis of the degree of appropriation of the sustainability messages by the recipients, or the effects on the artists' viewpoints during or after the Mail me Art experience. Lastly, the study could be contrasted or replicated in frameworks of collective creation that are proving to be very productive in all fields of innovation and learning in ESD.

CRediT authorship contribution statement

Alexia Sanz-Hernández: have collaborated on an equal basis with the, Conceptualization, Methodology, Resources, data collection, Formal analysis, as well as the, Writing – original draft, and the final version. **Irene Covaleda:** have collaborated on an equal basis with the, Conceptualization, Methodology, Resources, data collection, Formal analysis, as well as the, Writing – original draft, and the final version.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

APPENDIX A

'MAIL ME ART' COLLECTION
Place of provenance and original title of the work.

Number (AP-SR)	Place of provenance of the postcards	Original title of the artistic work
1	Valencia	DO MORE. BE MORE. European Youth Card 2020.
2	Lizaso	From Sweden to the world
3	Zaragoza	Infraleve de Semillas
4	Murcia	DIDACTICA DE LOS SENTIDOS
5	Castellón	Sin título
6	Santiago de Chile	No son 30 pesos son 30 años
7	Teruel	Carta 1: Lo inerte en nuestro umbral. Carta 2: El desierto no entiende de proporciones. Carta 3: Hacer germinar un oasis en el desierto
8	Teruel	Sin título
9	Bilbao	SELAM
10	Teruel	World's toy
11	Zaragoza	Lo que arde
12	Zaragoza	Archivo 2020
13	Zaragoza	IN SAECULA SAECULORUM
14	Teruel	Sin título
15	Zaragoza	Deconstrucción I II y III
16	Bilbao	Trayectos
17	Teruel	Sin título
18	Huesca	Buscándonos
19	Baracaldo	CREAR
20	Madrid	SOSTENIBLE
21	Valencia	¿Quién domará nuestros jardines cuando ya no estemos?
22	Logroño	¿HASTA CUÁNDO?
23	Valencia	Looks like tomorrow, but it is today 0101
24	Teruel	SIN TITULO
25	Bilbao	OPEN ME. Habitantes del paisaje
26	Teruel	Por un futuro en el que todas nuestras herramientas sean plantables
27	Valencia	ESTUDIO ORGANOLÉPTICO
28	Pamplona	Agua. Boca acaimanada
29	Zaragoza	Un mundo, dos visiones. ¿Sostenibilidad efímera? Y Eliksiro

APPENDIX B

Main sustainability messages and themes in the 'Mail me Art' collection.

Messages*	Themes	Artistic Works (N = 29)	Appearance of themes (n)	Frequency of messages appearing (n = 114)	Appearance percentage of messages (%)
1.Existence of serious threats that put sustainability at risk	Climate change	1, 2, 4, 29	4	14	12%
	Pollution	1, 17, 18, 19, 29	5		
	Finiteness/exhaustion of resources	4, 12, 18, 22, 28	5		
2.Planetary sustainability as a guarantee of life	Restore	3, 4, 5, 12, 17, 19,		11	10%
	Create	20, 25, 26, 28, 29			
	Plant				
3.Ensuring a sufficient and quality legacy for future generations	Needs of the generations to come	3, 6, 15, 27, 29	5	11	10%
	Enhance the legacy	18,19, 28	3		
	Reset footprint	11,16,18	3		
4.Need to bring about a cultural change by strengthening ties with nature	Change	3, 6, 19, 20, 23, 25	6	11	10%
	Links (Rooting, affection, respect, connection)	5, 19, 20, 25, 29	5		
5.Asymmetric and domination relationship between human species and planet	Destructive practices	1, 3, 14;	3	10	9%
	Overexploitation	12, 14, 22	3		
	Irreparable damage	12,17, 21	3		
	Abuse (misuse)	4	1		
6.Responsibility and agency	Assumption of individual role	7, 20	2	10	9%
	Relevance of the community	23, 27, 29	3		
	What society should be/do	3, 5, 15,19, 20	5		
7.Sustain in time	Continuity	3, 6, 10, 11, 16, 18,	10	10	9%
	Preservation Perpetuity Cyclicity	20, 22, 27, 28			
8.Setting limits on lifestyles incompatible with sustainable living to achieve balance	Consumerism	12, 15, 17;	3	9	8%
	Unsustainable lifestyle costs	27	1		
	Need to strike a balance	11, 15, 17, 27, 29	5		
9.Project and devise future scenarios	Desirable futures	7, 12, 13, 14, 18, 23,		8	7%
	Futures at risk	26, 27			
10.Accept the lessons of the past	Memories and memory as part of the cultural legacy	3,11, 12, 18, 23, 25, 27, 28	8	8	7%
11.Technology as support facilitator to advance sustainability	Technology	15, 23, 26, 27	4	6	5%
	Science	15, 23	2		
12. Internal SD contradictions	Paradoxes of sustainable growth	5, 10, 20, 27	4	5	4%
	'Voluntary decrease'	20	1		
13.Equity/equality between countries	Socio-economic differences	1	1	1	1%

*The messages have been identified through analysis of the SRs with a simultaneous codification.

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