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Fostering Creativity in Education Including Natural Environments: A Course on Creativity for Children in Colombia

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An Abstract of a Project

in

Creativity and Change Leadership

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Master of Science

May 2022

Buffalo State

State University of New York
Department of Creativity and Change Leadership

Abstract of Project

This project is a contribution to the field of creativity and education. The project aimed to connect the research-based knowledge on how natural environments enhance creativity and put it in the service of creativity education for children. The main objective was to design a prototype of a course outline of a continuing education course on creativity that leverages the knowledge of the connection between creativity and natural environments for children between 7 and 12 years old in Medellín, Colombia, South America.

Key words: creativity, education, children, natural environments, nature.

TOP

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Date 05-12-2022

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Susan Keller-Mathers

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Date 05-10-2022

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Thank you to my professors at Buffalo State College. Special thanks to Dr. Cabra for supporting me. He was always available to talk and share valuable knowledge. I learned a lot from his classes and him as a creative leader and educator. Big thanks, Dr. Cabra! Dr. Susan Keller-Mathers for her support, enthusiasm for this idea, and helping me to converge on a concrete and viable project. Also, thanks to Dr. Puccio for his support. Also, thank you to my cohort! Special thanks to Juliette for her support and friendship.

Special thanks to Leo, German, Nacho, and friends for their full support and enthusiasm for my dreams. I send a warm hug to Moca and McGuyver, for their love and for always being there with me. Thank you to Mauricio Bejarano for his support.

I also want to celebrate myself for believing in a big dream, acting towards it, and being brave. This is an important milestone in a more creative life and as a creative leader and educator.

I want to recognize all the people who believed in the importance of creativity and whose contributions have built the area of knowledge. I am very grateful! I acknowledge that I am standing on the shoulders of giants.

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SECTION ONE: BACKGROUND TO THE PROJECT

Purpose and Description of Project

One of the biggest goals in my life is to foster creativity in education. Therefore, in my master's project, I plan to contribute to that goal by designing a course outline of a continuing education program on creativity that focuses on the relationship between natural environments and creativity for children between 7 and 12 years old in Medellín, Colombia, South America.

The main idea is to capitalize on the research-based findings on how natural environments can enhance creativity. This will be in service of creativity education. The course will be designed for children, and the main learnings from this project could also be a starting point for other learning experiences for students of different ages.

For this journey, I plan to achieve the following personal goals: (1) To deepen my knowledge of the relationship between creativity, education, and natural environments. (2) To design a creative course outline (3) To improve my life by leveraging the learnings from this project (e.g., classes, personal decisions) (4) To keep a curious mind and enjoy the journey. (5) To keep a strategic mindset on all the possible ways to capitalize on the results and learnings.

Rationale for Selection

I chose this master's project because it brings me joy, awakes my curiosity, and aligns with my passions and core beliefs. Creativity and education are my passion; I am a strong believer in the power of creativity and education and the need for more creative and happy people in the world. I teach at a university in Colombia, where I teach undergraduate, graduate, and extension courses about innovation and creativity, products and services design, and prototyping. Furthermore, I have also explored teaching creativity to children, which I have found exciting and inspiring. I love to

teach; it brings me energy and happiness; I learn a lot from my students, and I love designing new and valuable learning experiences for them.

I also love nature. Being around natural environments makes me feel happier, energized, grateful, and more creative. Therefore, I was pleased to discover that there is research-based science backing up the perceived benefits I feel when I am in nature. A current research area explores how natural environments enhance creativity. Exploring more about these connections makes me feel curious and excited.

SECTION TWO: PERTINENT LITERATURE AND RESOURCES

The complete literature review will be presented in Section Four as an outcome of the project. It will cover information on creativity and education and a review of significant findings on creativity and natural environments.

SECTION THREE: PROCESS PLAN

Plan to Achieve Your Goals and Outcomes

Main Objective

To design a course outline of a continuing education course on creativity that leverages the knowledge of the connection between creativity and natural environments for children between 7 and 12 years old in Medellín, Colombia, South America.

Specific Objectives (for the Master's Project)

Specific objective 1: To analyze the literature review on creativity and education and creativity and natural environments.

Specific objective 2: To create a first prototype of a course outline for a continuing education program on creativity that leverage the knowledge of the connection between creativity and natural environments for children between 7 and 12 years old in Medellín, Colombia, South America.

Specific objective 3: To explore possible ways to measure – in the near future- the course experience

Specific Objectives after the Master's Project is Finished

These are objectives that I am committing to doing after finishing my master's project.

To get feedback from two experts on education and creativity.

To get feedback from children between 7 and 12 years old.

To map successful cases with similar approaches.

To implement the course in one group of children.

To measure the course experience.

To collect feedback and iterate course design.

To write a research paper.

To publish a paper in a peer-review journal.

Outcomes

Outcome 1: A literature review on creativity and education, and creativity and natural environments.

Outcome 2: Summary of the practical aspects to be considered in the course

Outcome 3: A prototype of a course outline for a continuing education program on creativity for children between 7 and 12 years old in Medellín, Colombia, South America. The course aims to bridge what is known about creativity education for children and the relationships between natural environments and creativity.

The outline will contain the course name, a total of hours, course description, course purpose, intended learning outcomes, course instructional delivery method, resources for the class, grading, structure, and sequence of class activities (before, during, and after the course), and activities.

Outcome 4: Two possible ways to measure the course experience when implemented.

Project Timeline

The following section includes weeks, estimated hours, specific objectives, outcomes, activities, class assignments, and due dates that will contribute to accomplishing the master's project. A more robust project timeline was followed in the form of an Excel file during the semester.

Week 1: January 31- February 6 and Week 2: February 7-13

Estimated hours: 30

Activities

Structure the concept paper

Start reviewing the literature review

Meetings with my sounding board partner

Write concept paper

Proofread the document on Grammarly

Class meetings

Outcomes: Concept paper

Submission: Monday, February 14th

Week 3: February 14-20, Week 4: February 21-27, Week 5-6: February 28- March 13, Week 7: March 14-20 - Will focus to accomplished specific objective # 1

Estimated hours: 60

Activities

Search literature

Complete Sections 1,2,3

Meetings with my sounding board partner

Proofread the document on Grammarly

Share document with sounding board partner

Make corrections based on the professor's feedback

Submit Sections 1,2,3

Class meetings

APA workshop

Outcomes: Sections 1-3

Submission: Monday, March 21

Week 8: March 21-27, March 28-April 3 (Spring Break), Week 9: April 4-10, Week 10: April 11-17 - Will focus on accomplishing the specific objectives # 1, 2, 3, and 4

Estimated hours: 108

Activities

Search literature

Analyze the findings

Synthesize the findings

Organize literature on Mendeley

Write outcome 1: A literature review on creativity and education and creativity and natural environments.

Contact experts in the field

Collect information

Write outcome 2: Summary of the practical aspects to be considered in the course.

Write the first draft with course name, Course description, main course objective, intended learning outcomes, structure, and sequence of class activities.

Write final course outline.

Explore ideas in journal papers on how to measure these learning experiences

List possible ways to measure

Write Sections 4,5,6

Proofread the document on Grammarly

Feedback from my sounding board partner

Make corrections based on the professor's feedback

Organize documents based on APA Style

Organize literature on Mendeley

Class meetings

Outcomes: Sections 4-6

Submission date: Monday, April 18th

Week 11: April 18-22, Week 12: April 25- May 1, Week 13: May 2-8 - Will focus on completing the master's project document

Estimated hours: 75

Activities

Put together the complete master's project

Make corrections based on the professor's feedback

Proofread the document on Grammarly

Conversations and feedback from my sounding board partner

Organize the document based on APA Style

Organize literature on Mendeley

Formatting the document

Class meetings

Outcomes: Completed Master's Project Document

Submission date: Monday, May 2-6

Week 14: May 9-15

Estimated hours: 40

Outcomes: Completed Master's Project approved for uploading by the professor to Digital Commons.

Submission date: May 9th, 2022

Week 15: May 16-19

Estimated hours: 40

Activities:

Design a seven-minute presentation, focusing on one outcome of the project, one learning area, and an idea of what I see myself doing with this project.

Rehearsal the presentation

Class meeting

Outcomes: Project Presentations

Due date: May 19

Evaluation Plan

Evaluation of this project will be established by achieving the outcomes presented in the previous section.

Table 1

Master's project Outcomes

SPECIFIC OBJECTIVES	**OUTCOMES**
Specific objective 1: To analyze the literature review on creativity and education, and creativity and natural environments.	Outcome 1: A literature review on creativity and education, and creativity and natural environments Outcome 2: A summary of the practical aspects to be considered in the course
Specific objective 2: To create a first prototype of a course outline for a continuing education program on creativity that leverage the knowledge of the connection between creativity and natural environments for children between 7 and 12 years old in Medellín, Colombia, South America. . Specific objective 3: To explore possible ways to measure – in the near future- the course experience.	Outcome 3: A prototype of a course outline for a continuing education program on creativity for children between 7 and 12 years old in Medellín, Colombia, South America. The course aims to bridge what is known about creativity education for children and the relationships between natural environments and creativity. The outline will contain the course name, a total of hours, course description, course purpose, intended learning outcomes, course instructional delivery method, resources for the class, grading, structure, and sequence of class activities (before, during, and after the course), and activities. Outcome 4: Two possible ways to measure the course experience when implemented.

SECTION FOUR: OUTCOMES

The primary purpose of this project was to connect the research-based knowledge on how natural environments enhance creativity and put it in the service of creativity education for children.

The project created four results: First, a literature review focused on creativity and education, and creativity and natural environments. Second, a summary of the most relevant aspects to include in the course outline came from reviewing the literature, talking with experts, and my knowledge from my Master of Science in Creativity and Change Leadership studies. This section added value to my learning experience and helped me converge.

Third, a prototype of a course outline for a continuing education program on creativity for children between 7 and 12 years old in Medellín, Colombia, South America. The course aims to bridge what is known about creativity education to children and the relationships between natural environments and creativity, looking to empower children with a creative process and confidence in their creativity. Fourth, explore two possible ways to measure the course experience when implemented.

Literature Review

The literature review informed my thinking of creating a course on creativity that leverages the knowledge of the relationship between creativity and natural environments for children between seven and ten years old. The literature review included information on creativity and education, including a call for a stronger connection between creativity and education and creativity as a teachable skill. It also included a review of significant findings on creativity and natural environments.

Creativity and Education

A Call for a Stronger Connection

Torrance and Guilford considered the parents of modern creativity theory and research (Smith & Smith, 2010), contributed to the study of the relationship between creativity and education. When Guilford (1950) addressed the APA conference, he urged for more research on the creativity field, and one aspect of it was the relationship between creativity and learning. Torrance (1972) analyzed, from 133 studies, possible ways to teach children to think creatively. He also developed the *Incubation Model of Teaching and Learning*, which allows for teaching creativity in the classroom (Torrance, 1979; Torrance & Safter, 1999).

The need for a stronger relationship between creativity and education is still a demand nowadays. Mullen (2019) challenged whether creativity is under duress in education. Florida (2014) and Robinson and Aronica (2015) defend the necessity to transform how education works because there is proof that the current educational system hinders creativity.

Besides the call for more connections between creativity and education, there is a demand from the business sector. Creativity is a skill needed for success in the 21st-Century Workplace, and several studies backed it up. For instance, a study from (IBM, 2012a, 2012b) indicated that creativity is the most critical leadership skill for the CEO in the study. Moreover, the World Economic Forum (2016) identified that complex problem solving and creativity are between the top three skills needed to successfully face the Workplace in 2020 and the challenges of the fourth industrial revolution.

There is a call to change the role (or none) of creativity in education. Moreover, education also needs to address the business sector's demand for more creative professionals to be able to succeed in the 21st-Century Workplace. Then there is a need for education to foster creativity. Moreover there is also a call to teach creativity today (Puccio, 2017).

Creativity is a Teachable Skill

Several studies have evidenced the same: creativity can be taught. For instance, in the early 1970s at Buffalo State College, the Creative Studies Project was conducted by Sidney Parnes –one of the fathers of Creative Problem Solving- and Ruth Noller, two leading scholars in the field. The study assessed students who went through a four-semester creative problem-solving program as a regular part of their curriculum; after that, they tested better on academic and non-academic creative achievements (Parnes & Noller, 1972). The study showed that problem-solving skills could be improved after proper training. In addition, Scott et al. (2004) conducted a quantitative meta-analysis of 70 previous studies that showed that well-designed creativity training programs work.

The Torrance Incubation Model (TIM) allows for teaching creativity in the classroom (Torrance, 1979; Torrance & Safter, 1990). The model has been successfully used when weaving creative skills into the curriculum (Burnett et al., 2021; Burnett & Figliotti, 2015). It has also been applied in higher education by Murdock, M. C., and Keller-Mathers (2008), and with parents and children (Lesswing, 2014).

Nowadays, several research-based projects contribute to teaching creativity to children. For instance, the Creativity and Education organization, led by Dr. Cyndi Burnett, also contributes to bringing creativity to children (Creativity and Education, 2022). They share several free resources; for instance, there is a workbook with lessons and activities on Creative Problem Solving for children (Knowinnovation, 2015). Also, Grammenos and Antona (2018) taught Design Thinking to kids and assessed the results. Hoffmann et al. (2021) implemented a course for children in Spain to increase their creative and emotional skills.

Besides, there are several learning experiences designed by my peers at Buffalo. Some of them used CPS tools (Lyness, 2013), one of them with a particular focus on

kindergarten students (Tulumello, 2009). Others used Design Thinking challenges (Gannon, 2020). Besides, a special format was developed for street children (Masud, 2019).

Learning Environments that Foster Creativity

Multiple scholars have studied several aspects that nurture creativity in education (Burnett & Smith, 2019; Davies et al., 2013). According to Beghetto and Kaufman (2014), when fostering creativity in the classroom, the learning environment is one of the most crucial aspects because it assists or resists the creative potential.

Davies et al. (2013) presented a systematic literature review where they analyzed 210 documents published between 2005 and 2011 from academic, professional, and policy sources; they identified a list of eight characteristics of a creative learning environment in education for children and young people: physical environment, availability of resources/materials, use of the outdoor environment, pedagogical environment, the role of play, use of time, relationships between teachers and learners, and the use of other environments beyond the school.

The use of the outdoor environments has a positive influence on student's creativity: outdoor places give a feeling of ownership, which does not always happen in the classroom; besides, when students are outside, they tend to have a more collaborative attitude, which is different from an individualist attitude present on the inside (Davies et al., 2013).

Creativity and Natural Environments

Research has proved the benefits of nature in the human brain. For instance, the Attention Restoration Theory (ART) of Kaplan (1995) suggested that natural environments contribute to a restorative experience for the brain. Professor Strayer (2018) at the University of Utah teaches a Cognition in the Wild course covering the

field's recent topics and has a mandatory trip to nature with no technology devices allowed.

Recent research has established that natural environments enhance creativity (Williams, 2017). For instance, Jones (2013) showed that people who had few previous connections to nature in their school years experienced well-being and perceived themselves as more creative after having a learning experience in nature. Atchley et al. (2012) stated that a four-day immersion in nature and a detachment from technology and multimedia enhance creativity and problem-solving skills in a group of naive hikers. McCoy and Evans (2002) suggested that people perceived that natural environments and natural materials promote their creative performance. Atchley et al. (2012) and Ferraro (2015) applied the Remote Associates Task assessment (RAT) in their studies and demonstrated higher scores after being in nature.

Atchley et al. (2012), Ferraro (2015), and Yu & Hsieh (2020) demonstrated that including physical activity in the natural environment also enhanced creativity. In a qualitative study, Ratcliffe et al. (2021) showed the positive perceived benefits of natural environments in people's personal and professional creative activities.

Summary of the Practical Aspects to be Considered in the Course

As a convergent exercise, I created a summary of the main pragmatic aspects to be considered in the course design. It was based on the literature review, a search of similar courses, conversations with experts and peers, and my knowledge from my Master of Science in Creativity and Change Leadership studies.

Table 1 includes the main aspects, such as: open-ended tasks, the Torrance Incubation Model (TIM), making learning fun, fun narrative, warm-ups, inspiration from a course on Cognition in the Wild, field trip immersion, the use of outdoor environments to enhance student's, the benefit of the natural environment on creativity,

the inclusion of physical activity in the natural environment as a way to enhances creativity.

Table 2

Summary of the practical aspects to be considered in the course

The course will…	**The source(s) that informed and inspired the decision**
Mainly have open-ended tasks where multiple solutions are possible, in contrast to only one correct outcome.	(Kupers et al., 2019)
Be designed following the Torrance Incubation Model (TIM**).** Moreover, it will provide the teachers with a template to design every class; this template is designed based on the Torrance Incubation Model stages.	(Burnett et al., 2021; Burnett & Figliotti, 2015; Lesswing, 2014; Murdock, M. C., & Keller-Mathers, 2008; Torrance, 1979; Torrance & Safter, 1990).
Find different ways to bring play into learning. Make learning fun	(Montague, 2021)
Present the lessons with a fun narrative. It will use examples and challenges that are part of their lives and that they can relate to	(Creativity and Education, 2022; Treffinger, 1971)
Use warm-ups to create a proper climate that enhances laughter, encourages teamwork, and helps to learn and practice the process.	(Blair et al., 2011)
Have warm-ups such as multi-solution anagrams	(Treffinger, 1971)
Get some inspiration from the Course Syllabus Psych4130: Cognition in the Wild by Professor David Strayer, which includes lectures, reading, reflections, and a field trip at the end as an essential part of the course.	(Strayer, 2018)

Leverage on the findings from McCoy and Evans's (2002) study that suggested that people perceived that nature, such as natural environments and natural materials, promote their creative performance. Therefore, the course will: 1) have a (or several) field trips. 2) And when the course needs to be indoors, the physical space will be considered a fundamental element of the course, and it must include the presence of natural material and other factors mentioned in the studies	(McCoy & Evans, 2002)
Have a field trip that allows complete immersion of the students and disconnection from technology. The ideal duration of the trip will be four days. According to them, a four-day complete immersion in nature and a detachment from technology and multimedia enhances creativity and problem-solving skills in a group of naive hikers	(Atchley et al., 2012)
Take students to learn and experience the benefits of nature in the human brain and especially on their creativity.	(Williams, 2017)
Use outdoor environments to 1) positively influence the student's creativity, 2) and create a more collaborative attitude among students.	(Davies et al., 2013)
Include physical activity in the natural environment, which has been demonstrated also enhances creativity	(Atchley et al., 2012; Ferraro, 2015; Yu & Hsieh, 2020)
Will leverage the affective and cognitive skills in the Creative Problem Solving process	(Puccio et al., 2011)
Include the idea system in the classes	(Charles, 2012)

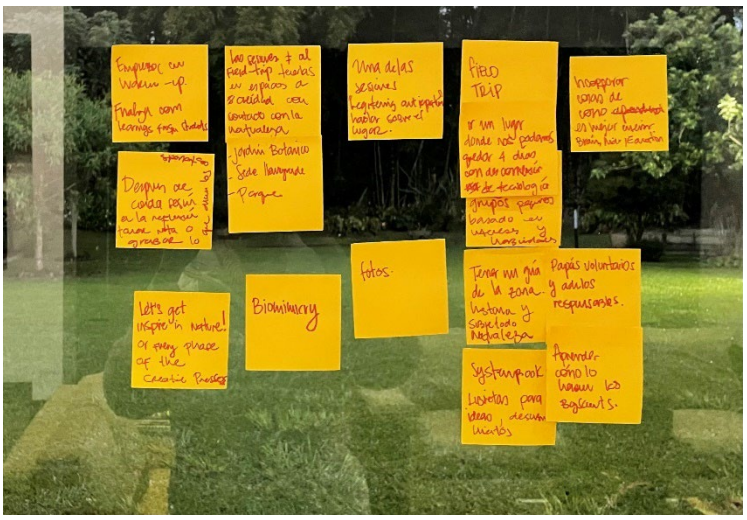
A Prototype of a Course Outline for a Continuing Education Program on Creativity for Children

The course outline is for a continuing education program on creativity that capitalizes on the relationship between creativity and the natural environment for children between 7 and 12 years old in Medellín, Colombia, South America. To do this, I considered the literature review, similar courses, conversations with experts and peers, my knowledge from my Master of Science in Creativity and Change Leadership studies, and the summary of the main pragmatic aspects to consider in the course design.

I also ran an ideation session. Figure 1 to shows the prioritized ideas from that session.

Figure 1

Prioritized ideas from the ideation session



The course will be taught in Spanish. However, for the master's project, information is included in English.

The course outline includes course name, a total of hours, course description, course purpose, intended learning outcomes, course instructional delivery method, resources for the class, grading, structure, and sequence of class activities (before, during, and after the course), and activities.

Course Outline

Course Name

Creativity in nature: Let' be more creative with the support of the natural environments

Total of Hours

20 hours and a four-day field trip

Type of Course

Continuing education program

Target Students

Children between 7 and 12 years old in Medellín, Colombia, South America.

Course Description

This course aims to teach children a creative process and empower them with their creative power. The course is designed to leverage the natural environment's benefits to creativity; therefore, it will be held in natural outdoor environments, and lessons and activities will include nature. The course includes a four-day field trip in nature.

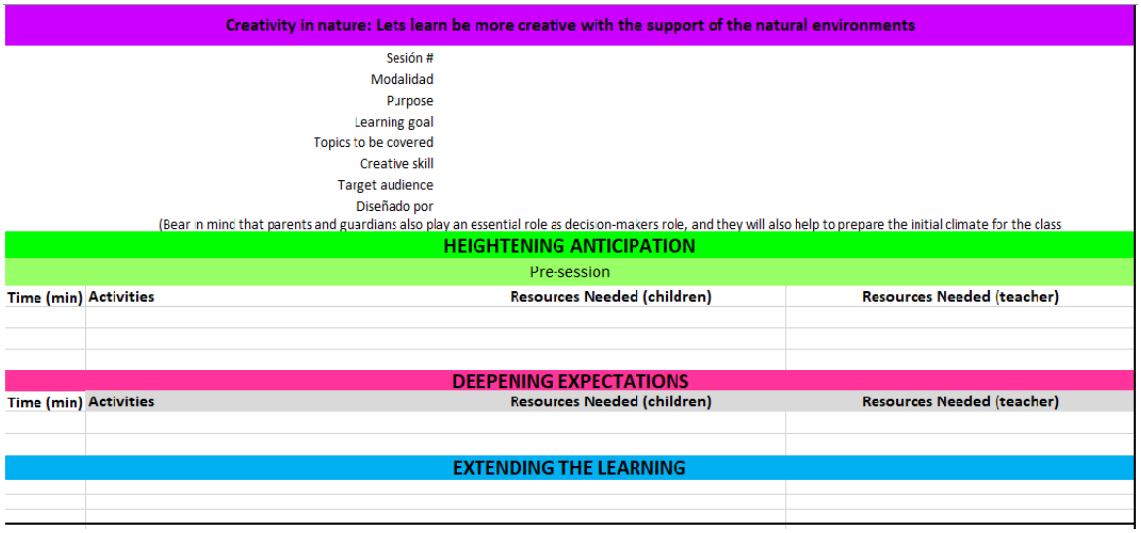
The program is designed to awaken children's curiosity and be fun and playfulness. It contains hands-on activities. The course is also intended to be a collaborative and co-creative experience, where learning flourishes from all the participants, facilitator, and natural environments.

The course will be led by an experiential learning approach.

The program and its sessions are designed following the Torrance Incubation Model to heighten anticipation, deepen understanding, and extend the students' learning. See Figure 2 to review the outline sheet designed for the facilitators.

Figure 2

Outline sheet for the design of every class, based on TIM



Creativity in nature: Lets learn be more creative with the support of the natural environments			
	Sesión #		
	Modalidad		
	Purpose		
	Learning goal		
	Topics to be covered		
	Creative skill		
	Target audience		
	Diseñado por		
(Bear in mind that parents and guardians also play an essential role as decision-makers role, and they will also help to prepare the initial climate for the class			
HEIGHTENING ANTICIPATION			
Pre-session			
Time (min)	Activities	Resources Needed (children)	Resources Needed (teacher)
DEEPENING EXPECTATIONS			
Time (min)	Activities	Resources Needed (children)	Resources Needed (teacher)
EXTENDING THE LEARNING			

Course Purpose

This program bridges what is known about creativity education to children and the relationships between natural environments and creativity, looking to empower children with a creative process and confidence in their creativity.

Intended Learning Outcomes

After completing this program, learners will be able to:

1. Initiate a new deliberate approach to solving problems and creating new possibilities
2. Develop an initial vocabulary about creativity and a creative process
3. Identify and comprehend the stages of the creative process
4. Use tools for each stage of the creative process
5. Apply a deliberate creative process to create a project
6. Demonstrate increased confidence in themselves as creative persons
7. Articulate the benefits that nature brings to their creativity based on their experience
8. Use nature for inspiration

9. Describe the important role of nature in their own creativity and life
10. Connect with other children with similar passions and create communities among them
11. Experience fun and playful ways to learn and co-create knowledge

Course Instructional Delivery Method

This course will be delivered as a face-to-face course, with excursions made into nature in the city and a four-day field trip in the countryside.

Resources for the Class

Playdough, markers, rubber ball, paper, printed canvas. Also, natural resources, such as small rocks and leaves.

Grading

This course is a non-credit. There will be no grading. Instead, the facilitator will provide feedback and encourage feedback from peers. Learners will have a course certificate that proves that they completed and passed the course. In order to have a course certificate, they must assist at least 90% of the lessons.

Structure and Sequence of Class Activities

Before the Course Starts: The student will receive a video and a minor assignment regarding nature and creativity

Creativity

- What is creativity? How could it make you more amazing and powerful?
- You are creative!
- Let's break some myths about creativity

Creativity and Nature

- Humans in nature, and creativity in nature.

- Let us get inspired in nature: Biomimicry (for some of the stages of the process, we will run a small session to be inspired by nature)

The Creative Process

- Divergent and Convergent thinking
- A creative process to make you more powerful
- Clarify: explore the vision, gather data, formulate a challenge
- Ideate: explore ideas (brainstorming, excursion) and select ideas (hits)
- Develop ideas into solutions PPCO
- Prototypes
- Implement: task chart

Field Trip. The four-day field trip will include physical activities and nature excursions to explore, get curious, and be inspired—a person with knowledge of the area and its flora and fauna. The trip implies technol disconnection. Parents and guardians are welcome to volunteer as chaperons on the trip.

Closure

- Tips to enhance your creativity
- How do we continue to benefit from the creative powers of nature?
- Books and activities to continue your creativity journey.

  This information will also be delivered to parents to serve as assistors of their children's creativity.

After the Course: A month after the course is over, there will be a meeting. It will have the same methodology as the classes, and the facilitator will run a small follow-up.

Notes: 1) Every session will start with a warm-up activity. Moreover, it will end with a closure activity of the learnings. 2) There will be a moment for students to share their projects in the course.

Activities: 1) create your own definition of creativity in a creative poster; 2) create an idea system; 3) warm-ups and energizers; 4) creative challenges which would be related to problems that children face in their day-to-day lives or challenges about nature conservation.

Two Possible Ways to Measure the Course Experience when Implemented

This is an exploratory phase to start thinking about possible ways to measure the course in the future when it is implemented. The options could also be mixed and create new ideas for assessment. To do that, I looked for inspiration from published research in peer-review journals with similar learning experiences.

The first option is based on research called Future Designers: Introducing Creativity, Design Thinking & Design to Children by Grammenos and Antona (2018). Published in the *International Journal of Child-Computer Interaction.*

This qualitative research is based on the perceptions of the course of primary school teachers, experts in the methodology, and children; they had five pilots, the last one more robust than the first one, and they collected data in each one (Grammenos & Antona, 2018). Also, "all pilots were followed by at least two assistant observers, who recorded interesting related data, as well feedback and comments by children, teachers and parents. A large quantity of material has been collected including notes, pictures, videos, etc. Spontaneous feedback by the attendees was also received in many cases" (Grammenos & Antona, 2018, p.19).

The second option is based on the research called The Development and Evaluation of the Effect of a Creative Problem-Solving Program on Young Children's

Creativity and Character, by Kim et al. (2019), published in the *Thinking Skills and Creativity* journal.

Kim et al. (2019) ran an experiential and control group at early childhood education institutes that took a creative problem-solving program. They measured: 1) children's creative thinking skills abilities with the Torrance Test of Creative Thinking; 2) creative problem-solving abilities, applying the Creative Problem-Solving Checklist; and 3) character virtues.

SECTION FIVE: KEY LEARNINGS

This project has been an exciting journey where I could explore new paths in areas that I am passionate about. Besides, I loved to explore and prototype new ways to foster creativity in education. I learned many things, which I will section into two main categories: content learning, process learning, and future challenges.

Content Learning

I deepened my knowledge of the creativity education for children and the natural environments, and mostly the connection between them. I admitted that it felt both challenging and exciting to combine several areas of knowledge.

Firstly, I enjoyed learning about the natural environment's benefits on the brain, cognitive processes, happiness, and creativity. I was thrilled to know the impact of complete immersion in nature and disconnection from technology on creativity. Moreover, even small changes make a difference; for instance, having plants in the office can enhance creative performance. I also want to highlight Professor David Strayer's contribution to the connection between cognition and nature.

Second, I want to highlight the critical role research-based science plays. Because thanks to it, we now can demonstrate the connection that nature has between creativity and education. Prior to the process of searching and analyzing the literature review, I knew from personal experiences that I felt more creative, happy, and focused when I was in nature. However, now that I have found research backing that up, I have strong points to present a case for new ways of learning and teaching. I also see this as an opportunity to contribute to this field, both in research and practice.

Third, regarding the connection between education and nature. I was thrilled to find out that there are projects such as the forest school. I was delighted to know that it

has been implemented in some countries. That is for sure an area I will keep researching.

In conclusion, this experience has brought me much knowledge, which I could apply to education. Furthermore, I have applied them to my personal life because I have made changes, such as bringing plants to the apartment and the office and being more aware of my decisions regarding weekend plans and vacations. Moreover, I have positively changed my professional life. For instance, I had some classes outdoors in more natural environments. Also, I am even considering adding a small lecture to share this new finding with my students and colleagues. Lastly, I have found myself talking with friends about this project, sharing all the new things I know, and giving little recommendations. And I also see this as an opportunity for future projects where I can leverage this experience for adult learning experiences. And also for future research.

Process Learning

This seed project will allow me new areas of professional development, research, and personal and professional growth. The project brought me joy and awakened my curiosity. Sometimes I found myself so immense in the reading that I lost track of time. I also like this project's iterative nature, which allowed me to continue learning and adjusting based on the new research found and the received feedback.

Besides, I appreciate the balance of research and creation in this project. On the one hand, I learned new knowledge and identified key researchers and projects in creativity education and nature and creativity. On the other hand, I put that knowledge in service of one of my passions (creativity and education) in designing a program that I will teach soon.

Future Challenges

One future challenge that I anticipate is related to the field trip logistics. One possible solution is identifying organizations that already make trips to nature and work

with them or learn from their knowledge. Another challenge could be the trip duration. It could be problematic for some children to be far from home for several days. Therefore, one thing that could be considered is to include a parent or guardian for each child going on the trip and make it a family trip. In this sense, I could extend that learning experience in nature to the complete family.

SECTION SIX: CONCLUSION

This project is a contribution to the field of creativity and education. It contributes with a positive impact on creativity education, students' creativity, and the environment. This project impacts two of the creativity strands explained by (Rhodes, 1961), the creative process and the creative environment.

First, it leverages the effects of natural environments into the teaching of creativity. This is an opportunity that allows children to connect again with nature and let her be the one who teaches.

Second, it impacts students' creativity because it creates a learning environment were children's brains and creativity benefit from natural environments. Besides, it explicitly teaches them a creative process in the context of experiential learning experiences, which will better prepare them for the challenges of the 21 Century.

Third, I believe that by connecting children and adults to nature, they develop a better relationship with her, making more conscious and sustainable decisions. For instance, Mejía-Gil (2019) stated that people with preview environmental relationships have better and more sustainable consumption and waste practices.

In the future, I see myself running a small prototype of the course with the feedback of children and teachers, and parents. And then offer and teach the program to children. I will continually iterate and adjust the course in each part of the process. Besides, as I anticipated, I see the potential of taking this learning into a course for undergraduates, graduates, and adults in continuing educational programs. Therefore, I plan also to take that direction. I am also planning to capitalize on all the learning and materialize into more than courses. I also see myself deepening my knowledge of creativity, education, and nature.

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I hereby grant permission to the Department of Creativity and Change Leadership at Buffalo State college permission to place a digital copy of this master's Project Fostering Creativity in Education Including Natural Environments: A Course on Creativity for Children in Colombia, as an online resource.

TOP

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