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Impactful Digital Technology: Connecting with Nature in Early Childhood

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by

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The signatures of the individuals below indicate that they have read and approved the project of Kathleen White in partial fulfillment of the requirements for the degree of Master of Instruction and Curriculum – Early Childhood Education Program.

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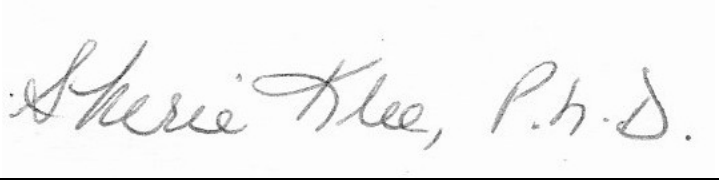

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Abstract

Young children are increasingly found to be spending their free time passively engaging with various types of digital technology. This has become one of the primary reasons why children's time spent outdoors is diminishing. It has also led to an increase in negative health and developmental concerns. Children suffer from what has been deemed Nature Deficit Disorder, first coined by Richard Louv. Their lack of feeling connected with the natural world early on decreases the chances of them becoming a steward of that same world later in life. The studies have shown that although many believe young children should be kept away from technology, it can actually provide positive outcomes when used in a purposeful manner. By following guidelines put forth by early childhood professionals and researchers and with the support of key adults, it is possible for young children to have experiences with technology that are beneficial to their growth and development. With intentional planning of open-ended technology, children may be once again drawn to explore the outdoors through a new, empowering lens.

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Chapter One: Introduction

Problem Statement

The increased use of technology by young children may inhibit children's opportunities to build connections with the natural world. The prominent use of personal technology has increased over the last few decades with adults. This has trickled down to the teens and to the youngest of children. Having greater options for use of digital technology has made it possible for it to be more accessible to people of all ages, especially young children (Konca, 2021). During early childhood, young children are developing their foundations of learning. This includes building connections with nature and all things natural (Poppell & Monroe, 2021). A preoccupation with digital technology leaves little opportunity to engage with nature, along with other negative outcomes, such as, "decreased executive function, academic performance, quality social interactions with others and creative play. It can increase obesity, aggressive and violent behavior, bullying, fear, depression, nightmares and so on" (Sharkins et al., 2015, p. 438). The use of digital technology has become embedded in the lives of adults and children. Providing adults and children with strategies of how to integrate today's technology with experiences in nature, may be a way to increase the benefits nature has to offer to a new generation (Livingston, 2022).

Importance and Rationale of the Project

Early childhood is a time during which children develop rapidly. Hunkin referenced the article by the Council of Australian Governments (COAG). Young children's neurological and biological growth and development are influenced by the quality experiences and education they partake in during these years (COAG, 2009, as cited in Hunkin, 2019). Research shows that many of these areas of healthy development are rooted in building a connection with nature,

bringing about outcomes beyond the direct benefits to the child. Richard Louv (2016, p. 61) writes, “A movement is growing, one based on the simple idea that the health of our children, and ourselves, and the health of the Earth itself, are intertwined.”

Fortino et al (2014) state that the earlier experiences young children have in various realms of learning deepens their understanding in those same areas in their later educational endeavors. During the early years, children learn best through hands on experiences, which is supported in the exploration of the natural world (Fortino et al., 2014). Not only do experiences in early childhood benefit children’s education, but it also has many health benefits. Areas of children’s development benefited by a connection with nature are physical, mental, and social-emotional (Tillman et al., 2019). The article, *Benefits of Nature Contact for Children,* written by Louise Chawla (2015), breaks down the specific benefits gained by children. Social emotional aspects are strengthened as children develop a sense of place or belonging in the outdoor environment, confidence in their own selves, and build relationships with peers and adults by developing a sense of place or emotional ownership of the outdoors (Chawla, 2015). Children’s development can be influenced by their, “need to engage with nature through creative play and exploration” (Chawla, 2015, p. 446).

Children benefit from increased access to and participation in the outdoors. Children experienced, “lower blood pressure and stress, lower occurrence of respiratory diseases, increased physical activity” (Chawla, 2015, pp. 441-442), as well as decreased, “obesity, depression and anxiety” (Frumkin et al, 2017, p. 075001-10). In addition, connecting with nature decreases the symptoms of attention deficit and hyperactivity disorder (ADHD) (Chawla, 2015). Maron-Puntarelli’s research focused on the added benefits of how young children’s connection with nature builds, “independence, innovation, and senses of wonder and

discovery…by offering bountiful opportunities for learning and development" (2020, p. 43) and "influences children's socio-emotional and behavioral functioning" (Scott et al., 2018, p. 419).

Although children, themselves, are able to recognize the direct benefits of connecting with nature, there has been a steady decline in the amount of engagement between children and nature greatly due to the increased use of digital technology. Its' use has become integrated into the daily lives of children of all ages. Since the 1990's, "The dominant leisure activities of children and adolescents have shifted from nature-based play to electronic media" (Edwards & Larson, 2020, p. 951). This shift has been referred to as videophilia.

Research has shown that in order for adults to grow into stewards of the natural world and reap its benefits, they first need at least one of two experiences as children. These two factors that influenced adults' care for nature were that of, "Childhood play in nature and the inclusion of adult figures who communicated nature's value" (Chawla, 2015, p. 445). It is the responsibility of the current generation to provide to the youngest children opportunities to engage with nature. This could be done despite the ever-present distraction of digital technology usage in order to reverse the occurrence of nature deficit disorder, which was first referenced by Richard Louv (2008) in his book, Last Child in the Woods. He defines nature deficit disorder as, "The human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses. It can be detected in individuals, families and communities" (Louv, 2008, p. 54). If society continues down this ever-increasing plight of videophilia, one must question the irreversible effects that will be done to the natural environment by the loss of those who advocate for it. At the same time, children will continue to suffer from the negative consequences brought about by the lessened interactions with nature.

Background of the Project

Over the course of the last few decades, a drastic change in how children spend their time has occurred. Less time spent outdoors is mainly due to the integration of personal digital technology into people's lives, including those of children (Wang et al., 2021). The decrease in time spent connecting with nature has paralleled the invention of television, computers, electronic games/toys and the world wide web. As these items become more of a priority in children's lives, questions are being asked regarding the repercussion children experience, when they miss out on opportunities to engage in nature (Sharkins et al., 2015).

Although videophilia has strongly influenced the drastic change of children's direct experiences with the natural world, this, in combination with other factors, have played a part in the reduction of the human-nature connection. Increased fear of letting children play out of sight also inhibits children's explorations of their neighborhoods. Children's lives have become over-scheduled with extracurricular activities, leaving little free time. What free time there is tends to be spent with digital technology (Louv, 2008).

Isolating technology from nature would not be necessary in order to increase children's interactions with nature. People have integrated technology with nature exploration through the ages, and continuing to do so into the future only seems logical (Wang et al., 2021). There are several characteristics to consider when choosing an app that will be used by young children. Geist writes that teachers should consider how open-ended it is, and whether it promotes creativity. Does it promote decision-making? Does it provide the children with new information? Lastly, does it promote social interactions between a child and adult or other children? (Geist, 2014).

The more that can be done to encourage the building of children's connections with nature, the more benefits that will be felt by each child, but also by those in the child's support network. This may mean integrating the use of technology into explorations of the natural world. According to Fantozzi et al. (2018), in order for children to gain the most from blending nature and technology, it is important that the key adults in their lives be cognizant of being intentional in its use. Intentionality in the use of technology is defined as having, "the goal of limiting passivity and considering whether it offers creativity, collaboration and communication (Fantozzi et al., 2018, p. 89). Ideally, the full immersion into the natural world focuses, "on advancing children's independence, innovation, and senses of wonder and discovery" (Maron-Puntarelli, 2020, p. 43).

The important adults in children's lives can greatly influence whether or not children build deep connections with nature (McClain, 2018). Since studies show that children and adults incorporate digital technology into their lives, it would seem that the passive use of technology could be transformed, when used with intention and purpose. Donohue and Schomburg (2017) summarized the findings of the 2012 joint position statement by NAEYC & Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College. It was concluded that technology could support young children's learning, when it was integrated into play with intention and purpose.

Rosa, Cabicieri and Collado concluded that, "Childhood experiences in nature seem to have a lasting effect until adulthood, encouraging nature experiences later in life" (2018, p. 8). One can then take away that the adults in a child's life must make sure that children as young as early childhood are provided a strong foundation in the natural environment to take with them into adulthood. "Teachers and other concerned adults must actively strive to include both free

play opportunities and facilitated outdoor learning experiences for youth" (Poppell & Monroe, 2015, p. 2). Providing adults with the tools to engage children with nature will allow children to reap its benefits. "Educators are encouraged to draw upon their, children's, interest in and comfort with electronics to 'reintroduce' them to the wonders of nature" (Willis & Kirkwood, 2014, p. 141). Going even deeper, "encourages students to become good stewards" of the earth (Willis & Kirkwood, 2014, p. 141).

Working in a school that values providing children with enriching experiences out in nature motivates the staff to seek out ways to support this endeavor. It is recognized that children's experiences outdoors have decreased over the last few decades, so the children's presence at the child care center is an opportunity to provide them with quality time explore nature. At the same time, the children's interest and adeptness in their use of personal technology is also valued and built upon. The staff see this as an opportunity to integrate technology with outdoor explorations. The results of the research in this project will be shared with staff in order to provide them with additional means to continue to strengthen children's bonds with the natural world, while utilizing technology.

Statement of Purpose

The purpose of this study is to provide education and support to work in partnership with young children to utilize technology to initiate and enhance their experiences in nature. It is important for the influential adults in young children's lives to be involved in, "Advocating for nature and outdoor play … for children's enjoyment, well-being, and learning" (Sisson & Lash, 2017, p. 15). "Technological tools can support a learner-centered and play-oriented early childhood curriculum and promote relationship building among children, families, and the wider community" (Technology and Young Children Interest Forum, 2008, p. 50). As stated by

Livingston (2022), technology has for years been used to build a connection between people and nature. Using phones and tablets is just one more way to connect.

The adults will be invited to participate in a four-week seminar that will support their weekly engagement with their child while utilizing technology in nature. A different focus each week will be shared and discussed. Sometime during that week, the adult and child will explore the natural world together. Together they will create a documentation of their experience. A collection of the weekly documentations will be put together to create the culminating project that can be shared with others. At the end, the families will be asked to complete a survey to reflect on the project together.

Objectives of the Project

- Children will engage in nature.
- Children will practice several methods of observation in nature.
- Children and families will intentionally utilize open-ended technology, while in nature.
- Children and families will build social connections with each other.
- Children will express ideas and observations verbally, as well as through representations.
- Children and adults will build a relationship with nature.
- Children and adults will acquire new technology skills.

Scope of the Project

This project will address the engagement between a young child and adult family members as they interact in nature through the use of a digital tool, such as a tablet or phone. Seminars will be organized in order to provide the adults support in the use of technology and how to use it to build a connection with nature. A factor that may hinder the effectiveness of the project is the lack of commitment or follow-through by the adult. The adult and/or child may

lack enthusiasm to participate. Some families may lack access to a phone or tablet. Support may need to be provided to those who lack confidence in using technology. Scheduling conflicts may create a barrier for families to be able to engage in the activity together.

Definition of Terms

Digital technology: Examples are computers, mobile phones, technological toys, and games (Sharkins et al, 2015)

Early childhood: The period of a child's development between 0-8 years old.

NAEYC: National Association for the Education of Young Children

Nature: Natural wildness (Louv, 2008)

Nature-deficit disorder: The human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses. (Louv, 2008)

Videophilia: Society's focus on digital technology; "a shift from streams to screens" (Louv, 2008)

Chapter Two: Literature Review

Introduction

The use of personal technology has continued to increase over the last several decades (Konca, 2021). Its use has become even more prevalent with young children (Frumkin et al., 2017; Konca, 2021; Sharkins, 2015). This increased use of technology by young children may inhibit opportunities to build connections with the natural world (Edwards & Larson, 2020;). Numerous themes have emerged from the research. The growth in the passive use of technology leaves children with less time to freely explore the natural world (Fantozzi et al., 2018; Louv, 2008). They are left dealing with the ramifications seen in the deficits of their physical, social-emotional and cognitive development (Chawla, 2015; Frumkin et al., 2017; Popell & Monroe, 2017; Scott, 2018; Tillman et al., 2019). Through the integration of technology into the natural world, children will be able to reap the personal benefits of connecting with nature, as well as becoming lifelong stewards of all things natural (Livingston, 2022; McGlynn-Stewart et al., 2020; Willis et al., 2014). It is integral that the key adults in a young child's life work in partnership with them by purposefully utilizing technology to actively engage children in the outdoor environment (McClain, 2018; Poppell & Monroe, 2017).

Theory/Rationale

Two theories drive the development of this project of assisting children to reconnect with nature. In the book, Last Child in the Woods, Richard Louv writes about the importance of children building connections with the outdoors (2008). In building those connections, children and nature develop a reciprocal relationship from which they both will benefit. Over the last few decades, children and their bond with nature has been disintegrating, due to many reasons, but most notably the increased distraction of technology. The concern posed by Louv (2008) is that

if children's attention and connections with nature disappear, one wonders who will be left as the stewards of the plants, animals and earth.

Victoria Fantozzi (2022) recently published guidance for early childhood educators on integrating technology in order to support young children's learning in the book, Digital Tools for Learning, Creating, & Thinking. Fantozzi provides guidelines for adults on how to utilize technology in a way that will actively engage young children, instead of passively occupy them. She further explains that adults can model how technology is a tool that can further knowledge and exploration. This approach fits well in helping children develop a reciprocal relationship with nature by deepening their understanding and exploration with technology. The integration of these two theories may lead young children to rediscover nature from a more engrossing aspect than they have before.

A common denominator between both theories is the importance of adults in modeling and guiding children. Louv (2008) shares how much a young child needs the guidance of a key adult in building a connection with nature. It is through the adult's enthusiasm, desire to share knowledge and learn that the child gains a deeper interest in the natural environment. Together they can explore and learn, while building a relationship with each other grounded in the world around them.

Guidance from the key adults in a young child's life play a key part in introducing new digital tools that support hands-on learning. It is up to the adult to determine ways digital technology may be used in an open-ended manner that promotes the process, not the outcome and can be independently managed by the child (Fantozzi, 2022). Children look to the adult to model an attitude of positivity and exploration when utilizing new technologies. The key adults are responsible for providing young children with access to digital technologies that serve the

purpose of actively engaging children (Fantozzi, 2022). In other words, it is the responsibility of the adults to determine whether technology meets the definition of being Developmentally Appropriate Practice (DAP) and supports young children's needs. Although Fantozzi (2022) directs this toward early childhood educators, it is important that the definition of DAP is shared with children's families. Fantozzi summarized the definition of DAP from the National Association of Education of Young Children as,

> What is known about commonalities in children's development and learning, the individuality of each child reflected in their unique characteristics and experiences, and the context in which learning and development occur, including the social and cultural contexts of the children and of the educators" (NAEYC, 2020 as cited in Fantozzi, 2022, p. 3).

Research/Evaluation

Connections with Nature

Benefits of Connecting with Nature.

Research supports the idea that there is a link between young children's healthy development and their time spent outdoors. Children are naturally curious about the world around them. Early childhood is the opportune time to build children's sense of wonder about the world, which can be strongly attained while in the natural world (Maron-Puntarelli, 2020). This curiosity coupled with the outdoors provides children with opportunities to strengthen their growth in the areas of cognitive and physical development (Poppell & Monroe, 2017). "Healthy physical growth not only is determined by physical fitness due to activity, but also by lower blood pressure, lower rates of respiratory issues, and increased sleep at night" (Chawla, 2015, p. 441-442). Other areas positively affected by developing a connection with nature are social-

emotional development, mental health and the spiritual life (Louv, 2016; Scott et al., 2018; Tillman et al., 2017). By providing children with experiences to freely explore the outdoors, they build their sense of independence and autonomy, while at the same time building connections with others through appropriate risk-taking (Maron-Puntarelli, 2020). Research by Topan and Ayyildiz (2021) warns that adults must take the responsibility of guiding children's use of technology by guiding their choices of apps in order to limit the negative effects it could have on children's quality of life. When considering these areas of development together, it is possible to conclude that building a connection with the natural world benefits the development of the whole child.

Not only does the exploration of the natural environment support children's health, but it also builds the ongoing connection children feel with nature into adulthood. This creates a mutually beneficial relationship, in which the health of a person is dependent upon interacting with nature, and nature is dependent upon the person for sustaining its existence. This leads to a stewardship of the earth (Louv, 2008; Sisson & Lash, 2017).

Diminishing Connections Between Children and Nature.

Because there is an interdependent relationship between children developing a tie with nature, and the future sustaining of nature being dependent on the founding of this relationship, it is critical that the reasons for its weakening need to be evaluated. In the book, Last Child in the Woods, Louv coined the phrase "Nature Deficit Disorder," which referred to the diminution of children's time spent outdoors, connecting with nature, over the course of a few short decades (2008). Much research can be found that correlates the increased use of digital technology by children with the decrease in children engaging outdoors (Edwards & Larson, 2020; Frumkin et al, 2017; Louv, 2008; Wang et al., 2021). Although there are other contributing factors,

technology has contributed the most to the loss of children's interactions out in nature (Frumkin, 2017; Louv, 2008).

Technology

Technology for Young Children.

As the last few decades have shown a growth in the development of personal digital devices, the age at which children have been introduced to technology has become younger (Edwards & Larson, 2020; Konca, 2021; Sharkins et al., 2015). Initially, concerns with screen time were limited to that of watching television. Over time, children have moved from spending their free time actively playing in the outdoors to a more sedentary lifestyle, while engaging with technology, mainly indoors (Edwards & Larson, 2020). As technology has advanced, it has become more mobile, allowing for screen time to occur just about anywhere, increasing the amount of time spent passively engaged with technology (Wang et al., 2021). The mobility of technology allows for the opportunity to bring it outside, where it can aide in assisting children to re-engage with the natural world.

As the use of technology by young children increased, there had been an on-going debate as to how to determine what would guide its use. For many years, the quantity of time occupied by a child while engrossed in technology was the guiding factor and specifically referred to the amount of television viewing (Donohue & Schomburg, 2017). With personal digital technology becoming more common-place in households with the use of tablets and phones, early childhood (EC) professionals began to shift their thinking from the amount of time used to how children were engaging with technology (Donohue & Schomburg, 2017) and whether their experiences were "purposeful" (Technology and Young Children Interest Forum, 2008, p. 50). The relevance of debating the amount of time children spent using technology became obsolete.

In order to determine how children were engaging with technology, the creation of a set of principles by the EC professionals guiding young children's use of it was called for. The NAEYC and the Fred Rogers Center for Early Learning and Children's Media worked together to draft a document that provided EC professionals with guidance on what makes engagement with technology, "Effective, appropriate, and intentional" (Donohue & Schomburg, 2017). The strongest message from the statement is that when providing children with opportunities to engage with technology, its use must be purposeful and support children's developmentally appropriate exploration of the world around them. Although they advocate for the use of technology, Donohue and Schomburg warn parents to be sure that technology is not used in a way that would impede young children's natural development by allowing it to keep them away from important experiences (2017).

Early childhood professionals have long supported the approach of developmentally appropriate practice when planning for and providing young children learning experiences. The same holds true when introducing young children to technology. Saracho (2014, p. 18) shares the three considerations by early childhood educators for the use of technology as it was put forth by NAEYC and the Fred Rogers Center in 2012:

1. how young children develop and learn
2. their unique strengths, needs and interests
3. their social and cultural setting

These guidelines can assist families and educators as they work together in deciding how to best support young children's use of technology in a way that is actively engaging. Technology's use should be measured by whether it, "improves or obstructs young children's development (Saracho, 2014, p. 18)

Not only can children benefit from technology through building social skills by working collaboratively, but it can also build their academic development. When children have experiences with high quality technology and apps, they, "build skills of inquiry and observation" (Guernsey, 2020). Additionally, another important aspect of quality technology is that it promotes children's creativity (Guernsey, 2020). All of these put together infers that technology can foster children's ability to successfully transition to a more structured learning environment (Donohue & Schomburg, 2017).

A common theme about children's engagement with digital technology runs through much of the research. There are three main concepts to take into consideration when deciding whether the use of technology by young children is appropriate in supporting children's learning: creativity, communication and collaboration (Fantozzi, 2022; Geist, 2014). Fantozzi states that these three ideas are key to determining whether the chosen technology will build on children's learning, because they are the skills that are, "critical for learning and participation in daily life and the workplace" When considering these concepts, it is important to look at them as ideas that overlap and support each other, not as separate from each other (Fantozzi, 2022).

Supporting Children's Engagement with Technology.

Children's growth and development are occurring concurrently with technology as it evolves and grows. These children possess a whole different level of experience and knowledge of technology, compared to previous generations. Sharkins et al (2015) suggests that the use of technology can be embraced in guiding children's learning, but it needs to be done in a way that is relevant to children's interests and is actively engaging. Research by Teichert et al. (2021) discusses the polarized perspectives that have become common when discussing young children's use of technology. The news media either portrays screen time as a negative, or in

contrast, technology is, “positive and beneficial” (Teichert et al., 2021). Teichert et al.(2021) conclude that the perspective to take is one that moves away from worrying about how much time children spend with technology, and consider the quality of the interactions with it and with whom they are engaging with.

Guidance is further provided by Fantozzi (2022) in that it is critical that the child’s family and teachers make decisions about the use of technology that demonstrates intentionality. Young children need guidance and modeling of appropriate uses of technology that actively engage them in learning, especially in nature. Appropriate use of technology allows the children to integrate it into their play in order to extend on it (Fantozzi, 2022; Meaningful Technology Integration in Early Learning Environments, 2008).

When making the decision to mentor young children on how to integrate technology into their play, it is important to consider several things. Fantozzi (2022) points out that the tools need to be in the hands of the children, with adults working alongside them. This ensures that children are using the tools to their fullest potential. They are allowed to explore the tool together, and the focus of its use is the process, not the end product. These are guidelines that keep children from passively engaging with technology. By being intentional in the use of technology, the goal moves from incorporating it into their learning just because children are exposed to it everyday to a more pedagogical means for enhancing and extending their learning (Jack & Higgins, 2019). Technology is the most beneficial to young children when these two factors are taken into consideration and melded together. Donohue’s and Schomburg’s research states that the approach to using technology must be collaborative (2017). That is, first the use of technology should encourage children to problem-solve and elicit active engagement with the

tool. Secondly, the tool encourages the child to work collaboratively with others, whether it is an adult or with other children.

There are concerns regarding children's use of technology, especially unsupervised, or due to the lack of knowledge the adults in their lives have about technology. Children may gain access to content that is inappropriate for their age or is of a violent nature (Konca, 2021). Another concern is the habits that have been modeled for children by the adults in the home when it comes to passively engaging with digital devices (Konca, 2021). These can lead to children spending large amounts of time engaged with technology, leaving them little time or desire to engage in nature (Wang et al., 2021).

Building Connections with Nature Using Technology

Science, Technology, Engineering and Math (STEM).

Over the course of time, varying levels of technology have been used in the exploration of science and nature. Increasingly, this technology has taken on a more digital aspect. Looking at connecting children with nature from a different approach may mean integrating what children have already connected with, digital technology (Willis et al., 2014). It is not only logical, but also appropriate to think that technology can be used to guide children in building a connection with nature on a new level. Through the integration of these different areas of learning, educators and families are able to extend young children's learning experiences, laying the foundation for higher level critical thinking, problem-solving, observation and communication skills in an ever-evolving world (Li et al., 2021).

Providing children with digital tools that are open-ended offers them the opportunity to make observations of the happenings in nature, to document them and to synthesize their observations (McGlynn-Stewart et al., 2020). Adult support ensures that children do not miss

out on aspects of nature and bolster their observations and the conclusions they come to (McGlynn-Stewart et al., 2020). The efforts of connecting children with nature does not come down to just their educator nor their parent. It is a communal obligation to utilize strategies such as digital technology in order to ensure children carry on a love and appreciation for the world around them and beyond (Edwards & Larson, 2020; McClain, 2018). The study by Rosa et al. (2018) supports the importance of establishing a strong connection with nature as a young child, which leads to a sense of stewardship as an adult, with the hope that that adult will then share their passion for nature with the next generation of young children. This continual cycle then ensures a perpetuation of the care for the natural world.

Sense of Place.

Being intentional about helping children build strong connections with nature, ensures that they will enjoy the added benefit of establishing a sense of place or ownership (Fortino et al., 2014; Louv, 2008). By developing this deep relationship with the natural world that they are surrounded by leads children to grow in their care for the plants and animals that reside there. Utilizing technology only helps to deepen that connection. In turn, as mentioned previously, the children grow into adults who maintain a sense of responsibility for the natural world, and hopefully work to protect it. Fortino et al. (2014) stresses the importance of providing young children with direct hands-on experiences in order to forge that bond and make learning in nature meaningful.

Summary

The world in which we live may be in jeopardy, if the course is not corrected. The youngest generation's connections with nature are fading. They are afflicted by Nature Deficit Disorder, which Louv (2008) defines as a, "diminished use of the senses, attention difficulties,

and higher rates of physical and emotional illnesses." Many researchers have named the increased presence and use of digital technology in children's lives as the main cause for the reduction in children's affinity for the natural world, as well as the negative implications that accompany it (Chawla, 2015; Louv, 2008; Poppell & Monroe, 2017; Tillman et al., 2019; Wang et al., 2021). There is a direct connection between children's experiences in nature and their stewardship of the natural world later in life (Tillman et al., 2019).

There have been longstanding discussions over the years on the inclusion of technology in young children's lives and education. Fantozzi (2022) provides guidance in the responsible use of digital technology by young children. Included are strategies that educators and families can model to assist young children in utilizing technology that actively engages them. It is up to these adults to work together with the children, so that their engagement with the technology is with purpose and developmentally appropriate.

A shift in thought appears to be occurring in the education and relationship building between the environment and the inclusion of technology. Instead of looking at nature and technology as mutually exclusive, they could be merged together in order to re-introduce children to the wonders of nature and increase their experiences within it (Edwards & Larson, 2020; Livingston, 2022; McClain, 2018; McGlynn-Stewart et al., 2020; Willis et al., 2014). Children and adults can work together, while incorporating digital tools in the exploration of the outdoors. When adults are able to discern which technologies are developmentally appropriate and can be used in an intentional manner incorporated in their play, children will benefit from its use (Fantozzi, 2022).

Conclusion

Children have become disconnected from nature over the last half century (Louv, 2008). They are suffering the negative ramifications of their move to a life that has become more sedentary. This is due to their increased time spent indoors away from nature and plugged into an ever-evolving digital technology. This shift in lifestyle of being outdoors less has taken its toll on the development of the whole child. The effects can be witnessed in children's social-emotional, physical, cognitive, mental and spiritual development. However, technology will continue to develop, advance and be omnipresent. It is up to society to decide to utilize it in a way that rebuilds the youngest generations' connections with the outdoors. With the support of adults, children will develop an ability to actively engage with technology that is developmentally appropriate and open-ended as they increase their engagement with nature. They will reap the benefits of engaging with nature, but in return, their newfound connection will grow a sense of stewardship that will benefit the world. The following section contains specific guidelines that will provide family members with strategies in mentoring young children in building a bond with nature, while utilizing digital technology.

Chapter Three: Project Description

Introduction

As the use of digital technology has increased, younger children spend more time engaged on phones or tablets, which seems to lend to them spending less time engaging with the natural world (Konca, 2021). Instead of eliminating the use of technology by young children, it is logical to mentor the families of young children about how to choose technology in a more discerning manner and put it into practice by actively engaging in nature, since they are the most influential people in young children's lives (McClain, 2018).

The following content describes the optional four-week workshop for the adult family members of preschool children interested in assisting them in building a deeper awareness of the natural world around them. The families will be introduced to the rationale for this seminar, how they can support the children's exploration and how digital tools can help build the connection with nature through a long-term project. The adults will be mentored on the importance of utilizing open-ended technology, so they in turn can mentor the child. They will be provided strategies to support the child's engagement that are developmentally appropriate (Fantozzi, 2022).

Project Components

The four-week workshop, *Integrating Technology into Nature with Young Children,* will be focused on the adult family members of children four years old and older. Research has shown that it is up to the key adults in young children's lives to work together with them. While utilizing technological tools, the adult can guide the child by helping establish a sense of what is appropriate and inappropriate usage (Straker et al., 2018).

During the first workshop, the adult family members will be welcomed and asked to reflect upon their attitudes toward nature and their own connection with it, as well as their children's experiences with technology and their connections with nature (Appendix A). The participants will be asked to share their reflections during a whole group discussion. The questions will act as an outline and guide the schedule for the presentation of information to the participants (Appendix B). The group will be introduced to the reason for offering this workshop. Nature Deficit Disorder will be defined and the ramifications the increased use of technology has on the children's connections with nature will be shared. The group will be introduced to the idea of engaging with technology in a way that can be integrated into outdoor explorations and shared by the adults and the children. Guidelines will be provided that the adults can take into consideration when making decisions about choosing technology that are actively engaging options (Appendix C).

The participants will be introduced to the app, My Picture Book (2022), which will be the main focus of incorporating technology into their exploration of nature with their child. Appendix D will provide screenshots of the various options that the app, My Picture Books, offers for our use. This app will be the home for photos, text and audio recordings Once everyone has uploaded the app and have explored it, they will be provided the first week's activity (Appendix E). The families will be encouraged to work with their children to decide together on a space in nature that they would study together. While in their chosen space, they will make observations of their surrounding and use the app to document them.

Appendix F will also be shared, which includes strategies for the adults to implement while interacting with their child that encourages them to follow the children's lead promoting their taking initiative. These are drawn from High/Scope's, *Interaction Strategies That*

Encourage Active Learning (2011). The children will be able to take pictures, make voice recordings, as well as dictate their observation to text on the pages and will require some guidance from the adults.

In the next component, the adult family members are invited to meet the second week. This is an opportunity to check in with each other in order to troubleshoot any issues that may have arisen while using the app. This would lead to a conversation about their observations of their experiences with their child in nature and what the positive or negative aspects were, and whether they encountered any obstacles. During this time, the adults will be provided additional information regarding the guidance of selecting digital tools and the general use of digital technology for young children. See Appendix G for guidelines.

This week the families will be introduced to a new app that will be used as a resource for identifying plants and animals that grow and live in their chosen natural space. They will download the app, Seek (2022), while in the workshop. The app assists in identifying plants by using the tablet or phone to take a picture through the app. In turn, it will name the plant or animal. Several leaves will be provided for the adults to practice using the Seek app to identify the plant. They will be encouraged to choose to use a search engine for any further information about it. While in their natural space, pictures will be taken and uploaded to the My Picture Book app to document what grows and lives in their space. This will further build the children's sense of place or ownership of the outdoors as they become more and more familiar with it. The assignment will be shared (Appendix H) prior to the conclusion of the workshop.

The third component will be the third week the adults meet for the workshop. Once again, a discussion will be led asking the participants to reflect upon the experiences they have had with their children, while engaging with the Seek app and whether they felt it has

empowered the children to connect with the plants growing in their selected location. The adults will be asked to verbally describe the connection their children seem to be building with their selected location overall, if any at all. The participants will be asked about whether the children are taking initiative using the digital tools. They will be reminded about the importance of allowing the children to take the initiative and guide the direction of their explorations and that the adult's role is to be there to support the child's engagement and talking with them about their observations. It is important that the child develops a sense of independence, yet collaboration while using the tools to document their ideas.

The last portion of the meeting will focus on expanding on the use of the Seek app by identifying birds. In their explorations of apps, they may use any other bird identifier apps as well. Again, they will be reminded to return to their same chosen location and this time utilize the app, while documenting their observations on the My Picture Book app. In addition to the bird identifier app, the families will be asked to take along a clipboard or notebook and drawing materials (pencil, crayons, or markers). They will be reminded to take some time with their child to sit in the space looking around and talking to each other about what they are both observing. Incorporating all of the senses will deepen the shared observations. The next step to take would be to take time to draw something each of you see on your own papers. This is an opportunity for the adults to write down the child's thoughts on the paper about their drawings. They will be reminded to encourage the children to document the drawings to add them to the digital book. This would be an opportunity for the child to record audio as they reflect on the day's observations and their drawings. The participants would leave with the next assignment (Appendix I).

The concluding component will occur the fourth week. The families will be invited to bring the children to the last gathering. This will be an opportunity for the children to share their digital books with each other. This will be an open time for families to talk and share their experiences of spending time in nature, while utilizing digital tools. As the workshop is concluding, the families will be provided with directions for sharing the digital book with the children's teacher, so the children can access all of the books on the classroom tablet. The last thing the families will be asked to do is to fill out a short survey about their experiences in nature, while using digital tools (Appendix J). Input will be asked of the adults and the children.

Project Evaluation

In order to evaluate the effectiveness of this project, the adults and children will be asked to fill out a survey together during the last workshop. They will be asked to anonymously leave their survey in a basket before leaving. Some questions will ask the adults to rate their experiences on a scale of one to five with five being the most effective. The survey will also include several open-ended questions asking for their reflections and feedback. The success of the project will be dependent on the ratings as well as the responses to the open-ended questions. An average score of 3.5 or higher will indicate success of the project. Other factors will also be whether the digital book was completed and the level of enthusiasm the children demonstrated, while sharing their books with others during the last workshop.

Project Conclusions

The research shows that it is critical for children to build connections with nature, because of the many benefits they reap from it. Children develop strength in their physical development, as well as their physical fitness (Poppell & Monroe, 2017). Their social-emotional, spiritual and cognitive development are all greatly affected by experiences and

explorations out in nature (Louv, 2016; Scott et al., 2018; Tillman et al., 2017) . Children experience overall greater health.

A possible conclusion that has been reached is that the digital tools may not be as integral in connecting children with nature. When it comes down to it, the experiences in nature may be more relevant to children, because of the significant adults in their lives. Children tend to follow what is modeled for them from an early age. Enthusiasm for most topics can seem exciting or intriguing regardless of what it is, as long as the important people in their life hold it in high regard. If using digital tools is a way to bridge the gap of comfort for the adults having experiences in nature and it piques the interests of the children, then that is for the best for all involved.

Something else to consider is the attention span of a young child. It is important to be cognizant of the children's level of interest when utilizing various digital tools, as its novelty may wain sooner for some than others. That is why it is important to change the focus each week to keep the adults and the children interested and engaged, while outdoors together.

Plans for Implementation

An idea for implementing this project will address Great Start to Readiness Preschool Program's (GSRP) families. Being a teacher in a GSRP classroom, an expectation is that a monthly family engagement activity is to be offered. This is an activity that will be offered to these families during the spring when a lot of changes in nature are evident making it more engaging for the children. The workshops will be offered to the adults during the last hour of the day just prior to pick up time for the children on a day that is most convenient for the majority. By engaging the classroom's families, the project will conclude as planned, but then the digital books that were created will be uploaded to the classroom tablets. This will allow for the project

to be extended by allowing the children the ability to share each other's books within the classroom, creating a new level of enthusiasm for the experiences in nature. This will hopefully lead them to wanting to continue building their relationship with nature.

Appendix A

Reflections Questionnaire

Connections with Technology and Nature

Please record your answers below.

1. Briefly describe your favorite memories about nature and being outdoors.

2. When you think about nature, are your thoughts positive or negative?

3. How much time each week do you feel your child spends outside in unstructured play?

4. How much time would you estimate your child spends using digital technology, such as a tablet or phone?

5. Would you describe your child's engagement with technology as passive or active?

6. While your child is engaging with technology, are you participating along with them?

7. How would you describe your child's reactions to being out in nature?

Created by White, K. (2022). Reflection questionnaire for adult participants in the workshop, *Integrating Technology into Nature with Young Children.*

Appendix B

Workshop 1 Schedule

:00 Welcome/Introduction

-Introduce myself

-Goals of the month-long series of workshops and experiences outdoors

:05 Reflections Questionnaire (Appendix A)

-Participants answer questions

:15 Group Discussion focusing on the group's responses to the questions

-Collect questionnaires anonymously

:25 Introduce this month's activity to build connections in nature with your child while using the app, *My Picture Books.*

:30 Upload app to devices

-Tablets are available for borrowing from the program.

:35 Review the functions of the app

-Hand out Appendix D, Screenshots of different functions of the app

:40 Provide the first week's activity

-Pass out the handout, Appendix E, that describes the activity.

:45 Supporting your child's engagement with guidance from HighScope's Adult Child Interactions Strategies

-Pass out the handout, Appendix F, Adult Child Interactions Strategies.

:58 Conclusion

-Check in with everyone to be sure all understand the activity and take questions

Created by White, K. (2022) Workshop 1 schedule for adult participants in the workshop, *Integrating Technology into Nature with Young Children.*

Appendix C

Choosing Apps for Young Children

Things to Consider about young children and technology:

- Choosing an app can be confusing, when it can be rated 0-5 years. So much growth can occur within one year, let alone five years.
- Make sure interactions with technology are developmentally appropriate for children, meaning it matches the child's level of development; each individual child is their own individual with their own interests and abilities; understanding the child's relationships to the systems that have influence on their development.
- "Placing these technologies in children's hands so that they direct the learning and creating."
- Children should use technology in a way that allows children to reflect on their work, tell stories, and express their creativity using pictures, voice, music, movement, and text.
- Technology can be used to help build partnerships between families, children and school.
- Technology is for everyone. It is important that the message is shared that anyone can learn it and use it; adults and children.

Finding or Reviewing Apps

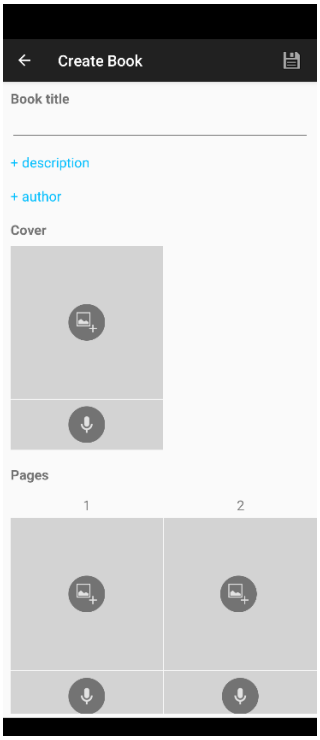
Common Sense Media App Review
www.commonsensemedia.org/app-reviews

Adapted from "Digital Tools for Learning, Creating & Thinking," (pp. 2-5), by V. B. Fantozzi, 2022, National Association for the Education of Young Children (https://www.naeyc.org)

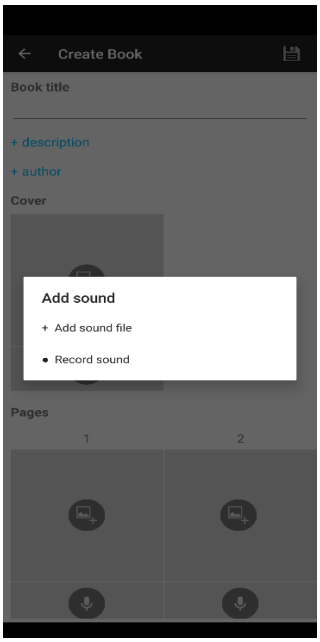
Appendix D

My Picture Books app Screenshots

1. Begin by tapping "Create a book."

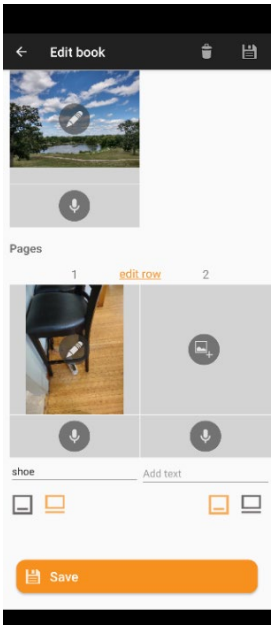


2. Tap the line under "Book title" to type in title, or you can do this at a later time.



3. To add a voice recording tap the microphone and record, or you can add a sound file.

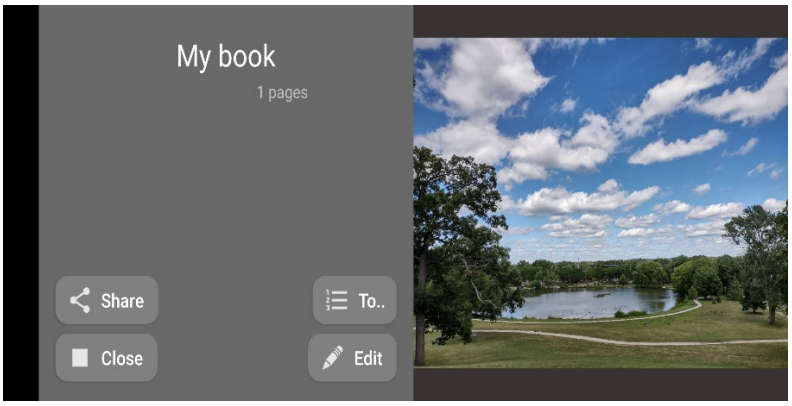
Appendix D Continued



4. Tapping the boxes under the picture allows you to choose where to add text, if wanted. Remember to click Save.

5. To add a picture to the page, tap the circle in the middle of the page. It will offer you a choice between taking a picture

Appendix D Continued



6. When reopening the book, there will be several options. "Edit" allows you to add more pages to the book. "To" allows you to skip to a specific page in the book. "Share" allows you to share the book as a zip link. "Close" takes you back to the main page.

Huijnk, Julius. (2022). *My Picture Book* (Version 1.77) [Mobile app]. Google Play Store. https://play.google.com/store/search?q=my+picture+book+app&c=apps&hl=en_US&gl=US.

Used with permission.

Appendix E

First Activity

Take a walk with your child outside to a place you feel safe and is quiet. This could be your backyard, a friend's backyard or a quiet part of a park. If you choose a park, it is recommended that you choose a space away from distractions, such as the playground or sports play.

This location will be a place you visit repeatedly over the course of the next few weeks. Be sure to bring your tablet or phone. You will use the app, My Picture Book, for you and your child to record the visits.

When you get to your chosen space, wander the area. Encourage your child to take pictures of plants, animals, insects found in the area. Take pictures of each other exploring the space. If pictures taken go to the gallery, review the pictures together and encourage your child to choose two to four pictures that will be uploaded into the digital book to represent the visit. Record your child talking about the specific pictures that were chosen. Have your child describe what they see.

If there is difficulty uploading the pictures to the digital book, save them for the next workshop, where the group can help with troubleshooting any problems. Remember, technology is available for exploration, just like play. Sometimes there will be successes and sometimes there will be failures. It's about modeling for your child a positive attitude about technology, and that everyone is always learning.

Created by White, K. (2022) Workshop 1 activity for adult and child participants, *Integrating Technology into Nature with Young Children.*

Appendix F

Adult-Child Interactions

Interaction Strategies That Encourage Active Learning

1. Join children at their level.
2. Use the SOUL process to approach interactions with children:
    - **S—Silence**
    - **O—Observation**
    - **U—Understanding**
    - **L—Listening**
3. Use interactive matching and turn-taking.
4. Use comments or observations as conversational openers.
5. Label and describe the child's actions.
6. Acknowledge what children say.
7. Encourage children to expand or extend the range of the conversation.
8. Ask questions sparingly.
9. Offer comfort and contact.
10. Participate in children's play.
11. Encourage children's problem-solving.

Reprinted from HighScope Educational Research Foundation. (2011). *Adult Child Interaction.* Ypsilanti, MI: HighScope Press. Used with permission.

Appendix G

Guiding and Evaluating Children's Use of Technology

Things to consider when children engage with technology.

Questions to ask:

Create

- Are children able to develop creativity when using technology?
- Does the technology support or extend the learning done in creating?

Collaborate

- Does the technology support multiple users at the same time?
- Does the technology allow for different roles?
- Is the technology appropriate for project-based learning?

Communicate

- Does the technology allow for children to easily share their ideas with an audience?
- Does the technology allow for multimodal communication?
- Does the technology support all learners with a variety of methods of expression?

Adapted from "Digital Tools for Learning, Creating & Thinking," (pp. 28-29), by V. B. Fantozzi, 2022, National Association for the Education of Young Children (https://www.naeyc.org) Copyright 2022 by NAEYC Books.

Appendix H

Second Activity

Welcome back to your special place outdoors. When referring to this space, help your child establish a sense of belonging or sense of place by referring to your location as "our place."

This week's activity will have you focus in more specifically on the plants that grow in "your space." During the workshop you should have downloaded the app, Seek, a plant identifier app. Encourage your child to look around slowly, first standing up then down on the ground to find plants to identify. Remind your child to look at the plants, while keeping hands off, as some plants can cause rashes, such as poison ivy. Follow your child's lead as to what to talk about or where to look. Be sure your child is given the opportunity to explore the Seek app with your guidance. Once you have spent time together identifying various plants, record several in your digital book. Utilize the text options. Encourage your child to type the plant names in while you spell it out for them, as well as invite them to record themselves saying the plant names.

Again, if you run into any technical difficulties, use the device's camera to record the experience.

Created by White, K. (2022) Workshop 2 activity for adult and child participants, *Integrating Technology into Nature with Young Children.*

Appendix I

Third Activity

Welcome back to your special place outdoors! Hopefully, you are finding this to be a peaceful place to spend time with your child. For this visit, you and your child will be engaging with the new bird identifier app. Since it may be challenging to take pictures of birds, since they move so quickly, both of you can use the other tools you brought with you (writing utensils, paper/notebooks, clipboards). Sit quietly for a few minutes and look for birds that inhabit your space. Talk with your child about what they notice about the birds, then take this opportunity to draw the birds that you see. Remind your child to do their best and everyone's drawings look different. Have your child tell you about their picture. It's ok if they decided to draw things other than the birds. Document the drawings for the My Picture Book app. Sit for a few more minutes. Encourage your child to use their other senses besides their eyes to look for birds. What else do they see? Now have them close their eyes. What do they hear or smell? Be sure to document these ideas in the digital book as well.

This will be your last visit to this place for the workshop. Please continue to revisit the location with your child as often as they like. Encourage them to look for changes that might be occurring as the season progresses.

Created by White, K. (2022) Workshop 3 activity for adult and child participants, *Integrating Technology into Nature with Young Children.*

Appendix J

Exit Survey

Please fill out this short survey then put it in the envelope unsigned. Thank you for participating in this workshop.

1. The digital tools helped you feel more confident about finding out about plants and birds.

Disagree very much 1 2 3 4 5 Agree Strongly

2. This experience strengthened your child's sense of place or belonging in nature.

Disagree very much 1 2 3 4 5 Agree Strongly

3. Using technology strengthened your child's connection with nature.

Disagree very much 1 2 3 4 5 Agree Strongly

4. Your child has demonstrated an increased use of nature vocabulary.

Disagree very much 1 2 3 4 5 Agree Strongly

5. You and your child plan to continue to use the apps that were introduced.

Disagree very much 1 2 3 4 5 Agree Strongly

6. The digital tools were manageable for your child to use.

Disagree very much 1 2 3 4 5 Agree Strongly

7. Your child demonstrated an increased level of happiness or calmness while outdoors.

Disagree very much 1 2 3 4 5 Agree Strongly

8. You feel more confident about choosing digital activities for your child that are more open-ended and engaging.

Disagree very much 1 2 3 4 5 Agree Strongly

9. Your child looked forward to going to your nature space.

Disagree very much 1 2 3 4 5 Agree Strongly

10. Your child expressed more interest in being outdoors than prior to this activity.

Disagree very much 1 2 3 4 5 Agree Strongly

Created by White, K. (2022) Exit survey for participants in the workshop, *Integrating Technology into Nature with Young Children.*

Appendix K

Copyright Permission—My Picture Book App

GRCC
GRAND RAPIDS COMMUNITY COLLEGE

Kathleen White <kwhite@grcc.edu>

Copyright Permission Request
4 messages

Kathleen White <kwhite@grcc.edu> Fri, Jul 15, 2022 at 5:13 PM
To: juliuszelf@gmail.com

Hello

My name is Kathleen White, and I am a graduate student at Grand Valley State University working to complete my Master's Project. I would appreciate being permitted to use your app as part of the project. I have attached a form for you to sign. If you would grant me permission to do so, please sign and return the form by July 22. This would be a helpful tool in my development of a program that integrates the use of technology in order to assist young children and their families to build a connection with nature. If you have any questions, please do not hesitate to contact me. I eagerly await your response.

Sincerely,

Kathleen White
whitekat@mail.gvsu.edu
616-450-4105

Copyright Permission Request.docx
14K

Julius <juliuszelf@gmail.com> Fri, Jul 15, 2022 at 5:18 PM
To: Kathleen White <kwhite@grcc.edu>

Hi,

I don't fully understand how you can 'include the app', (wording of the document), but feel free to use it in your research.

I also give you permission to use screenshots of the app.

Best regards,
Julius
[Quoted text hidden]

Kathleen White <kwhite@grcc.edu> Fri, Jul 15, 2022 at 5:25 PM
To: Julius <juliuszelf@gmail.com>

Hello

I appreciate you allowing me the use of your app. In order for me to do so, I am required to include a signed copy of the attached form in my project. Thank you for taking the time to do so.

Sincerely,

Kathleen White
[Quoted text hidden]

Julius <juliuszelf@gmail.com> Fri, Jul 15, 2022 at 5:29 PM
To: Kathleen White <kwhite@grcc.edu>

there is no legal difference between text in email and text in document.

Appendix L

Copyright Permission—Adult Child Interaction

HighScope Educational Research Foundation

HIGHSCOPE

High Scope Educational Research Foundation

July 21, 2022

Dear Kathleen White:

Thank you for your interest in HighScope!

Please accept this letter as a grant of permission to use text from the following HighScope product in your Master's Project at Grand Valley University:

1. *Adult Child Interaction Participant Guide*

Kindly use the following credit line when reprinting the above copyrighted information:

1. HighScope Educational Research Foundation. (2011). *Adult Child Interaction.* Ypsilanti, MI: HighScope Press. Used with permission.

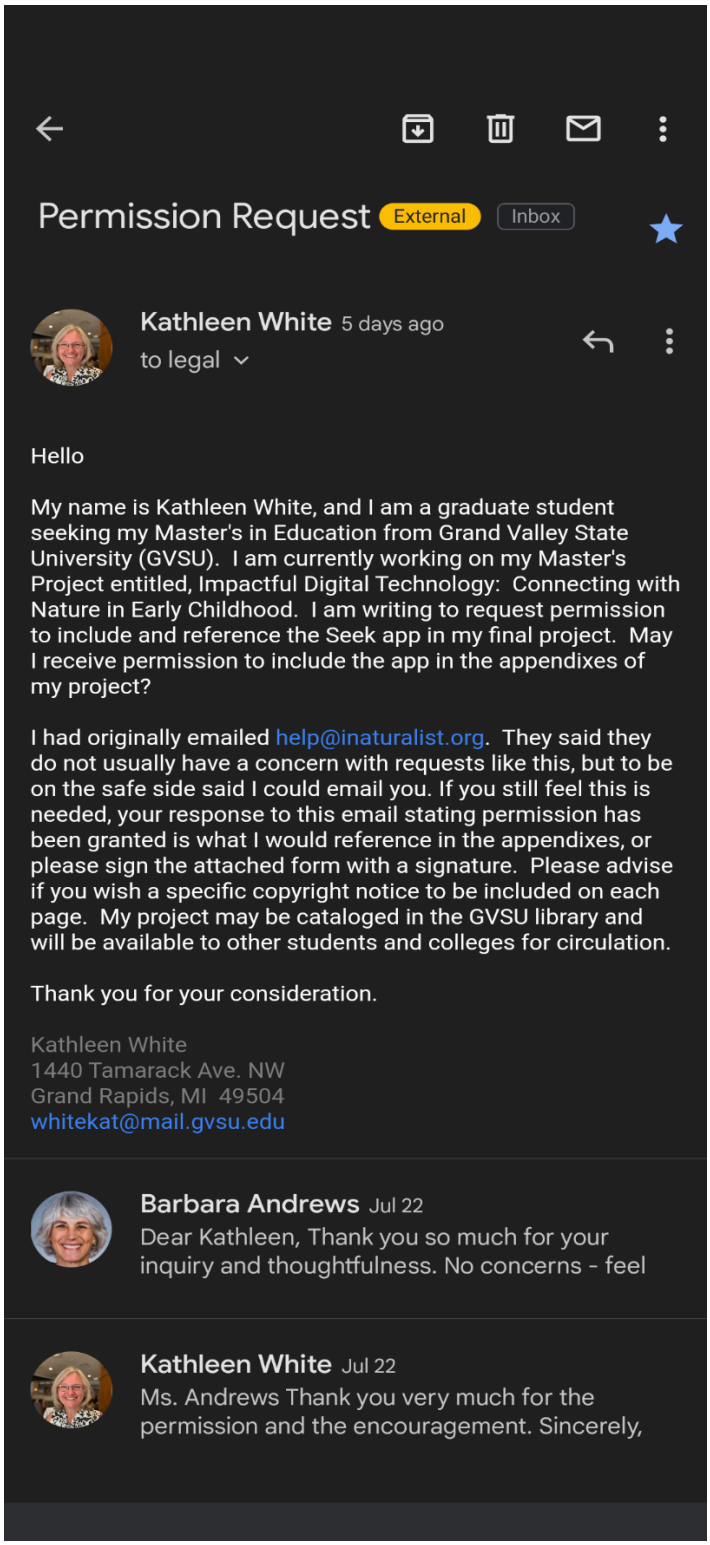
If there is anything else you need, or any further clarification, please don't hesitate to ask. And once again, thank you for choosing HighScope to support the important work you do.

Best regards,

Henry Brown
Editor
HighScope Educational Research Foundation
600 North River St.
Ypsilanti, MI 48198
T. 734.485.2000 x 205
F. 734.485.5210
hbrown@highscope.org
HighScope.org

Appendix M

Permission Request—Seek App from iNaturalist



Permission Request External Inbox

Kathleen White 5 days ago
to legal

Hello

My name is Kathleen White, and I am a graduate student seeking my Master's in Education from Grand Valley State University (GVSU). I am currently working on my Master's Project entitled, Impactful Digital Technology: Connecting with Nature in Early Childhood. I am writing to request permission to include and reference the Seek app in my final project. May I receive permission to include the app in the appendixes of my project?

I had originally emailed help@inaturalist.org. They said they do not usually have a concern with requests like this, but to be on the safe side said I could email you. If you still feel this is needed, your response to this email stating permission has been granted is what I would reference in the appendixes, or please sign the attached form with a signature. Please advise if you wish a specific copyright notice to be included on each page. My project may be cataloged in the GVSU library and will be available to other students and colleges for circulation.

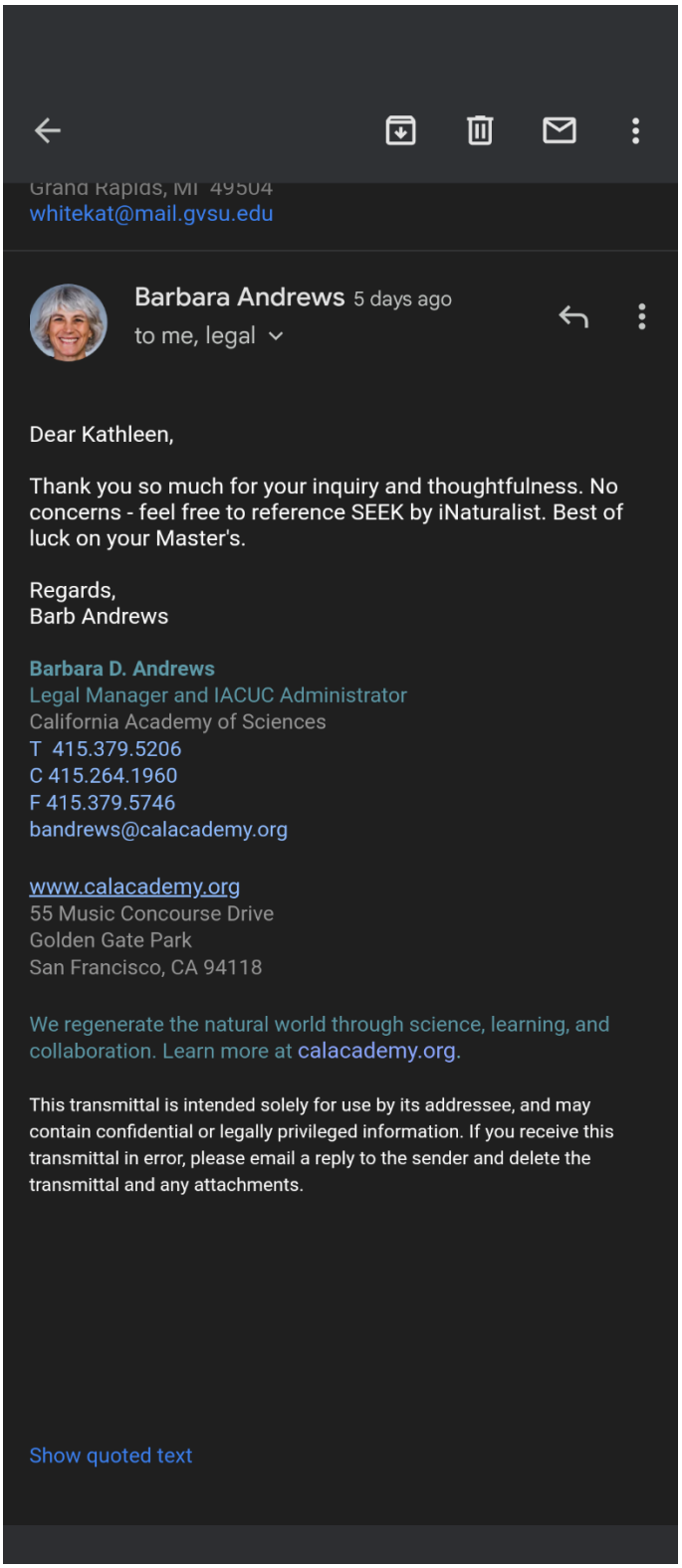
Thank you for your consideration.

Kathleen White
1440 Tamarack Ave. NW
Grand Rapids, MI 49504
whitekat@mail.gvsu.edu

Barbara Andrews Jul 22
Dear Kathleen, Thank you so much for your inquiry and thoughtfulness. No concerns - feel

Kathleen White Jul 22
Ms. Andrews Thank you very much for the permission and the encouragement. Sincerely,

Appendix M Continued



Grand Rapids, MI 49504
whitekat@mail.gvsu.edu

Barbara Andrews 5 days ago
to me, legal

Dear Kathleen,

Thank you so much for your inquiry and thoughtfulness. No concerns - feel free to reference SEEK by iNaturalist. Best of luck on your Master's.

Regards,
Barb Andrews

Barbara D. Andrews
Legal Manager and IACUC Administrator
California Academy of Sciences
T 415.379.5206
C 415.264.1960
F 415.379.5746
bandrews@calacademy.org

www.calacademy.org
55 Music Concourse Drive
Golden Gate Park
San Francisco, CA 94118

We regenerate the natural world through science, learning, and collaboration. Learn more at calacademy.org.

Show quoted text

Appendix N

Permissions for NAEYC Content—Digital Tools for Learning, Creating, & Thinking

Permissions, Reprint, and Translation Requests

Resources / Publications / Permissions, Reprint, and Translation Requests

If you are seeking permission to reproduce NAEYC content, **first check to see if our title is available on the Copyright Clearance Center (CCC) website.** This includes permission to reproduce NAEYC content in a book, a journal, a dissertation, on a website, or for coursepacks, and study manuals, etc. If the title is not available via CCC or if CCC directs you to NAEYC for your request, please submit our Permission Request form. Please note some permissions may require fees. **Please allow 6-8 weeks for the permission to be processed.**

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The chart below details which uses do not require permission.

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ALL	Requesters can use brief quotes up to 150 words from any one article or up to a total of 500 words from at least four different pages of any one book for no charge.

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