Year Two Report: Build and Test

Penryn Creativity Collaborative
Action Research Report

Research Question:
How do we encourage creativity through outdoor learning?

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Mabe Primary School

Kernow Learning
Building Excellent Schools Together

Penryn College "Achieving through Challenge"

University of Exeter

Supported using public funding by ARTS COUNCIL ENGLAND

Freelands Foundation

Penryn Creativity Collaborative Action Research Report

This Action Research project is part of the Penryn Creativity Collaboratives.

To cite the report please use:

Kent, C. (2023). *How do we encourage creativity through outdoor learning?* Penryn Creativity Collaboratives. https://penryn-college.cornwall.sch.uk/creativity-collaboratives

CONTEXT

Creativity Collaboratives is a national pilot programme of eight clusters of schools across England who are working together to test innovative practices in teaching for creativity, sharing learning to facilitate system-wide change. The programme, launched in October 2021, is funded by Arts Council England with generous support from the Freelands Foundation. Creativity Collaboratives: Penryn Partnership is the South West pilot for the programme and over the course of three years is focused on exploring one central question:

Does teaching creativity across the curriculum lead to young people who are better prepared for their future in a changing workforce?

The Penryn Creativity Collaborative is led by Penryn College with eight local primary schools and research partner, the School of Education at the University of Exeter. This report presents findings from one of thirteen action research projects which took place during Year 2 of the Penryn Creativity Collaboratives programme. Each action research project was led by a teacher with students from their own school, included a link with a partner from a local industry, and the lead teacher was supported by researchers from the University of Exeter through a programme of training and mentoring.

Full findings from Year 2 can be found in the research report. To cite this report please use:

Crickmay, U. Childs, S. Chappell, K. (2023). *Preparing for a Creative Future: Year Two Report Build and Test* https://penryn-college.cornwall.sch.uk/creativity-collaboratives

THE PROJECT

This action research project involved Year 3-4 (aged 7 to 9) pupils of Mabe Primary School in Cornwall. It was led by Cassie Kent, Class teacher. The class consists of 20 boys and 10 girls with all students taking part in the action research. The class has a Teaching Assistant (TA) who took part in the research by conducting some joint observations and student focus groups. At Mabe School we are committed to our school values which are to 'Motivate, Assist, Believe and Excite'. These values guide us to provide not only a broad range of stimulating experiences for our children, but also a curriculum which encourages, challenges and inspires our children so that they thrive on the provision in each and every year group up to Year 6 and leave as confident, well-rounded young people, equipped for the next stage of their educational journey.

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The project explored and compared how the school could encourage creativity through outdoor learning. It lasted 12 weeks and was spread over two terms. The sessions look place in the new forest school area at Mabe Primary School with the project started in November.

- The first forest school activity session looked at creative writing. This session attempted to understand if children wrote more creatively inside the classroom looking at a picture of woods or more creativity going outside into some woods to role play, share ideas and use their imaginations. I wanted to know what the impact was on creativity if children tried alternative and fresh approaches to storytelling/writing by spending time outdoors.
- The second activity looked at art: 'Are children more creative inside the classroom or outside?'. They were set an activity to design and make an art sculpture out of natural materials and I looked at teamwork and persistence while they were doing this activity.
- The third activity had a maths focus, exploring mass and capacity. I wanted to see how children could work together, take risks and use their imaginations whilst doing maths.
- The final activity had a science focus, exploring how mirrors work and how shadows change during the school day.

DEFINITIONS OF KEY TERMS

Creative Skills

The research drew on the Penryn Partnership Creative Skills Framework developed during Year 1 of the Penryn Creativity Collaboratives programme (Crickmay, Childs & Chappell, 2023). The framework defined creative skills in a five-part model, and this action research focused particularly across the five skills in this model as follows:

- **Dialogue and Collaboration:** Drawing in notions of dialogue, questioning, communicating and collaborating, in both verbal and embodied ways.
- **Honing and developing an idea:** This combines the skills needed to develop creative ideas, incorporating aspects of self-reflection together with development of techniques and understanding of the rules, and the persistence needed to progress creative ideas and actions.
- **Empowered Action:** Foregrounding pupils' own agency in creative action, as a skill this includes the ability to take risks and question accepted ideas, the capacity to be immersed, and the ability to act on creative ideas.
- **Being imaginative and playful:** This is the ability to utilise imagination, to improvise playfully, and to generate and try out possibilities: as with possibility thinking, it is the ability to go beyond an understanding of 'what is' to consider instead 'what might be'.
- **Generating new ideas that matter:** This includes the ability to combine innovation with critical attention to the consequences of ideas, considering the ethical impact of creative actions, and understanding diverse values.

The way I interpreted creativity in the specific curriculum areas addressed during my overall project was as follows:

- Creative Writing - An imaginative piece of writing, in which the writer has made, for example, exciting and ambitious vocabulary choices, varied sentence structures and used punctuation appropriately to engage the reader.
- Creative Art – An imaginative piece of art, in which the students have successfully combined a range of natural resources to create a piece of art.
- Creative Maths – Exploring mass and capacity using natural resources to weigh and measure. Accurately measuring and reading scales with grams and kgs.
- Creative Science – exploring mirrors and watching what happens to shadows during the day.

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Creative Pedagogies

The research drew on the Penryn Partnership Creative Pedagogies Framework developed during Year 1 of the Penryn Creativity Collaboratives programme (Crickmay, Childs & Chappell, 2023). This framework used two prior reviews of creative pedagogies: Cremin & Chappell's (2019) systematic literature review of 30 years of empirical research on this topic, which identified a series of seven features characteristic of creative pedagogies, and Chappell et al.'s (2016) review which identified a series of eight features of creative transdisciplinary science and arts teaching. This action research explored two of the identified 'creative pedagogies':

Generating and exploring ideas

- There is a climate of openness – a high degree of acceptance of children's ideas
- Tensions between openness and structure – a need to balance openness with structure to support learning
- A sense of both stepping back and stepping in, to balance control and freedom

Problem solving

- Using real problems to motivate and engage learners
- Transdisciplinarity – responding to real-world problems by integrating different ways of thinking, including knowing that (propositional knowledge), knowing how (practical knowledge) and knowing this (aesthetic or felt knowledge).

AIM OF THE RESEARCH

I was curious about several aspects of outdoor learning as follows:

Step 1

- What is the creative process in outdoor learning?
- How can we develop our outdoor learning curriculum?
- What are the benefits of outdoor learning?

Step 2

- How can the creative process help children's learning?
- Can outdoor learning help the overall behaviour of the class?
- Do boys learn better in an outdoor environment?

I focused my research on the central question: How do we encourage creativity through outdoor learning?

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METHODS AND PARTICIPANTS

The participants in the study were a class of 30 Year 3/4 pupils (aged 7-9) of mixed ability. The class has 20 boys and 10 girls. The year group has been identified as a weaker cohort within the school with varying degrees of need and behavioural problems.

The methods used were:

- Observations undertaken by teacher, teaching assistants and Sarah Childs. They were whole class observations taken throughout the duration of the project
- Reflective notes written by myself as class teacher
- Photographs
- Student feedback through questionnaires and student voice
- Student work

I also met the Creativity Collaborative team regularly to talk, chat and discuss ideas with other schools.

Data analysis was carried out via immersion in all data. Photographs were coded using the See, Think, Wonder technique from Harvard Project Zero. All data was then systematically coded using low level through to higher level coding which led to a thematic analysis. This is written up below in this report.

Ethical research practice was ensured by following the ethical guidelines of the University of Exeter ethics committee which are grounded in the British Educational Research Association (2018) guidelines; protocols involved seeking informed consent for all research activity from all participants alongside careful data protection practices.

SUMMARY OF MAIN FINDINGS

Creative skills

I found that the following creative skills were being used/developed during the action research as follows:

Creative skill: honing and developing an idea
The dimension of this skill that was particularly noticeable was persistence: There was convincing evidence of students showing persistence and not giving up. The children tried to problem solve and worked together as a team to complete the task successfully. This was often combined with problem solving. Some examples of this included:

During an Art based lesson in the Forest School area, a short interaction between children shows them persevering with a problem:

> *'My scissors won't cut the stick'.*
> *'Snap it then'.* (Year 3 student, at start of Action Research project)

During a lesson on mass and capacity, children were exploring scales in the forest school area using natural materials. Jim was trying to fill both of his containers, so they were equal, again we can see the children reflecting together and showing persistence as they develop their idea:

> *'I'm trying to make the containers the same amount'.*
> *'I need to take 5ml out of this one'.*
> *'I took too much out'.*
> *'I now need to add in 20ml'.*
> *'Finally got the two containers the same measurement'.*
> *'How did you do this in the end?'*
> *'I used a smaller syringe to get the measurements correct'.*
> (Year 3 students, during Maths activity in Forest school area at the end of the action research project)

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Figure 1: Year 3 student, Jim succeeded in filling both containers with the same amount after lots of trying to solve the problem several times

Creative skill: empowered action

Risk taking

There was convincing evidence of children's risk taking during the forest school activities. The children experimented with diverse ways to complete the tasks set, and this often included working together as a group. In one example of this, a group tried to make an upright sculpture using natural materials in the forest school area, their risk taking related to the dilemma: will it hold /will my sculpture collapse?

"Let's make a sculpture out of bamboo sticks".
"We need to make it upright".
"We could lean the bamboo stick against this branch".
"Let's weave some diagonally through".
(Year 4 boys during Art Activity on Andy Goldsworthy)

Figure 2: Example of outcome during art activity on Andy Goldsworthy

Creative skill: dialogue and collaboration

There were multiple examples of children using dialogue and collaboration during the forest school activities, and this can be seen across all of the data presented in this report as a cross-cutting theme across all of the other creative skill areas.

During the maths activity, an example of this was the work of Tamsin and her group who were trying to guess how much their mud pie weighed. They all estimated then weighed the mud pie on the scales. In this example, the children are working collaboratively to pose and respond to questions, building on each other's responses to problem solve collaboratively:

'Let's guess how much these weigh?'
'It is going to be Kg because kg is heavier than grams.'
'9kg'
'10kg'
'5kg'
'It is 3kg'
'How much out were you?'
'9-3 = 6kg'
'10-3 = 7kg'
'5-2 = 2kg. '
'Who was the closest to the actual weight?'
'5kg'

Figure 3: Year 3 girls, during Maths and capacity lesson in the Forest School area

Figure 4: The girls were estimating the weight of the mud pie they created, they then added to the scales and weighed accurately in grams/kilograms

Another example of dialogue and collaboration was during the art activity, when we were exploring whether students were more creative inside the classroom than outside the classroom. Inspired by Andy Goldsworthy, they designed their ideas in the classrooms and then the same task again outside. The images show how the children worked together with a group and also responded to the materials themselves. In the final image, the boys are inspired by the materials and rain to turn their making into a shelter, which is an example of creative problem finding and solving.

Figure 5: Example of Art activity, creating a piece of artwork out of natural materials.

Because it was raining.

> "Let's make a shelter sculpture". (Year 4 boy, during art activity creating their own Andy Goldsworthy inspired sculpture)

Creative skill: being imaginative and playful

There were multiple examples of children using their imaginations in the forest school environment. This was often a collaborative endeavour involving creative teamwork, for example when children went into the forest to act out their stories before writing them. This involved team work, play, imagination and considering possibilities of which way their stories were going.

During the Writing Activity both teacher and teaching assistant observations noticed that going to the forest and acting out their stories helped the children to bring more detail and more imagination into their writing, improving their writing overall. They used their senses in their story-writing, and writing what they saw, heard, smelt, and felt in their writing.

> *"We became tangled in branches and brambles".*
> *"We went under the green mossy log".*
> *"I don't live near the forest or go very often so it really helps my writing being in one".*
> *"You hear branches snapping under your feet".*
> *"Brambles hung from above like spiders' webs".*
> *"The wind was whistling through the forest".*
> (Year 3 students during the English lesson developing imagination for writing using the Forest school area)

Creative skill: generating new ideas that matter

Innovation in the forest school activities often related closely to problem solving, and possibility thinking – i.e. considering multiple possibilities in addressing the task at hand. Children worked in dialogue with each other in this, and also drew in the materials at hand in the forest to help them solve their project.

For example, in this Maths lesson students were weighing different materials. Students discussed demonstrated that they were developing their ideas and considering consequences;

> *'This weighs 3 ½ kgs'.*
> *'I want it to be 4kg.'*
> *'We might get some leaves, but they might not weigh much'.*
> *'Why?'*
> *'Because they are light'.*
> *'Maybe some rocks will work'.*
> *'Let's try a few'.*
> (Year 3 and 4 students during Maths Activity discussing what materials they could use to access different measurements).

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Creative Pedagogies

During the forest school project, I observed that I was utilizing the following creative pedagogies to develop children's creative skills:

Creative pedagogy: generating and exploring ideas
The sessions planned in the forest school area foregrounded opportunities for children to generate and explore their own ideas.

One example of this was when children learnt about how shadows moved about during the day. Students developed their knowledge of how shadows change during the school day, and they explored these ideas by returning to the outdoor space hourly to mark the changes in the outline of the body on the ground.

Figure 6: Year 3 and 4 during the science activity exploring how shadows change during the day

The creative pedagogy 'generating and exploring ideas' is characterised by a climate of openness with a high degree of acceptance of children's ideas. An example of this was when the children experimented with mirrors in science. Students went around the school grounds with mirrors, some students hid for others to find them and they experimented with positioning the mirrors in different places and angles.

Figure 7: Year 3 girl using a mirror to look around bends

"How can we use the mirror to look around the bend?"
"Look, I've worked it out, hold it up at an angle".
"Oh yes, I can do it now. I can see around the bend. How cool is that".
(Year 3 and 4 students during science activity)

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Creative pedagogy: problem solving
The pedagogical approach used in the forest school activities often included problem solving and the 'real life' character of these problems was often a feature of them. In this respect, although the lessons were related to different disciplinary areas, they often brought together different kinds of thinking, including 'knowing that', 'knowing how' and 'knowing this' (aesthetic/ felt knowledge).

For example, in the art activity, children were combining their aesthetic intention with practical experimentation of how to make the structure work, also showing excellent teamwork and perseverance in their approach to problem solving:

> *"How can we build it upright?"*
> *"Let's use the tree to support it".*
> *"This leaf can be its head".*
> *"Let's use the tree vines to weave bamboo sticks through to make the body. It will stay upright then".*
> *"Maybe we should use more materials".*
> (Year 3 student, during Art Activity inspired by Andy Goldsworthy)

The maths lesson 'mass and capacity' similarly involved a collaborative approach to problem solving, as can be seen in the dialogue and images below:

> *'We have 250ml but we need 300ml'.*
> *'We could try a stick'.*
> *'No, it's only 260ml'*
> *'We need 40ml more'.*
> *'Let's add some mud until we reach 300ml'.*
> (Year 3 and 4 students during maths activity)

Figure 8: Year 3 and 4 students during maths activity evidence of problem solving, persevering and working as a group to solve problems.

EMERGENT FINDINGS

As well as looking at the creative skills and creative pedagogies, my research looked at students' perception of outdoor learning more broadly. The following findings are from a questionnaire which students completed at the beginning of the forest school project.

According to the questionnaire data, more children preferred being outside to inside (19 preferred outside, 5 preferred inside) but there were mixed feelings as to whether we learn better inside or outside (11 thought they learned better inside, 13 thought they learned better outside). The most popular subject at school was forest school which takes place outside in the forest school area.

Features of indoor learning that children enjoyed were that it was fun; peaceful; calmer; warm and easier to write. Features of outdoor learning that children preferred were that it was fun; they connect with nature; it's calmer outside; they build things; make things; hammer things; they get fresh air; they carry out outdoor activities and they get time to explore and run around. These answers show that children prefer different learning environments for different tasks. While they enjoy being outside and this encourages their imaginations, they find it easier to write and concentrate inside.

These findings relate to staff observations that the active boys in the class who struggle to focus and sit still focused better in the outdoor environment, their behavior and their concentration improved.

CONCLUSION

All of the identified creative pedagogies and creative skills were used to varying degrees during the tasks set. This demonstrated that not one creative skill was more important than the other and that often these skills weaved through the experience and learning for the student. Children solved problems together, explored their ideas in groups and listened to each other's ideas. They demonstrated fantastic group work and collaboration. The children took risks to solve tasks set, used their imaginations, and really became involved (immersed) in them. Utilising the outdoor space allowed the Creative skills to flourish.

A quote from Simon:

> *"I don't live near the forest or go very often so it really helps my writing being in one".*
>
> *Jodie "What's a caravan?"*

I noticed there was more strategizing, flexible thinking and problem solving outdoors. Behaviour was better because they were so engrossed in what they were doing and having fun. A well-designed outdoor learning environment inspires children's movement and presents opportunities for decision making. There is more freedom for thinking, re-thinking, investigating, and problem solving.

Outdoor learning is a fantastic way for primary school children to explore their creativity, learn new skills, and have fun at the same time. Outdoor learning also provides opportunities for children to work collaboratively and learn from one another. Group projects like building a birdhouse or creating a mural can encourage children to work together, share their ideas, and learn from one another. This can help to build teamwork skills and encourage creativity through the exchange of ideas and perspectives.

In conclusion, outdoor learning is a terrific way to encourage creativity in primary school children. By providing children with a range of materials and resources, open-ended activities, opportunities to work collaboratively, a supportive environment and recognition for their achievements, we can help to foster creativity and inspire children to explore their creativity in new and exciting ways.

We found that the children loved any opportunity for outside learning whether it was maths, science, geography or English etc. We will now be creating more outdoor learning environments wherever possible. It would be great as a whole school to create more outdoor learning environments and curriculum opportunities. This has been shared through staff meetings and curriculum change meetings.

Highlights of this project were:

- In English, seeing the children enjoying learning the text maps outside in the sunshine and creating actions to help them learn it. When drafting a story, going into the setting (i.e. forest) the children wrote much more creatively, adding more detail to their descriptions. By acting it out in groups, it fired up their imaginations.
- In science, experimenting with mirrors and looking at how shadows change during the day. They worked better outside in their groups, problem solved as a united team without falling out.
- In math's, the children were able to use the forest school area to explore the mass and capacity unit, as well as finding fractions of an amount. It was great to observe this as there was great teamwork, problem solving and risk-taking trying to solve problems set.
- The children's behavior was better outside overall because they were immersed in the activities set. They were much more engaged in their learning. There were more opportunities to explore a variety of ideas. It helped develop group work, class collaboration, problem-solving skills and trying out innovative ideas and risk-taking. I noticed through observing the students during the project that playing and relaxing in natural settings can defuse stress, reduce anxiety, distractions, and symptoms of ADHD and Autism. Children are more motivated and self-directed demonstrating empowered action.

REFERENCES

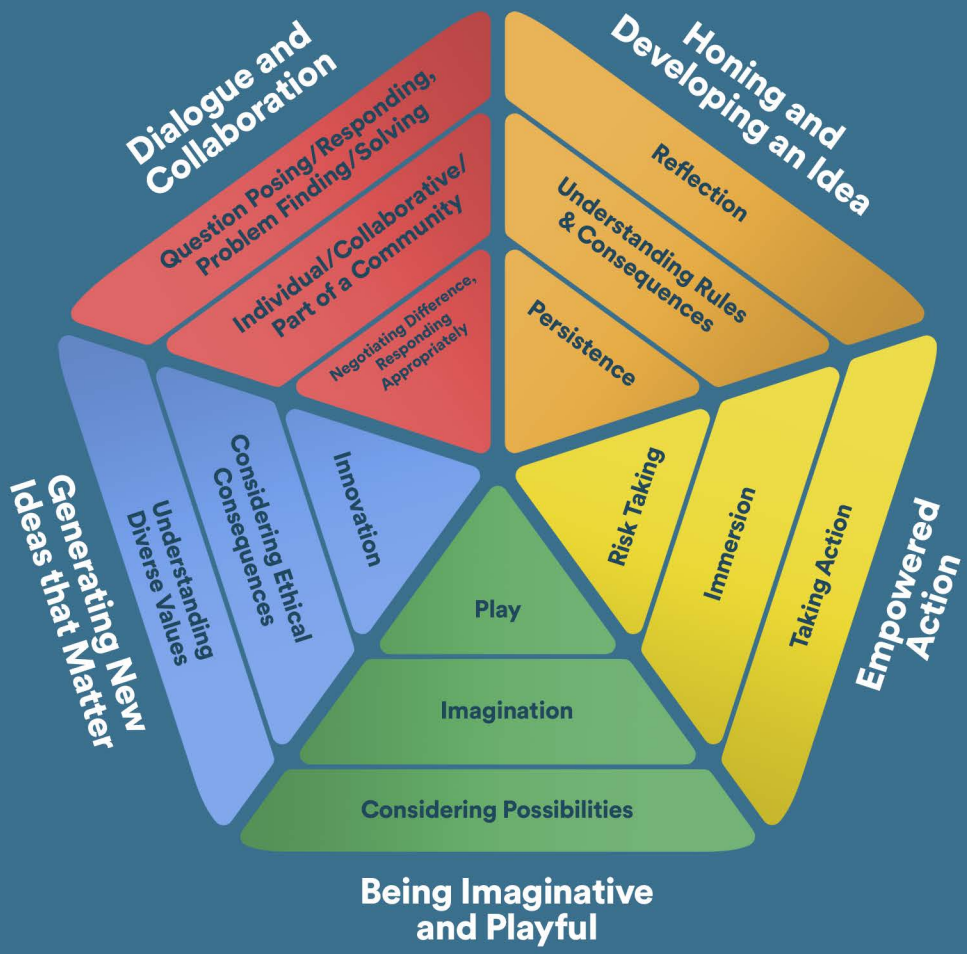
Mabe Community Primary School. https://www.mabe.kernowlearning.co.uk

Crickmay, U. Childs, S. Chappell, K. (2023). *Preparing for a Creative Future: year one Report Question, Challenge and Explore.* https://penryn-college.cornwall.sch.uk/creativity-collaboratives

Creative Skills

PENRYN PARTNERSHIP

"Does teaching creativity across the curriculum lead to young people who are better prepared for their future in a changing workforce?"



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