

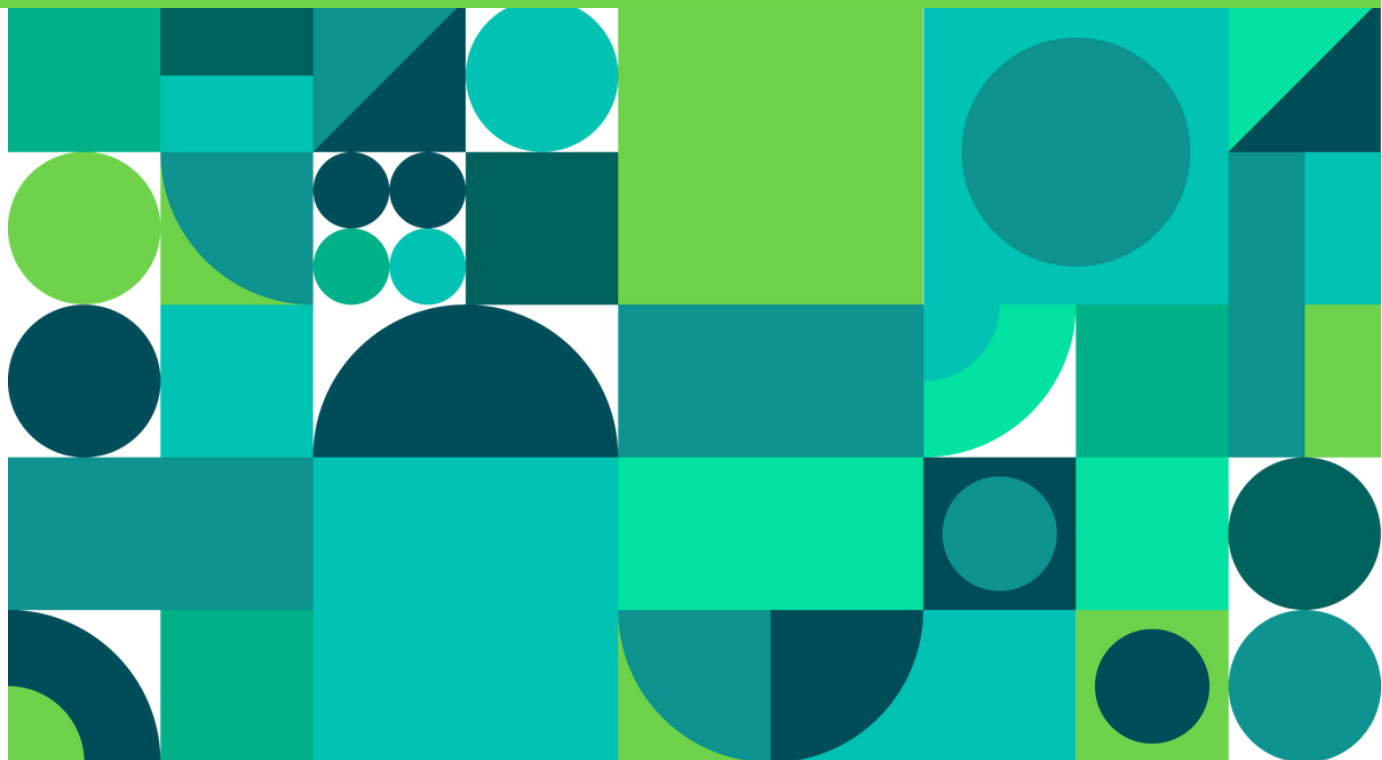
The Curiosity Programme

Executive Summary

substance.



GraphicScience



Curiosity Programme Evaluation: Summary

substance.



Evaluation Approach

Project and Programme level Theories of Change were developed and used in conjunction with the BBC CiN Difference Framework to design a robust evaluation approach. Funded organisations were supported to collect data that demonstrated the impact of their delivery on young peoples lives.



Methods

Results

Quantitative surveys

Qualitative tools

Case studies

Youth Voice

[Peer Research Video](#)



Data volume and quality increased year on year, and projects developed **increased capacity** to self-evaluate, and **improved skills** in demonstrating impact.

Curiosity Projects' Aim is to increase the number of young people who are safe, happy, secure and able to reach their potential, through engagement with ISL.

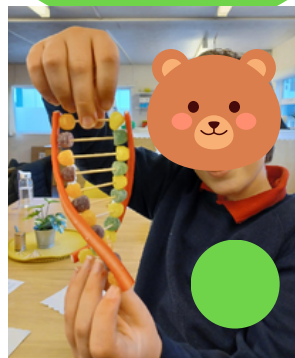
Curiosity Programme Aim is to increase delivery of informal science learning (ISL) as science for youth development to improve the lives of young people experiencing challenges and issues, and their relationship with science.

Evaluation Aim is to demonstrate change on young people and projects and to better understand the distinctive role of ISL in achieving positive impacts for young people affected by challenges and issues.

Informal Science Learning (ISL)

ISL is at the core of Curiosity Projects' delivery. This Programme evaluation demonstrated the beneficial **impacts of ISL** across multiple areas of youth development, achieving wider youth outcomes such as **improved resilience, empowerment, skills and social relationships.**

Additional outcomes achieved by Curiosity Projects (outside of their specified Curiosity objectives) included **improved mental health and wellbeing, increased physical activity and improved local connectedness.**



YEAR 1



25
PROJECTS



OVER
180
YOUNG PEOPLE



SOME
QUALITATIVE
EVIDENCE



149
SURVEYS ANALYSED

YEAR 2



24
PROJECTS



OVER
425
YOUNG PEOPLE



128
QUALITATIVE FILES
ANALYSED



242
SURVEYS ANALYSED

YEAR 3



23
PROJECTS



OVER
820
YOUNG PEOPLE

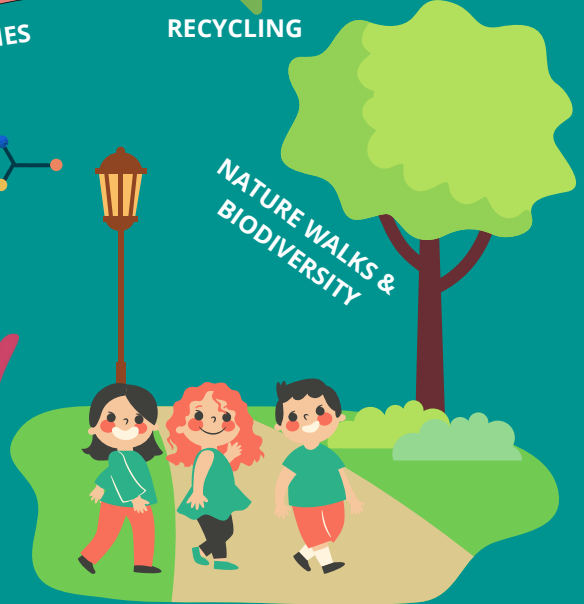
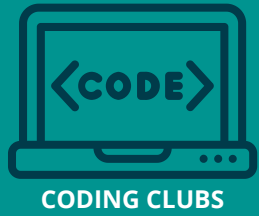
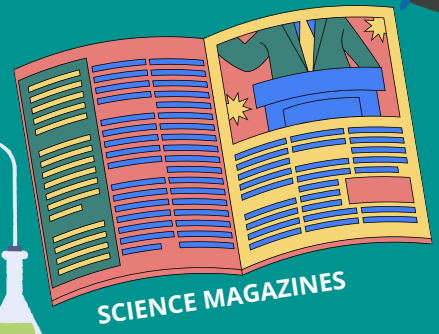
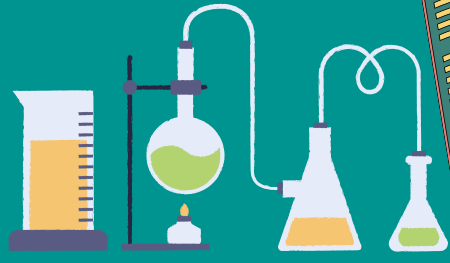
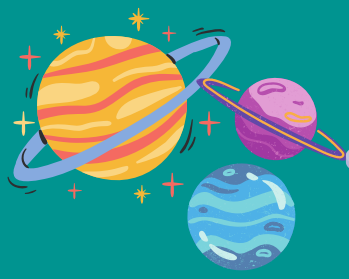
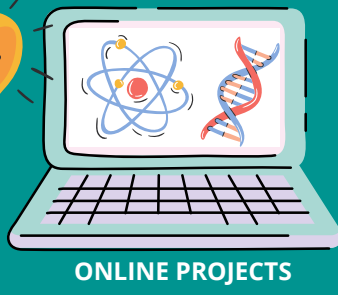


565
QUALITATIVE
FILES ANALYSED



575
SURVEYS ANALYSED

23 PROJECTS ACROSS THE CURIOSITY PROGRAMME - A WEALTH OF SCIENCE ACTIVITIES FOR YOUNG PEOPLE



Curiosity Programme

Background

The second round of the Curiosity Programme, run in partnership by The Wellcome Trust and BBC Children in Need, funded 25 youth sector organisations to deliver projects with informal science learning (ISL) as the core component of their delivery. The funded organisations vary in terms of what they offer and the types of young people they target, but the unifying characteristic across all Curiosity projects is that the young people face a defined challenge or issue in their lives.

The funded organisations deliver a wide range of types of science, to meet the needs of a diverse range of young people in terms of age, ability and issues experienced. Science is delivered informally in contrast to how science is usually taught in formal settings, such as schools. As such, the aim is to break down perceived barriers to STEM participation.

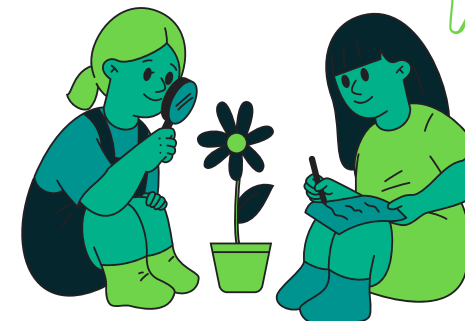
The purposeful use of ISL to deliver wider youth outcomes has not been extensively funded in the UK before, and rarely researched - no programme of this scale and type has existed before in the UK.



The evaluation of the Curiosity programme was commissioned from Substance and Graphic Science. A core aim of the evaluation was to better understand whether there is a distinctive role of ISL in achieving positive impacts for young people. It is hoped that this understanding will help to inform both the STEM and youth development sectors of how ISL can be used in this context. It is hoped that learning can encourage more funding for ISL so it can become a more commonly used youth engagement tool, as is the case for other activities such as sport, drama, music, and art.

This is a summary of the full final report of the three year evaluation of the Curiosity Programme. The report details the results of data collection in Year 3, comparative data where possible across all three years and overall conclusions from the research.

"I have learned that I can work and communicate with others and develop relationships without being afraid of getting judged." [YP]



Curiosity Programme

Differences Framework

The seven BBC CiN Building Blocks are:

- Physically safe
- Physically well
- Emotionally well
- Strong self-belief
- Positive relationships
- Essential skills
- Positively empowered



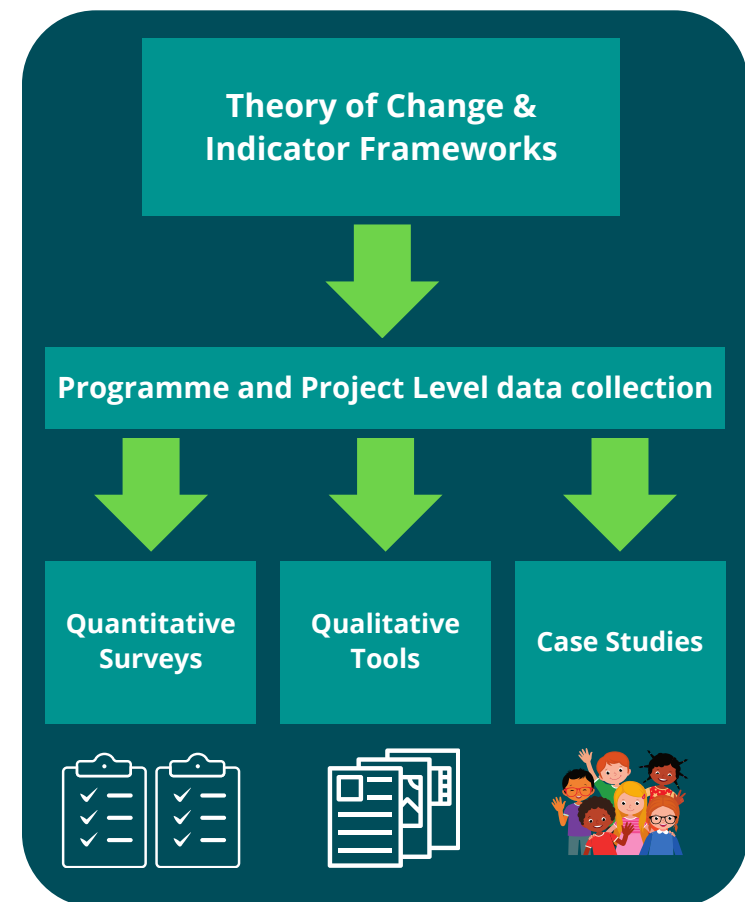
Curiosity projects were tasked with selecting three key outcomes or 'differences' which they aim to achieve for their children and young people through their work. Each difference was aligned to one of the Building Blocks – for example, 'young people have increased resilience' related to the 'emotionally well' Building Block. Differences were worded in the project's own language.

Evaluation Methodology Overview

A number of STEM-related outcomes were also developed, adding a seventh building block to the framework for the Curiosity programme. Through developing a robust evaluation framework and associated research methodologies, it has been possible to demonstrate the **programme wide** and **project level impact** Curiosity has had against the BBC CiN's Differences Framework.

The evaluation was structured around indicator frameworks that were designed to accompany the project and programme level Theories of Change. The data collection comprised:

- Measurement of youth outcomes and STEM outcomes achieved by individual projects using **quantitative surveys** and a range of **qualitative tools**.
- Investigation of the role of ISL in helping projects to achieve youth outcomes, using **project case studies** and interviews.
- Process evaluation of the projects' experiences of the programme including **project interviews, case studies and evaluation team observations**.



Curiosity Programme

Evaluation Methodology: Youth Voice

Substance has long been an advocate for the inclusion of Youth Voice and co-production in our evaluative design and output, and in Year 2 a Young Research Ambassador Programme was launched as part of the evaluation.

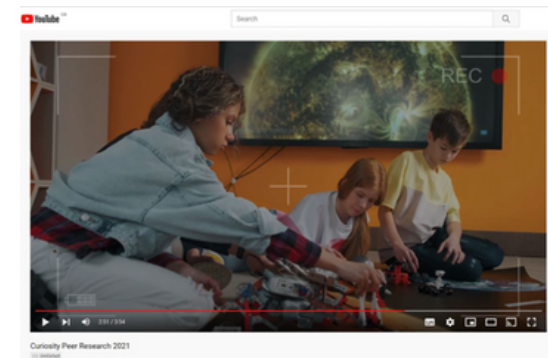
It is fully understood that the articles 12-15 of the United Nations Convention on the Rights of the Child[2] demonstrates the importance of the youth voice in decision making and the evaluation of measures relating to children. As discussed in the Year 2 Interim Report, it is important to extend this belief to youth interventions:

The views expressed by children may add relevant perspectives and experience and should be considered in decision-making, policymaking and preparation of laws and/or measures as well as their evaluation. (United Nations)[3]



Peer Interview Guide

- 1. Introduction**
Say what you are interviewing them about and why. See suggested script.
- 2. Get Ready**
Make sure your helper/assistant is ready to record on phone and take notes.
- 3. Question Time**
Use the prepared interview questions to begin the conversation.
- 4. Go Off Topic**
Allow your expert to say anything about the subject they like - even if its not on your list!
- 5. Thank Them!**
At the end make sure you thanks them and ask if they would like to tell you anything else.



Click here: [Peer Research Video](#)

[2] Microsoft Word - CRC-C-GC-12 advance unedited for distribution.doc (ohchr.org)

[3] Section 12. Convention on the Right of the Child. United Nations. Geneva. July 2009.

Year 3 Outcomes

Building Block

% Change

Programme survey data was matched from the survey completed at the beginning of participation and following intervention.

From the data we are able to show:

1. The number of projects contributing to the outcome area;
2. The percentage change between pre and post intervention;
3. Whether the change was statistically significant (* paired t-test and Wilcoxon signed-rank test, $p < 0.05$).

STEM outcomes is the most commonly coded Building Block in the qualitative data, similar to previous years. This describes distinctive outcome areas such as problem-solving skills, increased curiosity, increased confidence in learning, and improved collaborative working. An increased resilience or comfort with the role of failure is also reported

"We are seeing multiple outcomes with our young participants, not necessarily just those we have as project differences and STEM outcomes, but many other wider outcomes and youth work outcomes such as feeling safe, young people having a better understanding of the world around them, recognizing their rights (UNCRC) and giving them a platform for their voice to be heard." [Project Lead]

Emotionally well

projects = 6

+ 52.47%

responses = 92

Strong self-belief

projects = 12

+ 26.70%

responses = 539

Essential skills

projects = 9

+ 23.37%

responses = 359

STEM outcomes

projects = 16

+21.39%

responses = 575

Positive relationships

projects = 9

+ 16.50%

responses = 427

Positively empowered

projects = 4

+13.45%

responses = 60

Physically safe

projects = 1

+4.06%

responses = 92

Physically well

projects = 0

0%

responses = 0

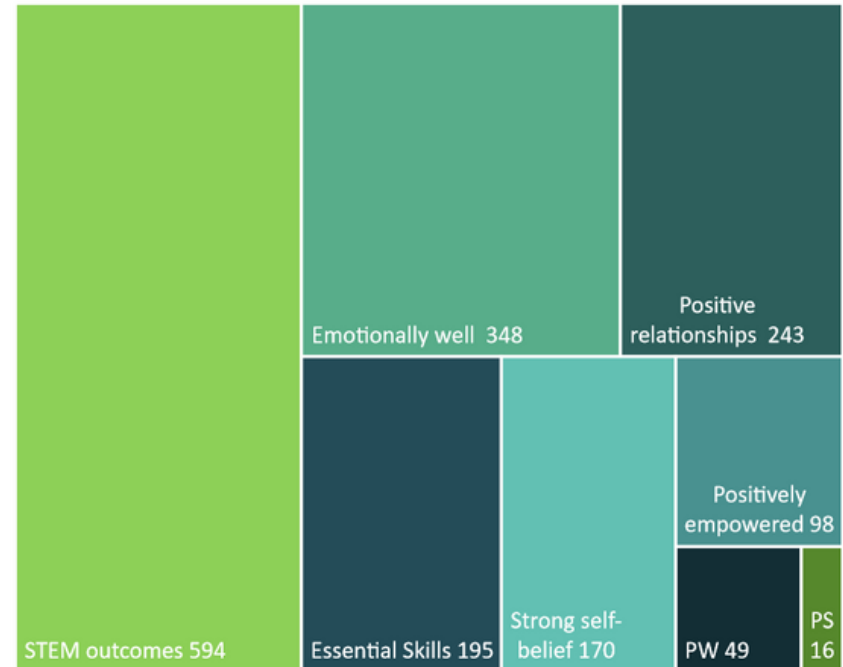
Year 3 Outcomes

Year 3 evaluation data illustrated that **nearly all of the intended youth outcome areas saw a significant positive improvement** between pre and follow-up levels for the young people involved in Curiosity.

The survey results illustrate particularly high levels of positive achievements around the **emotionally well** and **strong belief Building Blocks**.

In total, five case studies were conducted, 575 surveys were collected from 16 projects and 565 qualitative files analysed. An analysis of the changes of output over time has also been completed as part of the final year report.

Frequency of reference in qualitative data



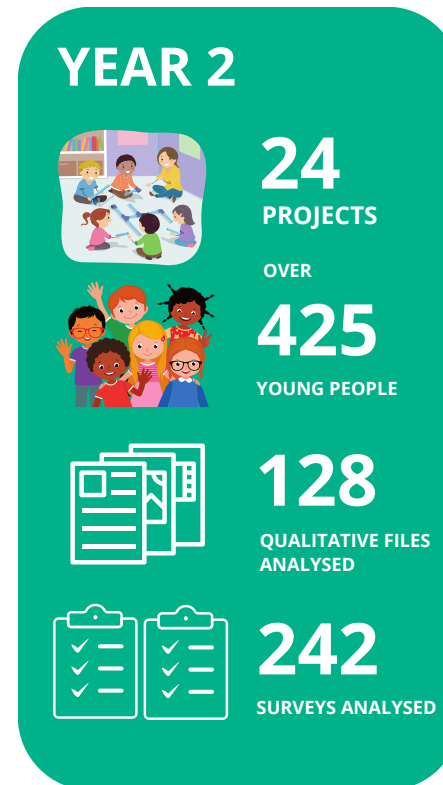
★ statistically significant change

Project Engagement and Building Evaluative Capacity

Since the start of the evaluation, the quality and volume of data generated at project level has improved markedly year on year.

The evaluation team worked closely with all projects throughout the programme through an embedded researcher model. This involved one member of the Substance/Graphic Science consortium being dedicated to supporting projects individually through developing supportive relationships on a more individually required basis. In addition to this tailored and personalised approach to support, the evaluation team sought to create a programmatic, collegiate sense of being part of a Curiosity family.

This close level of support was crucial in enabling the projects to maximise the amount of data they were able to collect, which in turn allowed them to demonstrate the impact of delivery on young people.



“Sometimes evaluation was like trying to fit a square into a circle so it was liberating not to be confined with the evaluation. Now we are able to think about how to evidence impact. Some families were worried or skeptical about form filling, this was a barrier. The approach was unstigmatizing, much more relaxed and we were able to evidence the impact another way.” [Project Lead]

Developing Young People as Ethnographers

The Youth Voice element of the Curiosity evaluation was introduced in Year 2 and expanded throughout Year 3.

Young people were trained as **Young Research Ambassadors** by the evaluation team and through cascaded training from their youth lead workers. They were taught research skills including how to lead and facilitate interviews and focus groups and develop a suite of questions important to them.

The evaluation team actively encouraged the young people to generate questions and theories to test based on their own perspective, experiences and understanding of the project. As such, these young people took on varied roles such as young collaborators and co-designers of research.

They also learned skills to engage groups and develop conversations. These social research techniques provide further valuable skills for the young Research Ambassadors and **increase confidence through their leadership role and achievement.**

“The young people now help shape the projects which is good but ‘messy’ and youth-led.” [Project Lead]

“We were really inspired by the peer researcher role work.” [Project Lead]



Research Ambassador reflecting in their participant observation report: the best thing for young people in the session was “Being creative and coming up with their own ideas. Drawing because it is calming.”

*Research Ambassador to their peer: “Why do you like to do [science projects]?”
Answer: “Because I like learning.”*



Picture by Research Ambassador

What is Distinctive about Informal Science Delivery? (ISL)

The Curiosity programme is distinctive in that science is used as the vehicle to achieve youth outcomes as defined in the Differences Framework. In year two it was becoming apparent that notions surrounding **acceptance of failure, nurturing exploration and continual adaptability** were evident from data collected throughout the programme. It is noted that that the word fail is often referred to as a 'first attempt in learning' in youth education circles. To develop an understanding of what specifically about science led engagement is achieving this, evidence collected from across the programme was used to explore this across 4 key themes, here described by our FAIL framework. This was inspired by a key feature of engaging with science and becoming comfortable with failure through various components.

Friendship and Connections

The collaborative nature of science related delivery across the Curiosity Programme has resulted in young people achieving differences relating to positive relationships, emotionally well, and strong self belief. Working as team, through problem solving during an experiment, or choosing an activity, encourages connections to be built - not just between peers, but as demonstrated across the programme, with trusted adults and family members too. This is strengthened by the informal nature of science in the Curiosity programme, as it excludes the rigid structure of the school environment and allows connections to grow organically. 'Failing' something with a peer allows collaborative learning, and the need to persevere with the support of your team.

F Friendship and connections



A Achievement and Aspirations



I Independent and Interested learning



L Life Skills



Achievement and Aspirations

Science delivery is distinctive in that 'failure' is also an achievement - learning from failure allows science to progress and evolve. The Curiosity Programme allows achievement to be redefined, and removes the formal forms of achievement more commonly measured in young people in the school environment. The wide range of science topics covered by Curiosity Projects has allowed young people to be exposed to all types of science related roles and experiences, through visits to museums, learning about different jobs, and trying various things for themselves. This has had a huge impact on inspiring young people to engage in science, now and in their future. The less formal approach has also helped use science as a tool to challenge young people's perceptions of what they can and cannot do.

What is Distinctive about Informal Science Delivery? (ISL)

"I've learnt not to be scared to fail but failure is a way of succeeding"
[YP]

Independent and Interested Learning

Many Curiosity projects focus on researching a topic of interest and developing a way to present it back - through designing a magazine, presentation or podcast, for example. By encouraging young people to independently research and present their findings, the informal nature of the Curiosity Programme nurtures natural interests, in contrast to the formal school curriculum. Projects also support a more creative and 'playful' approach to science, which helps young people gain confidence in learning outside of school settings. Evidence from across the programme has demonstrated achievement of differences such as Strong self-belief, Positively empowered, and Emotionally well. Experiencing failure while engaging with a topic of genuine interest can inspire young people to try again, and maintain their curiosity in the topic.

The FAIL framework allows us to think about the unique nature of STEM engagement with young people. Aspirations for the future* (and improved engagement with education or training as a consequence) is a key feature of the framework that has been demonstrated through collection of qualitative evidence across the programme.

"Young people's confidence can sometimes initially be knocked when doing activities as they don't always get the outcome they expect or desire. This is a fundamental part of science and through doing activities over several weeks young people have realized that if you change something or come at it from a different angle, you will eventually get the result you are looking for. This applies in many aspects of life and shows that not everything works at the first attempt, but perseverance and determination will lead you to an answer." [Project Lead]

Life Skills

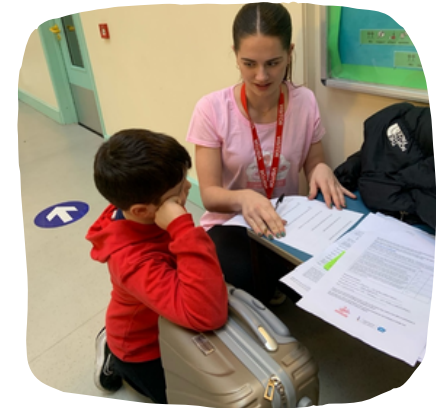
The practical nature of informal science delivery has allowed Curiosity projects to utilise a hands on approach, whether through cooking, craft or outdoor sessions. Physical experiences allow young people to develop science knowledge in direct context. As a consequence much evidence has been found across the programme demonstrating young people acquiring practical skills that are applicable in their daily lives - for example, reading instructions methodically, or using equipment safely. 'Failing' while developing these skills in the safe space of a Curiosity project allows young people to develop confidence in utilising these skills, and ensuring that skills are developed safely and securely. Increased resilience can also be achieved - when topics are conceptually difficult, young people need to take time to understand and develop their ideas, overcoming challenges along the way.



Conclusion and Legacy

The evaluation of Curiosity programme took the youth sector projects involved on an journey of learning. The evaluation has demonstrated that the learning journey upskilled the staff in three key areas:

1. Developing the skills to and rationale for delivering informal science learning alongside their other core youth provision in order to engage existing young people in new ways and reaching out to non-engaged young people through a varied new offer.
2. Providing staff with further insight, confidence and ability to articulate the story of change on participants through varied data sources and lenses and see evaluation as a productive programme management and improvement mechanism as well as one of accountability.
3. Attracting new cohorts of young people from their localities, who would not usually engage with projects, with a new varied youth offer speaking to different interests and needs.



The Chief Executive of BBC CiN addressed the Curiosity Project leads and the Evaluation Team at an end of programme celebration webinar. In his speech he noted that at the very beginning of the Curiosity timeline it seemed daunting to bring STEM into the youth work arena. BBC CiN had a strong commitment, **“for children and young people to thrive and be the best they can be through the powers of positive relationships.”** Chief Executive, Simon Antrobus himself worked as a youth worker early on in his career and acknowledged that the youth work profession is guided on the principle that ‘someone believes’ in the young people and is there to ‘open their eyes to new and interesting opportunities’. The idea that engaging more young people who are otherwise underrepresented in STEM or have not had a positive experience with science in the past was seen as an important notion for CiN around equality of opportunity, social justice and influential on young people’s health and wellbeing.

The Chief Executive concluded:

“It is an important moment to mark with this significant piece of work. We want to learn for the evaluation and insight which has been incredibly important. We are able to demonstrate that STEM can work achieve positive outcomes and young people can benefit which is fantastic news.” [Simon Antrobus. BBC CiN Chief Executive. 19.09.2023]

Conclusion and Legacy: ISL

There is a growing momentum globally not only in delivering ISL to young people experiencing challenges and issues, but in ensuring that their voice is heard around many STEM related issues including climate crisis, sustainability and local ecology.

Wider scale initiatives such as the 'Make it Open' programme delivering to 150 schools around Europe are creating and sharing STEM learning and activities for teachers to use more open play such as playground physics. Elsewhere the Levers programme, a multi-stakeholder alliance with shared aims around climate justice is being delivered in non-formal community settings by 11 projects across nine countries. Learning Ventures design and deliver transdisciplinary project-based learning for climate and justice for environmental care across arts and other sectors in formal. Young people in this context are providing Youth Voice and dialogue with the government around climate crisis.

The Worlds Largest Lesson, a partnership between UNICEF and UNESCO, is considering approaches to make the Sustainable Development Goals more accessible for young people. The learning across many of these initiatives, Curiosity included, is that for ISL and STEM delivery to have the most meaningful impact on a wide range of underrepresented young people it needs to embrace principles of the FAIL frameworks established by the evaluation team in 2022, and:



- Ensure the project is **youth led** and includes topics that interest and resonate with them
- Remember **enjoyment** drives learning and engagement – keep it joyful and fun
- Provide it in **emotionally safe environments**
- Introduce topics in a way that **do not overwhelm** but that build optimism and resilience
- Ensure there are **trusted adults** and **peer to peer** learning opportunities

FAIL Framework

F Friendship and connections



A Achievement and Aspirations



I Independent and Interested learning



L Life Skills





substance.



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