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**Art and Eco Therapies: Benefits to Motor Development of Preschool-Age Children
in the Screen Era**

Capstone Thesis

Lesley University

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Art Therapy

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Abstract

In the highly technological society we currently live in, children are spending more time in front of screens instead of engaging in play or spending time in nature. Screen time has increased significantly in the past year due to the Covid-19 pandemic. Excess screen time poses a threat to the motor development of preschool-age children. The fields of art therapy and ecotherapy have theoretical and practical groundings that make them an alternative to traditional therapies in the area of skill development and deficit prevention for children's motor skills. This study focuses on the benefits that art therapy and ecotherapy can have on the motor skill development of preschool-age children. A literature review was conducted to find the benefits of art therapy and ecotherapy concerning the motor development of preschool-age children. Existing research indicates that art therapy and ecotherapy individually and together (eco-art therapy) have benefits in the area of child motor development and well-being. These benefits can serve as protective factors and help mitigate the negative impact on motor development of preschool-age children that are associated with excessive screen time.

Keywords: art therapy, ecotherapy, eco-art therapy, nature-based expressive therapy, preschool children, motor development, motor skills, screen time, green time.

Art and Eco Therapies: Benefits to Motor Development of Preschool-Age Children in the Screen Era

Introduction

In the United States, children are currently spending six hours or more on average in front of screens. This average is alarmingly high contrasted with the one hour recommended for young children by the American Academy of Pediatrics (Pappas, 2020). Prior to the Covid-19 pandemic, these numbers were already on the rise, yet Covid-19 has made it inevitable for many children to spend a higher amount of hours in front of screens. Studies have linked excess screen time with negative effects on motor, cognitive, social, emotional, and language development as well as causing behavioral problems (Oswald, 2020). In contrast, studies have found that spending time in nature has benefits related to motor, psychosocial, cognitive, emotional, and behavioral areas (Harper, 2019).

Children's motor skills involve an active learning process. This process tends to occur organically during play, especially for preschool-age children. During this period, children are experiencing many physical changes and are developing essential motor skills (Berk, 2004; Minuci, 2019). Unfortunately, children are spending less time playing and being active, meaning that they are doing fewer activities that help them develop essential motor skills (Oswald, 2020). Fortunately, fields such as art therapy and ecotherapy have theories and tools that can help in the area of skill development and deficit prevention for children's motor skills.

Judith Rubin (2009) believes that the source of art therapy lies in the natural world. This idea of a connection between art and the natural world seems to resonate with other therapists as well. Many art therapists integrate nature-based practices such as the use of natural materials to

create art. In addition to the integration of art therapy and ecotherapy, which seems to evolve organically in the practices of some therapists, there is already a movement to integrate the two formally both in practice and academia. Books such as *Eco-Art Therapy Creative Activities that Let Earth Teach* by Theresa Sweeney, *Nature-Based Expressive Arts Therapy* by Sally Atkins, *Environmental Expressive Therapies* by Kopytin and Rugh, and *Eco-Art Therapy in Practice* by Amanda Alders Pike address the integration of both the expressive and natural therapy practices.

The practices of art therapy and ecotherapy have both been established since the 1990s, the combination of these however is more recent. Art therapy is a therapy form that uses art as the central component in the therapeutic process. For Margaret Neumemberg, “mother of art therapy” art was a form of non-verbal communication and a path to the unconscious (Gussack, 2016). For Edith Kramer, another matriarch of the field, the creative process itself was healing (Gussack, 2016).

Ecotherapy is an umbrella term that encompasses different nature-based therapies. Ecotherapy is referred to as applied ecopsychology, here the interventions and techniques used emphasize the reciprocal relationship of humans and nature (Delaney, 2020). In 1996, Howard Clinebell defined ecotherapy as healing and growth nurtured by healthy interactions with the earth (Buzzel, 2010). The union of them is known as nature-based expressive arts or art-ecotherapy. Nature-based expressive arts expand the notion of arts in service of life to encompass all life forms and the earth itself (Atkins, 2017).

Research shows that ecotherapy practices have helped in the treatment of anxiety, depression, stress, learning difficulties, and pain management (Segal et al., 2020, p. 100). Studies conducted in schools with outdoor classroom programs showed exposure to the outdoors had a

positive impact on students as showed by student's gains in social studies, science, language, and math (Buzzell, 2010). In addition to the benefits in academics, spending time in nature can help with attention, relaxation, and regulation of the nervous system (Segal et al., 2020, p. 99). Other studies have demonstrated that ecotherapy can help with the development of empathy, relationship skills, and self-concept (Harper, 2020). Researchers Peterson and Boswell (2015) proposed the integration of nature elements and natural settings to traditional therapies. In this case study, the researchers found that by working outdoors, the child had gains in areas like decision-making abilities, creativity, confidence, self-acceptance, and a sense of control. In a research article about art in educational settings with preschool children, Cutcher and Boyd (2018) found that creativity aided the learning process of children. These findings align with literature that states that nature-based and arts-based practices promote creativity, and therefore enhance the learning process.

In the area of the therapeutic alliance between therapist and participant, research has shown that when the therapy is conducted in nature, it can help balance power dynamics, break tensions, and invoke curiosity and a sense of collaboration. (Segal et al., 2020, p. 100). Regarding incorporating ecotherapy practices into traditional therapy Kamitsis and Simmonds (2017) found that the integration of nature into traditional therapies can be done in a simple manner by incorporating natural objects, nature imagery in activities such as meditation, and even giving participants the homework of spending time in nature. In addition, Kamitsis and Simmonds (2017) found that many of the practices were unique to each practitioner hinting that the use of nature can be personalized to fit the therapist's preferences and available resources.

Methods

For this thesis project, the author started by conducting an informal and non-scholarly search regarding the topic of interest. After obtaining general knowledge about what was available and being discussed on the topics a scholarly search was conducted. To search for scholarly and peer-reviewed articles the author made use of Lesley's Library (@LL) and Google Scholar search engines. The literature review is comprised of searches that included the following keywords: art therapy, art, art in counseling, art in nature, art in natural spaces, ecotherapy, ecopsychology, eco-art therapy, nature-based therapy, well-being, child motor development, preschooler, outdoors, outdoor play, play therapy, and occupational therapy. The use of synonyms, different combinations of the terms, and boolean operators were employed to find articles related to the topic of the research. In addition, a search for books that could provide information on art therapy, ecotherapy, ecopsychology, child development, or a combination of the topics was made. As inquiries arose in the process more targeted searches were made to find pertinent information regarding arising questions. This process was used throughout the whole process of developing the thesis. To keep track of important information an electronic notebook was created. In this notebook information such as search terms, diagrams with topic information, and notes on the topics were recorded.

This thesis is grounded on the framework of ecopsychology. In ecopsychology, the interventions and techniques used emphasize the reciprocal relationship between humans and nature (Delaney, 2020). In the practice of eco-art therapy, ecopsychology theory is applied to the practice of art therapy (Pike, 2021). This translates to a practice of art therapy that puts art in the service of all life forms (Atkins, 2017). This also aligns with Rubin's (2009) belief that the inspiration and bases for art therapy come from nature.

Literature Review

Child Development

From birth to age six children experience fast and substantial developmental changes. In this period, their bodies and brain are continuously growing and developing. From ages 2 to 6 changes in their development allow them to gain motor skills that will impact other areas of development and later in life their well-being and ability to do certain tasks. For example, fine motor skills are extremely necessary for an individual's ability to perform daily self-care tasks such as getting dressed, brushing teeth, bathing, and toileting (Minuci, 2019, p.27). Some studies have also found motor skills are a strong predictor of academic achievement and that children who lack satisfactory fine motor skills are likely to suffer in other academic areas (Minuci, 2019, p 27). Morrow (2015) writes that children's self-esteem can be impacted negatively by “their hands not working together in a way they should” (p. 11). Frustration from the difficulties they encounter can lead them to resist and avoid activities that require the specific motor abilities they are having trouble with. This study also suggests that children and adolescents are at high risk of suffering from anxiety and depression due to the perceived lack of competence in their motor activities (Morrow, 2015). In addition, due to the risk of suffering from anxiety and depression due to the perceived lack of competence children can also engage in negative behaviors such as extreme anger and defiant behaviors (p.11).

Biologically from ages 2 to 6 about 45 new growth centers harden from cartilage to bone in the child's body. In this period, the brain increases from 70% to 90% of its adult weight (Berk, 2004, p.217). These changes allow for improvement in balance and hand control. This improvement will allow the development of new fine and gross motor skills (Berk, 2004. p.222).

Fine motor movements are actions that involve the small muscles of the hand and fingers and can be seen in the practice of skills such as sewing, knitting, writing, and cutting with scissors (Morrow 2015, p.9). Gross motor skills on the other hand involve the use of large muscles in the arms, torso, and legs. Activities that involve gross motor skills include walking, catching, throwing, kicking, jumping, and lifting.

In the area of gross motor development from ages 2-3, children start walking more rhythmically, start running, jumping, hopping, throwing and catching, and pushing tricycles with feet. From ages 3-4 they start alternating feet when walking upstairs and their jumps and hops are now accompanied by flexing in the open body. From ages 4-5 they start walking down the stairs with alternating feet, and they run smoothly. In the final ages of early childhood, ages 5-6, children engage in true skipping, run faster, have more mature throwing and catching patterns, and can ride a bike with training wheels.

At the same time, fine motor skills are being developed. From ages 2-3, children can put simple items of clothing, zip and unzip 'zippers and use a spoon effectively. From ages 3-4 they can fasten buttons, use scissors, copy vertical line and circles and they start drawing people using tadpole form. From ages 4-5 they can use a fork, cut with scissors following a line, copy triangles, crosses, and some letters. From 5-6 children can tie their shoes, copy some numbers and words, cut food using a knife and draw a person with 6 parts (Berk, 2004, p.225).

In five years, children can go from starting to walk more rhythmically and holding writing utensils to running 12 feet per second, writing numbers and simple words. It is important to note that although there are tables informing what are the expected developmental milestones for the different ages there are many factors that affect a child's development. Aspects such as

genetics on a child's height, parents, teachers, culture, and social norms can all influence how a child develops and when a child will develop their motor skills (Berk, 2004).

Development, Screens, and Nature

In recent years many studies have explored how the fast-growing technification of the world is affecting individuals, especially children. Some of these studies have found that children seem to be the most affected by this phenomenon (Harper, 2020, p.47). The American Academy of Pediatrics recommends that young children should spend no more than one hour a day engaging in screen time. Despite the recommendation of expert's preschool children are accumulating up to four hours a day of screen time. The majority (99.4%) of preschool children watch TV, a third of them play video games and around 1/4 of them use the internet for activities beyond games (Harper, 2020, p.115). Unfortunately, excessive screen time can have negative effects on motor, cognitive, social, emotional, and language development both in the short and long term. Studies show negative associations between excess screen time exposure and cognitive development, effortful control, language and communication abilities, behavioral problems, self-regulation, and pro-social behavior in children under the age of 5 (Oswald, 2020, p.10). In his study, Oswald (2020), concluded that excessive use of screen-based technology can potentially displace protective behaviors which could have a negative impact on psychological well-being.

More hours of screen time also imply less time moving and playing outdoors doing activities that are essential for a child's motor development (Oswald, 2020, p.2). This is especially worrying in the context of the Covid-19 pandemic. It has become inevitable that children spend more time in front of screens instead of outdoors (Hechter et al., 2019). School

has moved to the virtual setting for a vast majority of children, and with many parents working from home, children move from the screen of education to screens of entertainment. This has made that the American Academy of Pediatrics has even changed its posture regarding strict time limits on screen time since longer amounts of screen time are inevitable in the current circumstances. Instead, the AAP recommends focusing on the type of screen time children see (Wiederhold, 2020, p. 359). Studies showed that on average children spent 3 hours in front of a screen, now they are in front of a screen 6 hours on average (Wiederhold, 2020, p. 359).

Despite the current rise of screen time, screen time use has been on the rise long before the Covid-19 pandemic. In the United States, a study reported that 12-year old children spend less than six hours a week outside, but on average spend more than six hours a day in front of a screen (Oswald, 2020, p.2). Research also seems to indicate socioeconomic status impacts the number of hours spent outdoors or in front of a screen. Oswald (2020) found that children from low social-economic backgrounds typically have less access to green/natural spaces and spend more time in front of screens (p.3). The time children are missing playing with toys and in nature is affecting their motor development, as well as other areas of development. Webster et al. (2018) found that the relationship between screen time and fundamental motor skills in preschool children is inversely proportional. The more a child spends in front of a screen the less they scored on a fundamental motor skills test. Another study on the effects of touch screen tablets on fine motor development in preschool children found that the children that engaged in the manual play activities had significantly greater changes in fine motor precision, integration, and dexterity than children that were using the touch screen tablets (Ling-Yi Lin, 2017). Lin et al. concluded that extensive use of touch screen tablets might be unfavorable for the fine motor development of preschool children.

Literature supports the idea that spending time in nature can help mitigate the effects of screen time, especially in the area of motor development as well as general well-being. In a review of over sixty studies regarding the benefits of children interacting with nature, Summers et al. (2019) found that “these studies support the notion that just spending time interacting with nature tends to promote a child’s well-being and healthy development”. Studies have shown that green time or spending time in nature has shown to have benefits related to physical activity, mental/emotional health, motor development, psychosocial health, cognitive skills, social skills, and emotional-behavioral benefits (Harper 2019, 38).

Studies indicated that outdoor play increases motor fitness in preschool children and that play-oriented activities are more effective in developing motor skills than traditional instruction (Harper 2020; Trawick-Smith, 2014). Motor fitness is defined as abilities of coordination speed agility power and balance (Fjortoft, 2004, p.24). Fjortoft and Sageie (2000) discovered that children who had access to many different natural features during their play had improved motor development when compared to those who had access to a more traditional urban playground of concrete and mass-produced playground structures. They add that when children can access safe natural outdoor spaces, they are more likely to engage in gross motor activities (Fjortoft et al., 2000). Natural ecosystems represent rugged and dynamic playscapes that challenge cognitive and motor activity in children (Summers, 2019).

Motor skills are linked to several cognitive processes, they can facilitate the development of new connections in the brain. Play, in addition to having benefits on motor skills, helps enhance memory, attention, self-regulation, and academic achievement (Trawick-Smith, 16). In his work, Oswald (2020, p.39) concludes that nature may be an underutilized public health resource that could potentially function as a preventive and psychological buffer for children in

the high-tech era. In addition to the benefits mentioned above spending time in nature can help deepen the connection children have with the natural world which can result in ecologically conscious teens and adults (Harper, 2020, p.47).

Ecotherapy

The term ecotherapy was first used in 1996 by Howard Clinebell (Atkins, 2017). Clinebell defined eco-therapy as the healing and growth nurtured by healthy interactions with the earth (Buzzel, 2010). Since then, the field has grown and diversified to contain many modalities of nature-based therapies. Examples of such modalities are garden/horticulture therapy, animal-assisted therapy, wilderness therapy, adventure therapy, surf therapy, and forest therapy (Atkins, 2017; Harper, 2020). These modalities have their uniqueness in perspectives and practices, yet they all share the acknowledgment of the vital role that nature plays in the human as a whole.

Ecotherapy is a field of mental health that puts into practice theories created from the field of ecology and psychology (Harper, 2021). It is an umbrella term that encompasses different nature-based therapies. It is also referred to as applied ecopsychology where the interventions and techniques used emphasize the reciprocal relationship of humans and nature (Delaney, 2020). These practices focus on the relationship and connections between humans and nature. It's a practice that incorporates nature back into the equation of human wellness and health (Harper, 2021). Just as in art therapy where art becomes a third and essential part of the therapeutic process, in ecotherapy nature becomes that third element. Therapy becomes a three-way relationship between participant, therapist, and nature (Harper, 2021).

The practice of ecotherapy has its theoretical background in ecopsychology yet it is enriched by numerous individuals in other fields such as David Abram, Thomas Berry, Joanna

Macy, Arne Naes, and Mary Oliver (Atkins, 2017). Historian Theodore Roszak has been credited with the creation of the term ecopsychology. Roszak (1995) believed humans had an ecological unconscious that reciprocated a relationship between humans and the rest of the natural world. For him, the goal of ecopsychology was to "bridge human culture's long standing historical gulf between the psychological and the ecological, to see the need of the plant and the person as a continuum"(Roszak, 1992, p.14). He defined the following eight principles that have become the foundation for the field:

1. The core of the mind is the ecological unconscious. For ecopsychology, repression of the ecological unconscious is the deepest root of collusive madness in industrial society. Open access to the ecological unconscious is the path to sanity.
2. The contents of the ecological unconscious represent, in some degree, at some level of mentality, the living record of cosmic evolution, tracing back to distant initial conditions in the history of time. Contemporary studies in the ordered complexity of nature tell us that life and mind emerge from this evolutionary tale as culminating natural systems within the unfolding sequence of physical, biological, mental, and cultural systems we know as "the universe." Ecopsychology draws upon these findings of the new cosmology, striving to make them real to experience.
3. Just as it has been the goal of previous therapies to recover the repressed contents of the unconscious, so the goal of ecopsychology is to awaken the inherent sense of environmental reciprocity that lies within the ecological unconscious. Other

therapies seek to heal the alienation between person and person, person and family, person and society. Ecopsychology seeks to heal the more fundamental alienation between the recently created urban psyche and the age-old natural environment.

4. For ecopsychology as for other therapies, the crucial stage of development is the life of the child. The ecological unconscious is regenerated, as if it were a gift, in the newborn's enchanted sense of the world. Ecopsychology seeks to recover the child's innately animistic quality of experience in functionally "sane" adults.
5. The ecological ego matures toward a sense of ethical responsibility to the planet that is as vividly experienced as our ethical responsibility to other people. It seeks to weave that responsibility into the fabric of social relations and political decisions.
6. Among the therapeutic projects most important to ecopsychology is the re-evaluation of certain compulsively "masculine" character traits that permeate our structures of political power and which drive us to dominate nature as if it were an alien and rightless realm. In this regard, ecopsychology draws significantly on the insights of ecofeminism with a view to demystifying the sexual stereotypes.
7. Whatever contributes to small scale social forms and personal empowerment nourishes the ecological ego. Whatever strives for large-scale domination and the suppression of personhood undermines the ecological ego. Ecopsychology therefore deeply questions the essential sanity of our gargantuan urban-industrial culture, whether capitalistic or collectivistic in its organization. But it does so

without necessarily rejecting the technological genius of our species or some life-enhancing measure of the industrial power we have assembled. Ecopsychology is postindustrial, not anti-industrial in its social orientation.

8. Ecopsychology holds that there is a synergistic interplay between planetary and personal well-being. The term "synergy" is chosen deliberately for its traditional theological connotation, which once taught that the human and divine are cooperatively linked in the quest for salvation. The contemporary ecological translation of the term might be: the needs of the planet are the needs of the person, the rights of the person are the rights of the planet. (1992, p.320-321)

Before Roszak, German psychologist Erich Fromm used the term biophilia to describe an individual's love for living systems and life itself. In 1984 Edward O. Wilson introduced the biophilia hypothesis. Biophilia is the "innately emotional affiliation of human beings to other living organisms" (Roszak, 1995, page 4). His hypothesis suggested that humans need to connect with others and nature for their survival and their mental and physical stability. Thomas Berry an eco-philosopher writes that humans have developed "an autism towards the world" (Roszak, 1995, page 59). Most humans no longer communicate with the non-human world. We have silenced our capacity to participate in the greater.

Art Therapy

Art therapy is a field in the area of mental health that uses art and the creative process as therapy. Any art or craft form imaginable (e.g., photography, painting, drawing, clay work, collaging, bookmaking, etc.) can be utilized for therapeutic purposes. The key is the intent and purposeful use of the materials and products to help an individual. The goal of the use of art is

therapeutic and not recreational or educational (Rubin, 2009). In the therapeutic practice, art becomes a third therapeutic element. Therapy becomes a triad between participant, therapist, and the art.

The use of art and other expressive forms as part of healing processes is almost as old as humanity itself. Ancient cultures (as well as many Native American and other non-western cultures currently use) used art forms such as the creation of images, dances, and songs as part of their healing rituals and to address other aspects that related to mental and emotional health (Gussack, 2016; Rubin, 2009). Carl Jung and Sigmund Freud's theories and ideas on the unconscious and dreams are considered bedrock from where the field grew (Gussack, 2016, page 8). Since 1916 Carl Jung made references to using art as psychotherapy as well as putting importance to the creative process as therapy (McNiff, 1998). In the United States, the practice of art therapy started in the 1940s with the work of Margaret Neumemberg (Gussack, 2016). According to Margaret Neumemberg, “mother of art therapy” art was a form of non-verbal communication and a path to the unconscious (Gussack, 2016). For Edith Kramer, another matriarch of the field, the creative process itself was healing (Gussack, 2016).

One of the biggest values of this therapeutic form is that it allows for a non-verbal form of expression and communication. “The arts offer a way to hold, express and release emotions and they provide rich possibilities to deepen and expand personal understanding and meaning, to create and nurture community and to sustain life” (Atkins, 2017). For example traumatic experiences are encoded non-verbally in the brain this makes these experiences hard to talk about and explain but because they can be easier to access by visual representations (Huss, 2015). In this visual and tangible format, the experience can be explored and reinterpreted verbally to allow integration and reframing of the traumatic experience (Huss, 2015, 75). This is also

beneficial when working with children because it can supplement and facilitate communication as they are still developing their communication skills.

Art and Ecotherapy

The idea of uniting the expressive therapies and the eco therapies is not new, it is an emergent field with its own name. The union of these practices is known as nature-based expressive arts or eco-art therapy. Nature-based expressive arts expand the notion of arts in service of life to encompass all life forms and the earth itself (Atkins, 2017, p.54). Eco-art therapy is defined as a holistic, integrative mental health practice in which clients, facilitated by the therapist, use natural art materials and settings, the creative process, and the resulting artwork to improve mental, physical, and emotional health (Pike, 2021, p.3). Pike (2021) explains that the practice of eco-art therapy applies ecopsychology theory to the practice of art therapy. Here individuals can benefit from the healing and therapeutic powers of both nature and art.

Eco-art therapy approaches are a combination of nature as subject, nature as setting, and nature as material (Pike, 2021, p.3). Pike (2021, p.2) explains that “natural materials, subjects, and settings can help clients process significant and meaningful events, places and relationships”. Within the eco-art therapies, art materials are seen as gifts from the Earth and there is an awareness of the connections and impacts that humans have on the rest of nature (Atkins, 2017, p.56). Nature can be used as the main setting where the therapy takes place. For example, therapy could take place at a garden, forest, beach, or park. Nature can also serve as for artistic exploration (i.e. creating nature imagery or sculptures inspired by nature). Another reason why nature-based expressive arts is selected it's because of its theoretical characteristics. Nature-based

expressive arts therapies are intermodal, informed by indigenous perspectives and deep ecology, and are biocentric.

Art-Eco Therapy and Child Motor Skills

Despite the known benefits of many art materials and activities in motor development, the field of art therapy could benefit from developing additional research in the area. To supplement the information on art use in therapy the literature review was expanded to the field of occupational therapy. Occupational therapy “is the use of purposeful activities or interventions designed to achieve functional outcomes which promote health, prevent injury or disability and which develop, improve, sustain or restore the highest possible level of independence of any individual” (Punwar et al., 2000, p.5).

Art activities in occupational therapy are very common especially when working with children. In a study, occupational therapist used activities such as finger painting finding small objects in materials such as clay and creating animals from pipe cleaners to help with the development of wrist stability and extension, flexibility and stability of palmar arches, isolate finger use, thumb stability, and mobility, control of radial fingers with ulnar finger stabilized (Case-Smith, 1996). A study on the use of expressive arts in occupational therapy found that the most used modalities were arts and crafts. Studies show that occupational-based activities such as using expressive arts are more effective than rote exercises (TeBeest et al., 2002).

Occupational therapists use activities such as drawing or coloring with pencils, crayons or painting with brushes to help children develop fine motor skills. They also use other activities such as using playdough, sand tables, cutting, and gluing projects as other activities to help children with their gross motor and fine motor skills (Marr, 2003).

Free painting, coloring using fingers, handprints, painting shapes and making circles are activities that stimulate the development of gross and fine motor skills (Basa et al, 2019, p.194). In the field of art therapy fine gross motor skills can be assessed by observing a child's ability to: tear a piece of paper along a straight line, make a freestanding construction, make a ball or flat form in clay, hold a crayon correctly, draw a straight line, a curved line and a circle (Van Lith, 2021, p.3).

As previously mentioned, nature allows children to engage in activities that naturally help in the development of gross and fine motor skills. Nature is full of “loose parts” such as branches, twigs, rocks and pebbles, shells, feathers, leaves, flowers, and tall grass which have no clear purpose thus offering the unbounded potential for imaginative and creative play (Ernst, 2012). The manipulation of these smaller objects exercises fine motor skills. The “loose parts” that can be found in nature can also be integrated into the process of creating art. Children can arrange, cut, and/or glue found objects to create sculptures, drawings, and collages. On the other side, we can take art materials outside and create with them in nature. Children can draw, paint and create with clay what they see in nature. These activities all promote the use of fine and gross motor skills, as they require the use of both small and large muscle groups.

In outdoor eco-art therapy, individuals do activities such as cultivating plant materials throughout gardening and foraging. These practices promote skill-building and provide a means of ongoing informal assessment of the individual (Pike, 2021, p.14). In horticultural therapy, a modality of ecotherapy, the use of gardening tools, and the care that is required around plants can help with fine and gross motor skills. Actions such as removing dead leaves from around the plant, plating small seeds, pruning the plant, and even gently touching the plants make use of fine motor skills. Other actions such as watering the plants and moving bigger potted plants

exercise children's gross motor skills. The practice of horticulture therapy can be combined with art therapy by also focusing on the creative process of creating pots for the plants. This can be creating pots with clay and painting them or simply by painting on pre-made pots.

It is also important to keep in mind that doing therapy outdoors is not without boundaries or risks. Time, money, confidentiality, legal concerns, location choice, relevance to treatment goals, are just some examples of considerations to keep in mind regarding doing therapy outdoors (Pike, 2021, p.14). Because of this, despite that many nature-based therapies occur in nature (horticulture therapy, adventure therapy, wilderness therapy) they can also be adapted to indoor settings. Here the focus shifts more towards nature as material and nature as subject. Loose objects, found objects, and harvested materials can be brought indoors and used to create art pieces. More traditional art media such as crayons and watercolors can be used to create nature imagery such as landscapes, plants, and animals. In addition, activities such as gardening can be adapted to occur indoors. Another way to bring nature indoors is by having artwork or murals depicting nature scenery as well as having indoor plants in the therapy room. This way children can benefit from the healing attributes of both art and nature even without access (or other boundaries) to natural outdoor spaces.

Discussion

The purpose of the study was to illustrate the benefits or potential benefits that art therapy together with ecotherapy can have on supporting motor development of preschool-age children in the context of our highly technological society. In this study, we approached the topic by doing a literature review that explored the intersection of the topics of art therapy, art, ecotherapy, nature-based therapy, outdoor play, preschool age, and motor development.

Nature-based expressive arts was selected because of its theoretical groundings. Nature-based expressive arts therapies are intermodal, meaning it uses more than one way to help individuals in their therapeutic goals. Second, nature-based expressive arts therapies are informed by indigenous perspectives and deep ecology. Lastly, its theories are biocentric, meaning the field values not just human life, but all life. These are important because they align with ecopsychology theories and bring into the practice of art therapy an ecological consciousness that is essential to help both person and earth. In addition, it facilitates the adaptation of the practice regardless of place and the needs of the individuals involved in the therapeutic process.

In this literature review, it was found that art therapy and ecotherapy not just work well together but are an emergent field called nature-based expressive therapies or eco-art therapy. Because the field is new, there is still research needed on the integration of both practices. In the research, it was found that art therapy and ecotherapy both individually and together (eco-art therapy) have a positive impact in the area of motor development as well as general well-being for preschool-age children. This is important because motor skills are essential. They are necessary for performing daily tasks such as writing, buttoning a shirt, and running (Minuci, 2019).

Studies also connect motor skills to cognitive development, academic achievement, and self-esteem. Deficiencies in motor skills can result in anxiety and even depression in older children and teenagers due to their struggles or perceived struggles in areas that require motor skills they might be lacking (Morrow, 2015). Excess screen time has been associated negatively with motor skill development (Oswald, 2020). The extra time spent on-screen activities takes time from activities that naturally help children develop their motor skills such as playing

outdoors or art-making. In contrast, research found that time in nature can help mitigate the effects of excess screen time as nature promotes movement and play which in turn helps with motor skill development.

Both art and nature promote creativity sparking children's curiosity and imagination which helps enhance the learning process. Within the therapeutic context, this can help facilitate learning new skills, such as fine and gross motor skills, as children learn better organically through play. Children can engage in art-making with finger paint, watercolor and brushes, crayons, clay, mud, twigs, stones, and other natural materials, all of which can help with motor skill development. Children can also use art and natural materials to build things and bring to life places and objects of their imagination. While doing these activities children will naturally engage and use large and small muscle groups that will help them develop both fine and gross motor skills. In the context of the pandemic where children are spending more time indoors and in front of screens, therapists can help balance out the effects of excess screen time and the lack of outdoor time by utilizing art and nature with children even if it's utilizing nature as materials or subject.

Much of the information found on the benefits of art and nature to children's motor development was from the fields of play therapy, occupational therapy, and nature/outdoor school programs. Because of this, despite the findings confirming many benefits of art therapy, ecotherapy, and eco-art therapy to children's motor development, such as the facilitation of the learning process, encouraging play, and the use of tools, materials, and activities that can exercise their muscle to aid in their development, further research to strengthen these findings is recommended. In this research, we also found that cognitive development, social-emotional development, academic achievement, and general well-being were also positively impacted by

art and nature, yet these areas were not the focus of the research. Therefore, further research is also recommended to explore potential benefits that art therapy, ecotherapy, and eco-art therapy can have in other areas of child development.

To further strengthen the field of art therapy researchers should explore the relationships of art materials and art activities to the motor development of children. The exploration of possible benefits of art materials and art activities to motor development can also be expanded to other populations such as teens, adults, and the elderly. These explorations can help the field gain more standing within the scientific community as well as help create art therapy treatments that are informed by research.

Further exploration of potential benefits of tools, materials, and activities concerning children's motor development can also be done in the fields of ecotherapy and eco-art therapy. These investigations in addition to strengthening the fields of ecotherapy and eco-art therapy can also help inform the field of art therapy, especially when it comes to the use of nature whether it be as material, setting, or subject.

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In the judgment of the following signatory this thesis meets the academic standards that have been established for the above degree.

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