ORIGINAL ARTICLE

Transforming Learning Environments in Early Childhood Contexts Through the Arts: Responding to the United Nations Sustainable Development Goals

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Abstract

UNESCO's Education for Sustainable Development Roadmap highlights the need to transform learning environments by integrating the 17 Sustainable Development Goals from United Nations Agenda 2030. This presents challenges for early childhood education in establishing a trajectory to transform the way young children see the world and themselves. These challenges include: reviewing adults' views of children's capabilities, developing strategies to support children's resilience and ensuring that children have their say, and pushing back against narrow views of children's learning. ECE supporting sustainability, global citizenship, human rights, and peace (see goals 4.2 and 4.7) can be underpinned by arts experiences that allow young children to engage with others' lived experiences. This paper supports the notion that the arts can play a crucial role in supporting transformative education and addressing the challenges facing ECE for sustainability. Through an Arts Immersion approach to learning and teaching, the arts can be accessed as unique languages for inclusive learning and communicating. In support of this broader pedagogy, understandings of literacy and numeracy, physical development, social-emotional development, and learning that are presented in the SDGs 4.2 and 4.7 are critiqued. In considering challenges for ECE for sustainability and the role that the arts can play in transforming ECE, this paper argues that the languages of the arts can enable young children to understand issues relating to sustainability, to express this understanding more vividly, and to build their agency as global citizens in a more sustainable, just, and peaceful world.

Keywords Early childhood education · Sustainability · Arts Immersion · Sustainable development goals · Arts education · Transformative education

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Abstrait

La feuille de route de l'éducation pour le développement durable de l'UNESCO souligne la nécessité de transformer les environnements d'apprentissage en intégrant les 17 objectifs de développement durable de l'Agenda 2030 des Nations Unies. Ces défis comprennent : examiner les opinions des adultes sur les capacités des enfants, développer des stratégies pour soutenir la résilience des enfants et s'assurer que les enfants ont leur mot à dire, et repousser les visions étroites de l'apprentissage des enfants. Voir objectifs 4.2 et 4.7) peuvent être étayés par des expériences artistiques qui permettent aux jeunes enfants de s'impliquer dans les expériences vécues par d'autres. Cet article soutient l'idée que les arts peuvent jouer un rôle crucial dans le soutien de l'éducation transformatrice et la résolution des défis auxquels est confrontée l'EPE pour la durabilité. Grâce à une approche d'apprentissage et d'enseignement d'immersion artistique, les arts sont accessibles en tant que langages uniques pour un apprentissage et une communication inclusifs. À l'appui de cette pédagogie plus large, les compréhensions de la littératie et de la numératie, du développement physique, du développement socio-émotionnel et de l'apprentissage qui sont présentées dans les ODD 4.2 et 4.7 sont critiquées. En examinant les défis de l'EPE pour la durabilité et le rôle que les arts peuvent jouer dans la transformation de l'EPE, cet article soutient que les langages des arts peuvent permettre aux jeunes enfants de comprendre les problèmes liés à la durabilité, d'exprimer cette compréhension de manière plus vivante et de construire leur agence en tant que citoyens du monde dans un monde plus durable, juste et pacifique.

Resumen

La Hoja de Ruta de Educación para el Desarrollo Sostenible de la UNESCO destaca la necesidad de transformar los entornos de aprendizaje mediante la integración de los 17 Objetivos de Desarrollo Sostenible de la Agenda 2030 de las Naciones Unidas. AQ1 Esto presenta desafíos para la educación de la primera infancia en el establecimiento de una trayectoria para transformar la forma en que los niños pequeños ven el mundo y a sí mismos. Estos desafíos incluyen: revisar los puntos de vista de los adultos sobre las capacidades de los niños, desarrollar estrategias para apoyar la resiliencia de los niños y garantizar que los niños tengan su opinión, y rechazar las opiniones estrechas sobre el aprendizaje de los niños. AQ2 ECE apoya la sostenibilidad, la ciudadanía global, los derechos humanos y la paz (véanse las metas 4.2 y 4.7) pueden sustentarse en experiencias artísticas que permitan a los niños pequeños participar en las experiencias vividas por otros. Este documento respalda la noción de que las artes pueden desempeñar un papel crucial en el apoyo a la educación transformadora y en el abordaje de los desafíos que enfrenta ECE para la sostenibilidad. A través de un enfoque de inmersión en las artes para el aprendizaje y la enseñanza, se puede acceder a las artes como lenguajes únicos para el aprendizaje y la comunicación inclusivos. En apoyo de esta pedagogía más amplia, se critica la comprensión de la lectoescritura y la aritmética, el desarrollo físico, el desarrollo socioemocional y el aprendizaje que se presentan en los ODS 4.2 y 4.7. Al considerar los desafíos para la sostenibilidad de ECE y el papel que las artes pueden desempeñar en la transformación de ECE, este documento argumenta que los lenguajes de las artes pueden ayudar a los niños peque-

ños a comprender los problemas relacionados con la sostenibilidad, expresar este entendimiento más vívidamente y construir su agencia como ciudadanos globales en un mundo más sostenible, justo y pacífico.

Introduction

The United Nations Educational Scientific and Cultural Organisation's Education for Sustainable Development Roadmap highlights the need to transform learning environments by integrating the 17 sustainable development goals (SDGs) from United Nations Agenda 2030. These goals require the world to change focus towards a sustainable future that sees an end to poverty, a reduction in inequality, and a renewed effort to protect the planet (United Nations, 2015). The UN Foundation cites the "heroic and imaginative effort" (United Nations Foundation, n.d.) required for achieving the goals. Education has a key role to play in these efforts (Davis, 2015; Gilbert et al., 2015), and yet researchers such as Kopnina (2020) question whether teaching for the SDGs is indeed desirable at all. In this paper, we argue that the refocussing and imagination required for a more sustainable world can be supported by early childhood education (ECE) with a strong arts focus, as the arts provide opportunities for seeing the world in new ways and for imagining different futures (Wright, 2012).

This exploratory paper is not a research report but rather poses questions and makes suggestions about what sort of ECE is needed in times of uncertainty and upheaval, what are the challenges for ECE, and what role the arts can play. Human beings need to transform the ways we live; therefore, transformative approaches to education are required. We explore the potential role of arts-based pedagogy as an approach for transformative ECE that can contribute to sustainable development. The arts provide us with a means to consider the SDGs differently, particularly Goal 4. Thus, our two research questions for this paper are:

What are the challenges for ECE to contribute to a more sustainable world? and
What role can the Arts play to provide a more transformative ECE?

Theoretical Perspectives on Early Education for Sustainability and the role of the Arts

The Sustainability Problem Requires a Transformative Type of Education

The 2030 Agenda for Sustainable Development, including the 17 SDGs, requires unprecedented global cooperation to end poverty, improve the health and education of world citizens and address the urgent issues of climate change and habitat loss, while supporting economic growth. However, Kopnina (2020) explores the innate contradictions of these aims in her critique of the SDGs, as she argues for

the impossibility of the idea of sustainable development that is founded in economic growth. A transformed world, instead, should involve citizens rethinking the ways they live and imagining new futures, including futures without overshooting natural systems' capacities to endure and regenerate (Kopnina, 2020). Individual and societal transformation on this scale requires a transformative approach to sustainability education that considers social, economic and environmental issues while questioning taken for granted ideas about progress, development and growth (Ferreira et al., 2021). This presents challenges for ECE in supporting the pivotal changes necessary to transform the frameworks through which the world, globalisation and the Anthropocene (the epoch where the dominating influence is the human species) are perceived (Arlemalm-Hagser & Elliott, 2020). If the SDGs are to be meaningfully addressed, present and future citizens of the planet must be open to the challenge of transforming fundamentally the ways in which we see the world, and also the way we live. As Jickling (2017, p. 28) notes, "creating educational experiences that are held, felt, and disruptive might just be the basis for learning that is, indeed, transformational." Our aim in this paper is to explore the idea that arts-based pedagogies provide opportunities that are held, felt and disruptive for young children. Our position in relation to the role of the arts aligns with the earlier *Road Map for Arts Education* (UNESCO, 2006) which declared the importance of arts education in unlocking individual and collaborative creative potential to support cultural engagement and the building of "emotional intelligence and a moral 'compass' "(UNESCO, 2006, p. 4). Through these important attributes, arts education may play a crucial role in transforming ECE by contributing to effective strategies for addressing the environmental and sustainability crises facing the planet and humanity's role in these emergencies.

How the Arts Can Support Transformative Education

The arts have a long history in the education and care of young children, demonstrating their capacity to address challenges as they arise. Rousseau, Pestalozzi and others were the first Europeans to acknowledge the importance of art in early childhood (Stevens et al., 2011). Austrian teacher and artist, Franz Cizek, began the Child Art Movement in the early 20th century, organising art classes and exhibitions for children (Boughton, 1989). Early childhood curricula across international contexts include the arts as an essential learning area for young children. It is generally taken for granted that high-quality early childhood programs include opportunities for children to engage with music, dance, drama, and the visual arts as forms of creativity and expression (Dinham, 2020; Dinham & Chalk, 2018; Roy et al., 2015; Russell-Bowie, 2015). This is because the arts can encourage learner agency, make ideas visible, encourage problem-solving, and provide opportunities for creative expression.

The arts provide children with languages to express and develop their knowledge about many aspects of their world. Various authors have highlighted the transformative power of the arts for encouraging young children's thinking and learning towards cultures of sustainability (O'Gorman, 2010, 2017; Ward, 2013). ECE

supporting sustainability, global citizenship, human rights, and peace can be underpinned by arts experiences that allow young children to engage with others' lived experiences. Previous work in early childhood education for sustainability research explores this idea (O'Gorman, 2017), arguing that images depicting unsustainability and social injustice, for example, can draw children into useful conversations about these important topics, building empathy for others, including other species. The arts represent other ways of knowing which embrace play-based and embodied learning to foster inquiry and innovation (Ewing, 2012b). As children's first languages (Wright, 2012), play and the arts can shape young children's understanding of themselves and their world, and may offer an inclusive medium for expressing important messages (Eisner, 2004, 2005). The arts can be accessed as a domain of learning and as a vehicle to access other learning through an Arts Immersion (Chapman, 2015a, 2015b, 2018) approach to learning and teaching. An Arts Immersion approach can contribute to refocusing education towards more sustainable and socially just futures for children (Moore, 2020).

Arts Immersion

Arts Immersion is an approach that acknowledges the arts as a group of unique languages. The term has been created as an amalgam between language immersion and integrated arts pedagogy (Chapman, 2015a, 2015b, 2018), and is underpinned by Eisner's (2005) definition of language as "the use of any form of representation in which meaning is conveyed or construed" (p. 342). The arts communicate by fulfilling the function of a language as they: provide a sense of home and a mother language for many, producing their own unique semiotic systems which give rise to unique expressions and a range of literacies (Chapman, 2015a). The elements of each arts language (e.g., pitch in Music and colour in Visual Arts) are the building blocks through which meaning making occurs. Additionally, they represent different cultures and times which reflect viewpoints, shared histories, and an understanding of our place in the world, thereby shaping our identity as people and as learners (Chapman, 2015a). This concept of Arts Immersion is described as "the process of using the arts as the purposeful medium through which enhanced learning occurs across disciplines to inform mutual understandings" (Chapman, 2018, p. 9). Mutual understandings can be developed across disciplines when a topic, issue, concept, process, or problem is explored through different learning areas using arts languages. For example, the language of Drama can be used to explore sustainable development with reference to social and biological scientific understandings, by having children take on the roles of stakeholders in a situation where plastic is polluting the sea (e.g., scientists, turtles, sea birds). They can gain a deeper understanding of the issues involved through considering other perspectives and developing empathy and compassion for those who are adversely affected.

There is a paucity of empirical research regarding Arts Immersion. The term, Arts Immersion, has often been used interchangeably with arts integration or arts fusion where it usually describes short-term projects like an artist in residence or a unit of study (Brewer & Brown, 2009; Brown, 2007; Cornett, 2011). In Australia,

the term has been used similarly in secondary school settings (Rowville Secondary College, 2016) and has also been applied to workshops (Australian Centre for Contemporary Art, 2008) or the title of an online site (Rainbow Arts Immersion, n.d.). However, these projects may focus on including the arts rather than integrating them across the curriculum. Their temporary nature shows that there is a need for more long-term approaches to address sustainability through the arts. The Calgary Arts Academy in Canada is a rare example of a school that consistently integrates the arts in schools in their curriculum (Babiak & Ohler, 2012; Moore, 2020). As this term has just begun to be used in its fullness since 2015 in accordance with Chapman's definition, considerably more research will be required to provide the necessary empirical evidence to transform students' lived experience of the world through an Arts Immersion approach.

Empirical evidence regarding an Arts Immersion approach in Chapman's (2018) case study with 10–12-year-old students may have implications for younger children. This critical participatory action research conducted in a Year 6 class suggests that the benefits of this approach for older children include the following changes in their classroom learning experiences: enhanced engagement with learning through deeper cognition; improved focus on tasks; and increased equity in terms of equal access to meaningful learning (Chapman, 2018). A pre- and post- Social Emotional Wellbeing (SEW) Survey (Australian Council for Educational Research, 2016) indicated a significant improvement in students' social-emotional wellbeing after using an Arts Immersion approach for six months. Another important finding from this research is that for children to fully benefit from this approach they need to be "arts ready" (Chapman, 2018, p. 282). This means being familiar with making meaning through the arts languages. The benefits to be gained from this approach can be maximized by creating arts readiness prior to school settings, when the formation of children's neural pathways, self-awareness and understanding of the world have more potential for flexibility. This can assist in preparing children to negotiate current and future dilemmas; for supporting the "heroic and imaginative effort" (United Nations Foundation, n.d.) called for by the UN, via the SDGs.

The Role of the Arts in Children's Lives

The arts can encourage individuals and societies to change their views and help children to see the world and their place in it, in new ways. They do this by encouraging people to see the world through the lens of the arts languages and to bring the aesthetic dimension to our living and our decision-making (Sinclair, 2017). Through their capacity to foster critical and creative thinking, the arts encourage us to ask the "what if" questions (Chapman et al., 2021), to consider myriad possibilities and perspectives, and to develop inferential thinking through understanding construed meaning making. The arts can encourage us to delve more deeply into important questions and to explore ways of telling stories that impact societies, raising individual and collective awareness of ourselves and our surroundings (Gibson & Ewing, 2020; Goldberg, 2017). They offer us other ways of knowing and the opportunity to view knowledge as more than word-based. Young children instinctively realize this and move comfortably between

different modes of expression to reveal their understanding and communicate that to others (Wright, 2012). For instance, they may talk about a "crunchy" dance, a "heavy" sound, or a "bossy" colour. Neuroscientific research has revealed that there are a range of cognitive benefits involved in arts experiences (Brattico et al., 2013; Contreras-Vidal, 2019). Over 20 years ago, Ramachandran and Hirstein (1999) explained that when artists try to capture the essence of an idea or object, the purpose of aesthetically amplifying that essence is "to more powerfully activate the same neural mechanisms that would be activated by the original object" (p. 41). For example, by creating a visual artwork in response to a situation where a bird has died eating plastic rubbish discarded by humans, the artist can activate stronger neural activity which can then be reflected in a more potent artistic and empathetic response. This response can be felt and understood by children as makers of and responders to an artwork and through engagement in the artistic process.

While the arts can help people to see the world and their place in it in new ways, they can also prompt a range of emotions. The arts can unsettle us by challenging the ways in which we see the world and exposing us to images and ideas that are troubling and uncomfortable. The arts can prompt feelings of discomfort, but the discomfort of children during arts experiences can become a catalyst for developing empathy, compassion (Chapman, 2019) and action-taking (O'Gorman, 2020), key requirements for the enactment of global citizenship. With the support of caring adults, young children can negotiate "emotional obstacle courses" (O'Gorman, 2019, p. 45) such as conversations about climate change and the negative impacts of humans on other species. Avoiding the overprotection of children allows them to experience appropriate discomfort (as distinct from trauma) and to consider the suffering of others (human and non-human) and of our planet (Lukianoff & Haidt, 2015; O'Gorman, 2017). Resilience, compassion and empathy cannot grow in a world of 'happy ever after' where children are removed from perspectives and situations that they may find disturbing (Chapman, 2019). The arts can provide children with ways of expressing profound feelings and seeing the world in new ways, but there are challenges for this type of education. What follows is a discussion of how the arts can address these challenges while supporting the SDGs.

Challenges for Transformative ECE

Given the importance of education for contributing to all 17 SDGs, there are many resulting possibilities and/or challenges for considering the role of ECE in a transformed and sustainable world. These challenges include: the ways in which adults think about children; how they consider children's capabilities for addressing the complex issues facing the planet; and how children's resilience and imagining might be supported and developed. These challenges also have implications for ECE; how to provide opportunities for children to have a say about what is happening in the world so that they can enact their global citizenship, and how to resist conservative, narrow views of children's learning. The arts have a role to play in addressing each of these challenges, as we now outline.

Adults' Views of Children's Capabilities

Transforming ECE requires reconsidering the capabilities of young children. Adults may be challenged by considering children's capacities for addressing risky topics like social justice, sustainability and peace. The sociologies of childhood literature have established that children can be considered capable and competent members of society (Dahlberg et al., 2013). Capable and competent citizens should be supported to express ideas about big topics. Children should have opportunities to enact their agency and advocacy for broad concepts of sustainability and social justice (Arlemalm-Hagser & Elliott, 2020; Davis & Elliott, 2014). Adults might also consider children as risk-takers, both emotionally and physically, and educators have a key role to assist children to develop the necessary tools for active citizenship. O'Gorman (2019) proposed that educators might take calculated risks to confront potentially challenging topics with children, supporting them to negotiate difficult emotional terrain as they build their skills of active citizenship, democracy and participation. Adults might also understand that children are more resilient than we might think. Educators in O'Gorman's (2020) research told stories of children's emotional reactions to images of marine wildlife killed by plastic consumption, but they also noted children's determination to do something about the problem, and that they approached the issue with pragmatism rather than any lasting emotional trauma.

Supporting Children's Resilience

Another challenge for transformative ECE is how families, carers and educators can support children to develop resilience. The importance of children's physical risk-taking to support resilience is well documented (e.g. Little, 2017; Sandseter, 2009; Wyver et al., 2010). So too is the value of social and emotional risk-taking (Brownlee et al., 2017; O'Gorman, 2019). In challenging times, children can be encouraged to have hope that they can be part of finding a solution for the problems that exist, both locally and globally, and hope for a positive future. This can be done by inviting children to contribute to arts-based projects, involving both making art and responding to art, which address the SDGs at a family or local level. For example, the world is full of images that depict pollution, the destruction of natural places and social injustices. Young children are exposed to such images, via the media, every day. Supportive adults can encourage conversations about such images with young children, helping them to find ways to take individual and collective action for a positive response (O'Gorman, 2019, 2020).

Individual and collaborative creative problem-solving using the arts languages can assist children in exploring the "what if" questions considered by the learning areas of the Arts and Science (Chapman et al., 2021). The creative problem-solving capacity of the arts can encourage children to focus on considering a variety of solutions and to realize the complexity of having many potential answers to a problem. The arts can support children in negotiating these complexities, potentially assisting children in developing the persistence to find the best solutions rather than necessarily the quickest solutions. However, this approach need not foster procrastination

but by engaging children's passion to see the world well nurtured, arts-based projects can become the impetus for transformative action.

Ensuring That Children Have a Say

A further challenge of transformative ECE is how we might make sure children have a say about issues that are important to them. Paper 12 of the UN Convention on the rights of the child states that children have the right to freely express their opinions on issues that affect them, and that adults should listen to and respect those opinions (United Nations Committee on the Rights of the Child, 2009). Arts experiences can make opinions and ideas visible, encourage respect for others' perspectives, and help individuals to explore the range of their feelings (Eisner, 2004). In these capacities, the arts can provide a solid foundation for building individual and collective social-emotional wellbeing. Inviting children to have a voice in these contexts empowers them as emerging global citizens rather than disenfranchising them as passive consumers of education. When children's voices can be expressed through the range of unique arts languages, their stories have the potential to become richer and more impactful because they are not restricted to the limits of words.

Pushing Back Against Narrow Views of Children's Learning

Transforming ECE might also require resisting conservative views of what is important knowledge for young children. There is an increasing focus on "back to basics" ECE in many countries which draws on practice traditions that favour drill and formulaic learning with a teacher-as-instructor approach (Cormack & Comber, 2013). The consequent reductionist view of the curriculum has sometimes been exacerbated by national high-stakes testing programs which have tended to drive the planning and facilitation of learning for children (Ewing, 2012a; Polesel et al., 2012; Thompson & Harbaugh, 2013). Arts education pushes back against formulaic teaching approaches (Au & Gourd, 2013; Comber, 2012) and cookie-cutter pedagogies by fostering child-centred learning. The capacity of the arts to embrace complexity and encourage inquiry can be more effective in preparing children to take their place in the twenty-first century. Instead of seeking uniformity in learning, the arts naturally accommodate differentiation and celebrate individual and cultural diversity.

ECE is faced with some important possibilities and challenges in order to contribute to a more sustainable world. Here, in exploring our first research question, we have briefly discussed four of these challenges; adults' views of children's competencies for dealing with complex and confronting issues; the importance of supporting children's resilience, the need to provide space for children to express their views about important topics, and resistance to conservative and narrow views of children's learning. We have also begun to consider our second research question—the role of the arts in meeting these challenges. The heroic and imaginative efforts required to meet the SDGs will need a new kind of education that is visionary and transformative. A key part of this transformation will be addressing the challenges we have outlined here. The arts have a role to play in these efforts as high-quality

arts programs can engage young children in opportunities for critical thinking, problem-solving and openness to change (Dinham, 2020; Gibson & Ewing, 2020). Arts focus can help children to use these foundational skills to actively imagine and create their futures (Wright, 2012).

As well as imagining new futures, transformative arts-focused education can help communities to deal with traumatic events. When Europe was rebuilding after World War 2, the preschool programs of Reggio Emilia in Italy offered a fresh way to educate young children. These programs were built on a philosophy of children using "one hundred languages" (Edwards et al., 2011), to make their learning visible (Giudici et al., 2001). The preschool programs of Reggio Emilia continue to provide an example of how the arts provide diverse languages for young children to make meaning about their world.

Today's crises are those of sustainability rather than global conflict, but the necessity for transformation remains. As we approach climate change tipping points and an extinction crisis, humans are also dealing with a global pandemic. While the SDGs offer communities and policy makers a framework to address the challenges facing the planet, innovative approaches are required. It is important that we explore diverse strategies to address these challenges, to communicate ideas, and to imagine creative solutions. Although the SDG framework can provide an impetus for developing worldwide sustainable practices, such a huge shift must be supported by corresponding changes in education, both in schools and prior to school settings. The SDGs cannot be met without education changing, because education is fundamental to creating these shifts. The arts have an important role to play in this transformation, especially as they support inclusive ways of learning for sustainability that extend to non-Western and Indigenous ways of knowing—perspectives that offer contributions towards sustainability and challenge the notion of endless economic growth (Kopnina, 2020).

Goal 4, *Quality education for all,* is fundamental for all 17 SDGs as it is through formal and informal experiences of learning and teaching that we come to understand and enact the SDGs. Goals 4.2 (*Early childhood*) and 4.7 (*Sustainable development and global citizenship*) relate specifically to ECE, and education for sustainability, global citizenship, human rights, and peace. Therefore, a focus on ways to provide high-quality ECE and, specifically, high-quality education for sustainability is indeed critical for meeting all 17 SDGs, as the education of the planet's youngest people is the best place to begin. It is commendable that the SDGs acknowledge the importance of education for meeting the challenges faced by global communities in the twenty-first century. However, SDG goal 4 (4.2.1) includes assumptions about what constitutes a quality education for children under 5.

Neoliberal and conservative educational ideologies have increasingly promoted reductionist versions of literacy, numeracy and science in ECE. SDG goal 4 (4.2.1, *Proportion of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being, by sex*) makes a statement about what might be the focus in quality education for young children. For example, the idea of being "developmentally on track" for this age group involves areas such as health, learning and psychosocial wellbeing. The summary on this data sets page (United Nations Department of Economic and Social Affairs, 2020) presents four

domains—literacy-numeracy, physical development, social-emotional development, and learning—for keeping children under 5 developmentally "on track". This idea of being on track suggests a narrow pathway that does not necessarily foster diversity or accommodate inclusion, possibly also providing an example of what Kopnina (2020) describes as a "well-intentioned" but "highly suspect" neocolonial position regarding Western educational hegemony. Perhaps the word "trajectory" might be preferable as this acknowledges the value in setting goals and aims within ECE but does not suggest that all children learn in the same way. Despite the widely acknowledged value of arts education in being central to humanity (Dinham, 2020), this learning area is often left on the periphery of policy-making decisions as recommendations for arts subjects to be core learning in curricula fail to come to fruition (Ewing, 2020). By considering arts education as an essential learning area in the early childhood curriculum, the benefits of these learning experiences may be maximized in addressing the SDGs.

The Role of Arts-Based Education in Supporting the SDGs

SDG Goal 4, Quality education for all, is crucial for addressing all SDGs. Goals 4.2 (Equal access to pre-primary education and care) and 4.7 (Acquisition of knowledge and skills to promote sustainable development) are of particular importance for the field of ECE for sustainability. We take this opportunity to positively critique the language of SDG 4 which suggests the prioritisation of child developmentalism and traditional learning domains of literacy, numeracy, physical development, and social-emotional development and learning. As the role of the arts in young children's learning is not obvious here, we use this opportunity to advocate for the part they may play in supporting children's imaginations and connections to broad themes of sustainability, citizenship and social justice (Leavy, 2015; McArdle et al., 2013).

The arts contribute to high-quality programs for young children, providing them with powerful languages for understanding and communicating ideas about sustainability, global citizenship, human rights, and peace. In this section, we explore and question some of the underpinning assumptions around the terminology presented in Goal 4, while discussing the potential role of the arts in contributing to high quality ECE.

Literacy–Numeracy

The presentation of literacy and numeracy as the first of the domains reflects a tendency to privilege traditional learning over the arts in crowded school and early childhood curricula (McArdle & Boldt, 2013). Thus, children are provided with reduced opportunities to make meaning of the world through an arts lens (O'Gorman, 2010). Citing literacy and numeracy first in the summary also suggests these foundational aspects of learning might be considered in narrow terms as word-based and number-based, rather than concepts embedded throughout children's

Table 1 Barton's (2014) work as the basis for broader literacy and numeracy definitions

Barton's (2014) definition of arts literacy	Definition of literacy based on Barton's (2014) definition of arts literacy	Definition of numeracy based on Barton's (2014) definition of arts literacy
"Interpretive and expressive fluency through symbolic form, whether aural/sonic, embodied, textual, visual, written or a combination of these within the context of a particular art form" (p. 3)	Interpretive and expressive fluency through symbolic form, whether aural/sonic, embodied, textual, visual, written, or a combination of these within the context of a particular *discipline*	Logical and rational fluency, through symbolic form, in using the structural frameworks on which quantitative patterns are built, within the context of a particular discipline

learning. Broader conceptions of literacy that seem to be absent from this discussion include the ways in which the arts, for instance, have their own unique languages that are not necessarily word- or number-based. Indeed, literacy cannot exist without a language, and arts languages provide deeper ways of knowing beyond just word-based, that are universal, and help children to understand the world and themselves in deeper ways. Literacy and numeracy are not just a matter of coding and decoding literal meaning since they deal with interpreting and inferring meaning expressed in qualitative and quantitative ways. Just as literacy concerns more than just words, numeracy involves more than just numbers. Barton's (2014) definition of arts literacy can be adapted to cover literacy in general and then used as a framework to develop a definition of numeracy (see Table 1).

For example, literacy is powerfully embedded in Visual Arts using a visual language where the elements of that art form, such as line, colour and texture, are manipulated to create meaning. Similarly, numeracy is strongly embedded in Music but is expressed via sound rather than numbers through concepts such as time signatures, key signatures, transposition, and melodic and rhythmic sequences. These broader definitions can ensure that the concepts of literacy and numeracy are relevant to all learning areas and disciplines, rather than being regarded as synonymous with word-based language and Mathematics.

Physical Development

The second domain, physical development, is also worthy of another perspective. It may be important to align physical development with health because all children deserve access to the necessities that support healthy physical development. However, because physical development appears as a domain here under Goal 4, we argue that a broader consideration which includes the role of body and mind collaboratively working and learning is also important. Thinking of body and mind holistically opens up possibilities to access embodied learning for exploring concepts and perspectives in depth. The performing arts provide opportunities for embodied learning, such as the drama element of movement which is expressed through body language including physicality, posture and gesture. Similarly, dance is expressed through interpretive movement to making meaning through the elements of space, time, dynamics and relationships. In both cases, engaging in these art forms through making and responding activities extends far beyond the health-related concept of physical development.

Social-Emotional Development

Social-emotional development is the third domain and can involve developing the emotional, social and learning skills required to process emotions and regulate behaviour. The Rhythm and Movement for Self-Regulation project (Williams et al., 2020) suggests that this type of intervention, based on structured music experiences, can develop self-regulation in early childhood. The arts can also encourage

teamwork, creative collaboration, respect for others' views, and consideration of others' perspectives. This is especially evident in Drama when children can take on the role of a character through dramatic play, and in Dance, Music and Visual Arts, when children engage with artworks and art traditions from other cultures and times. Whether reflected in cultural stories passed down through generations or emerging contemporary narratives, the arts languages communicate important messages within and between communities. Children can learn to consider other ideas and to allow their ideas to be shaped by other influences. This supports collaborative problem solving, respect, being comfortable with ambiguity, and accommodating multiple solutions to complex problems (Eisner, 2004). Such experiences and understandings can foster the development of global citizenship where, from an early age, children can learn to contribute towards social and political harmony.

Learning

Regarding the fourth domain, learning, the arts offer opportunities for deeper cognition as well as critical and creative thinking. While it is important for children to be able to read and write word-based texts and achieve competency in the mathematical operations that they will need in their daily lives, these skills will not be sufficient for addressing the broad scope of the 17 SDGs. What is foundational to the SDGs is that people should not just survive, but flourish in the twenty-first century, and the arts can provide rich opportunities to support that trajectory (Ewing, 2020).

Conclusion

This paper supports the notion that providing young children with meaningful opportunities to engage in learning about issues relating to sustainability may enrich their emotional, spiritual, intellectual, social and cultural development. This will go some way to meeting the goals of the SDGs and the Goal 4 targets specifically. In this paper, we have argued that the languages of the arts can enable young children to understand these issues, to express this understanding through media that communicate beyond the power of word-based text, and to build their agency as global citizens in a more sustainable, just, and peaceful world. We have described an approach called Arts Immersion that sees each form of the arts as a unique language through which children can explore identities, develop empathy, and imagine different futures.

The process of building children's capacity to become global citizens implies the need for a global view of the SDGs. A particular challenge in this regard is the need to set aside predominantly Western perspectives on the SDGs and the role of ECE within SDG 4. The SDGs apply to education in all parts of the planet, so it is crucial to consider how are they understood, received, and translated in various cultural settings, both across the globe and in local multicultural communities. Historically, the arts have been integral to communication in a range of community environments. Within every cultural setting, the arts continue their dual role of challenging and

reflecting the cultures that have brought them into existence. Research suggests they provide different ways of knowing through which important messages are communicated throughout a lifetime of learning. There is evidence that traditional and emerging artistic practices encourage valued attributes and support opportunities to use these skills in service of the greater good, for humanity and for our planet. The SDGs have been developed to address current urgent challenges in the hope that our youngest citizens can contribute towards improving environmental and human conditions. Thus, ECE has an opportunity to consider how the SDGs might contribute to the enhancement of resilience, i.e., building values, attitudes, and competencies, that strengthen the ability to cope in times of multiple crises (the ecological crisis, the climate crisis, the humanitarian crisis), with the added complexity of achieving this in diverse cultural and economic contexts.

By contributing to a trajectory in ECE that will support the SDGs, the arts provide an opportunity to underpin a broader and more inclusive understanding of literacy and numeracy, extend the concept of physical development by including embodied learning, contribute powerfully to social-emotional wellbeing, and enhance learning through deepening cognition and fostering critical and creative thinking. While we support the inclusion of indicators for measuring high-quality ECE, we argue that these basic indicators should not preclude arts-based approaches. The arts can strengthen children's development in literacy, numeracy, social and physical development. In addition, arts-based approaches are unique in their capacities for supporting children's imagination, expression, and empathy. Positioning the arts as a unique set of languages at the core of learning experiences may maximize opportunities to achieve SDG 4 within the context of ECE and beyond.

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