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# Science and the youth sector

The context of youth workers



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## The context of youth workers

**2CV Research**

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## EXECUTIVE SUMMARY

Today's youth sector is hugely diverse and evolving as it adapts to a new funding landscape and a new type of workforce. Youth workers themselves operate within different contexts and structures, yet they are overwhelmingly unified in their core aims and motivations. They are driven by a desire to support, engage and, ultimately, improve the lives of the young people they work with.

Youth workers achieve these overarching objectives via one or more secondary objective(s):

- responding to young people's immediate needs (e.g. hyperactivity, violence, boredom)
- developing their life skills (e.g. confidence and self-awareness)
- increasing their employability and awareness of job opportunities (e.g. careers guidance).

As experts and champions of informal learning, youth workers place great emphasis on the young people themselves and their individual group – tailoring sessions and activities, and always couching learning in 'real-world' application. They draw inspiration from an array of formal and often informal sources: chatting to peers, browsing YouTube or Google, asking for young people's input and pre-made worksheets (e.g. Scouts).

Choice of subject matter (or 'theme', a term many youth workers use) is steered by its potential to engage and fit with their objectives. Youth workers are often very open-minded in their choice of subjects and do not see themselves as discriminating in favour of some more than others. In this respect, youth workers' treatment of art and music is no different to that of science or bike mechanics: if they spot an opportunity to excite and engage young people, they will jump on it. Many acknowledge the potential to use 'sciences' just like the 'arts' as tools to engage.

Most youth workers do not immediately see training as a source of inspiration or practical support. To many, it means 'health and safety' and mandatory courses associated with dry presentations and long sessions. The social aspect of training, where youth workers meet others like them, share stories and tips, is very welcome and the proposal of a training session dedicated to STEM (science, technology, engineering and maths) is met with positivity (provided it avoids the pitfalls of being "boring").

The term STEM is unfamiliar and can feel academic and formal. Nonetheless, thinking laterally, youth workers start to see that STEM has been part of their work without them even realising it. They also see opportunities for STEM, if it supports their objectives. All agree that a bottom up approach that engages young people in co-creation of the activity is critical. Several even suggest that young people should play a powerful role as advocates to convince youth workers of the value of including more STEM-related activities.

Defining Wellcome's identity in the youth work space is clearly key to engaging with youth workers themselves, worthy of reflection and deliberation. Early suggestions emerging from the research include:

- being a flexible funder
- brokering partnerships between organisations and
- hosting a one-stop-shop online platform for resources.

# 1. INTRODUCTION

## 1.1 Background to the research

Wellcome wants all young people, including those from disadvantaged backgrounds, to have the opportunity to connect with and enjoy science, technology, engineering and maths (STEM) in a way that is relevant to them. From the hands-on creativity involved in scientific experiments, to using science as inspiration for art or drama, or understanding athletic performance, medicine or the modern world of technology – the options are plentiful and varied.

However, there is lots of evidence to show that young people from disadvantaged backgrounds are often not able or inspired to engage with the range of educational and cultural activities that help foster this relationship with science. In particular, many inspirational and enjoyable activities that lie outside of formal (school) learning are rarely taken up by disadvantaged young people as compared to their more advantaged peers.

**So how can STEM feel relevant to disadvantaged young people's lives?** Is the curriculum preventing early, and thus continued, engagement in STEM subjects? Does it feel too dry and academic, and less practical than it actually is? One way Wellcome is addressing this challenge is through informal science learning, capitalising on the fact that most of young people's time is spent out of school and that there are numerous ways of engaging with STEM without it feeling like a lesson.

But Wellcome's focus is broader than just the young people themselves; it wants to improve the support available to all those who work with disadvantaged young people so that they are equipped to engage and impassion young people in STEM.

### 1.1.1 Building on previous learning

Wellcome started to explore how best to engage with disadvantaged young people by commissioning research with disadvantaged young people themselves – what they do in their spare time and how Wellcome might further engage them with STEM. A key learning from this research was that those who already work with these young people are the best placed to offer engaging science activities in a way that is relevant to them.

This led on to working with The Prince's Trust to train their Fairbridge Programme youth workers in 2015. In 2016, Wellcome targeted the wider youth worker audience and provided training sessions around the country to communicate the benefits of adding STEM activities to a youth worker's portfolio. Uptake of these subsequent training sessions was lower than expected and feedback suggests that most who participated had already bought into the idea of including STEM activities; their value was thus limited.

As such, the next step was to explore the experiences of youth workers who work with disadvantaged young people and understand how youth workers can be better supported to encourage young people to connect and enjoy STEM.

## 1.2 Objectives

The overarching aim of this research was to understand how Wellcome can present and position future training and other engagement approaches to youth workers who do not currently see the value of including STEM activities and who work with disadvantaged young people.

Objectives fell under two broad headings:

1. Understanding the broad context of the youth worker audience
  - **Current attitudes to STEM:** its perceived relevance to what they do and the young people they work with.
  - **How they make decisions:** how they define/choose programmes, what factors inform their decision making, how they incorporate new programmes.
  - **How they see their role:** how this fits with STEM sessions and the barriers and motivations to providing informal STEM learning.
  - **What motivates youth workers to go on training and develop:** how they find out about training, how they go about securing funding, when/how do they attend etc.
2. Identifying the right language and ways to communicate STEM (and STEM training) to youth workers
  - **Macro level:** How to position and frame training and other professional development initiatives to maximise engagement; the key levers to engagement; the optimal 'way in' for the different youth worker audiences.
  - **Micro level:** What language and phrasing ensures people buy into STEM/science in general and will help to ensure that Wellcome's initiatives are recognised as relevant to youth workers and the young people they work with.
  - **Fundamentals:** How to ensure that young people remain the focus, while getting people to engage with a subject to which they have not previously given much thought.

## 1.3 Methodology

2CV employed a **staged approach** with each wave informing the next. The iterative nature allowed the research team to learn as the project progressed, and adapt the approach and questions asked accordingly. This ensured that later stages answered questions raised by preceding ones, and gave the team the opportunity to structure questions and areas of exploration in ways that would get the best out of research participants.

The three stages were as follows:

1. **SCOPING: *Key Informant interviews to ground the research and inform next steps***

A series of depth interviews with youth worker organisation leads to provide an overview of the youth worker landscape and draw on existing learnings from across the sector.

2. **DEEP DIVE: *Ethnographic interviews to provide depth and breadth of insight into the target audience***

Twelve extended interviews with youth workers (see Table 2) combining depth interview sessions with observation of youth workers interacting with young people and ad hoc spontaneous interviews with their colleagues. These interviews were structured to:

- get deep insight into their experiences, development and training needs, and approaches to their work in general
- capture interaction between youth workers and young people
- explore the context in which they work, and the environmental and circumstantial influences on them
- provide a ‘real-life’ view of youth work.

3. **CO-CREATION: *Creative workshops to engage youth workers in the question of how best to communicate and engage them in STEM***

Two extended, participative and co-creative workshops, bringing together research participants from the early stage with ‘fresh’ research participants (see Table 1 for more details and Figure 1 for outputs from the workshops). The two workshops, held in Manchester and London, were designed to enlist research participants as partners in the research rather than just participants, so that they could focus on formulating new ideas and suggestions for devising communications and training tools.

Location	Details
London	10 – 15 Youth Workers Re-convening as many as possible within travelling distance from Deep Dives stage
Manchester	10 – 15 Youth Workers Re-convening as many as possible within travelling distance from Deep Dives stage

Table 1 – Summary of two co-creative workshops

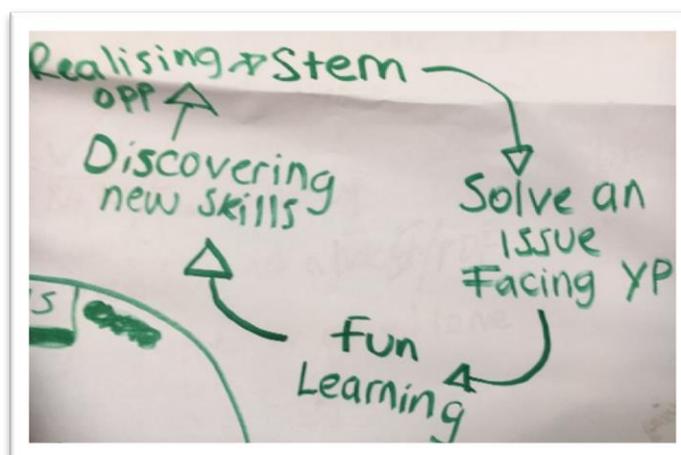
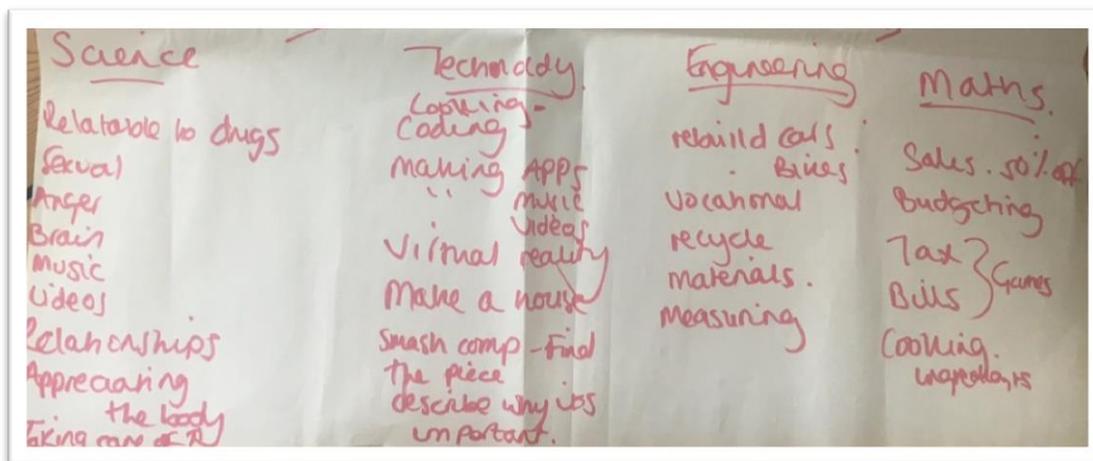


Figure 1 – Output from youth worker co-creative workshops in Manchester (top) and London (bottom).

## 1.4 Sampling and recruitment

**Key Informants** – Wellcome identified organisations and individuals working across the youth work sector who it was keen to engage in its current research. 2CV and Wellcome subsequently contacted individuals inviting them to take part in an interview lasting 30 minutes to one hour. The majority of interviews were conducted by phone with the exception of one or two face-to-face meetings, at the convenience of key informants.

**Youth workers** – 2CV's in-house Field team managed the recruitment of youth workers for both the Deep Dives and Workshop stages of the research. Key to the recruitment process was continued flexibility and understanding when contacting youth workers and carrying out the screening process. Screening guidelines were agreed in collaboration with Wellcome, identifying priorities and soft quotas for the sample to ensure that the research encompassed a good mix of different types of youth workers, operating across different youth settings. Participants were not required to have any prior knowledge of 'STEM' or Wellcome.

Two hard criteria were set for youth workers taking part in this research:

1. must be open to **including new subject matter** / activities into their work (attitudinally and practically)
2. must work with young people affected by **disadvantage**.

Job description	Location	Details
Youth adviser	Cardiff, Wales	Youth arm of religious organisation
Community worker	Ely, Wales	Drop-in sessions encompassing employment and training
Youth worker	Cardiff, Wales	Part-time, freelance youth worker
Scout leader	Outer Glasgow, Scotland	Scout group working with kids 12 to 16
Community co-ordinator	Outer Glasgow, Scotland	Community group running mixed age weeknight sessions
Social worker	Inner Manchester, England	Working with young people with complex social care needs
Youth work manager	Newcastle Upon Tyne, England	Network organisation delivering a range of youth work in school and community settings
Youth worker	Manchester, England	Christian charity using music as a means to engage
Youth worker	Islington, London, England	Open-access community group affiliated to a church
Youth project manager	Middlesex, Greater London, England	Multi-purpose support group for young male refugees and asylum seekers
Senior youth worker	Bellingham, London, England	Open-access youth centre running regular weeknight sessions
Youth worker	Lewisham, London, England	Open-access community centre running varied courses including motorcycle maintenance, English as a Second Language (ESL) and woodwork

*Table 2 – Summary of twelve Deep Dive participants*

## 1.5 A note about this report

It is worth emphasising that this is a qualitative research report. It is based on many hours of interviews and observations, as well as a series of intensive analysis sessions using 2CV's iterative thematic analysis. This is a process that involves the research team identifying themes and patterns, reappraising interviews through the prism of these themes and gradually identifying the commonalities and differences among our sample.

It is not intended to be a representative sample, nor is it statistically robust. The aim is not to segment the audience, but to understand it. Our aim as qualitative researchers is to tell a story, not about our research, but about our participants – what are *their* perceptions and experiences, *their* behaviours and what *influences* these. And ultimately, what does it all mean in relation to the research objectives.

As such, we aim to provide a clear narrative that explains common themes and, where possible, exemplifies them through case studies, quotes and anecdotal detail. We weave in quotes and other information from across the sample and every stage of the research throughout the report, rather than giving a blow-by-blow account of our experiences. It is, after all, about youth workers and not about how researchers came to understand youth workers.

Finally, it is worth noting that this is a report about communicating to youth workers. At certain points we do make suggestions about words and phrasing, and principles of communication. Where possible we follow these ourselves, but given that this report has been written for an audience used to reading reports, we have taken the liberty of not always following our own advice (for example, at times we recommend caution around use of the STEM acronym, yet we still employ it here for clarity's sake).

## 2. MAPPING THE YOUTH WORKER AUDIENCE

### 2.1 Youth workers operate across a diverse and changing landscape

The youth work sector has been hit hard by recent changes to government policy and funding cuts. Lack of direction from central government has hindered many of the funding streams that youth work historically relied on, resulting in significant challenges to individuals and organizations across the board and a more competitive atmosphere.

*“Funding-wise, things have been biting for a while. It’s extremely competitive.”*

Key informant

Youth practitioners and sector leads say that the landscape is much more fragmented, with provision split across diverse institutions and individuals operating in different contexts and structures.

*“[The nature of the youth sector is changing] – we are far away from the days of a statutory youth service. It is a much wider range of providers and organisations all doing things for young people.”*

Key informant

Mirroring this diversity, practitioners use a host of different names to refer to themselves. From ‘youth worker’ to ‘social worker’ to ‘youth support’ and ‘community group leader’, the very way participants self-identify says much about the range of contexts they work in and the different job roles they fulfil.

For a glimpse at the sheer variety of this audience, here are three **pen portraits** of research participants:

- ❖ **Dan, part-time Scout leader**, became a young leader at 16 after enjoying his time as a Scout and works to a structured programme of activities and an established set of objectives.
- ❖ **Suze, full-time community worker**, runs open drop-in sessions for younger members of her community alongside ‘Money Advice’ and counselling sessions for adults.
- ❖ **Lucy, volunteer with refugee group**, runs story-telling sessions with young male refugees to help build their communication and confidence skills

## 2.2 Youth workers are unified by a desire to help, support and engage young people

Despite differences, there is an overwhelming sense of unity in terms of the core aim and motivation driving individuals in this space. Above all, their objective is to support and engage young people and they are committed to improving the lives of those they are working with.

*“If they can see the real change that it will bring about in young people they’re working with, in my experience, those youth workers will pick it up and say ‘Yes, we want to do that,’ because they can see the difference.”*

Key informant

One of the more positive outcomes resulting from recent changes to the sector is the growing role of partnership-working to achieve this core aim. Key informants and practitioners shared an optimism and a belief in the value of working together to provide the best possible services to young people in the UK.

*“Organisations are throwing out egos, strategies and getting together to make a difference, no-one taking credit. Only working for benefit of beneficiaries.”*

Key informant

*“People are starting to collaborate on ‘How can we together achieve changing this issue for young people?’ which is quite exciting.”*

Key informant

## 2.3 Challenging circumstances require resourcefulness, thick skin and excellent communication

The focus of this research was youth workers operating in settings with young people affected by social or economic disadvantage. These individuals face day-to-day constraints of money, time, staff and practical resource. Therefore, while the aim to support and engage young people is paramount, several practical priorities underpin their day-to-day decisions.

Young people affected by disadvantage carry their own set of demands, which are often unique to individuals and require plenty of care and attention from dedicated staff. Many face issues at home or school (often both) and, as their youth workers explain, this can translate into feelings of disenfranchisement and frustration.

*“Young people are dealing with all kinds of difficulties: law, paramilitary control, domestic violence, mental health problems, homelessness.”*

Youth worker

Managing a group of young people where some, if not all, are affected by one or other kind of issue clearly demands strength of character and resilience to ensure individuals receive the care and support they need. Moreover, it requires excellent communication skills to engage a group of individuals with a tendency for low attention spans and disruptiveness.

*“The kids are a real mix, many of their parents are struggling and sometimes lack commitment. We have kids with learning difficulties, foster carers.... We are working in one of the poorest counties in Scotland. They have complex needs, social and communication issues, find it hard to listen, need one-to-one attention.”*

Youth worker

Practical limitations such as finding a suitable room, sourcing the right materials, making sure there are enough computers for everyone and even having access to a kitchen area for tea and coffee, are often forefront in youth workers’ minds. Without addressing these needs, their overarching mission to support and engage young people will stall.

Staffing limitations are another common constraint, with a session of six young people typically having just one member of staff as an overseer. The more exciting and engaging the activity, the more staff supervision it tends to need.

*“Scouts is good, gives me supporting documents, systems in place...but day-to-day it’s just 20 kids and me and another guy so it’s very hands on and physically demanding stuff.”*

Youth worker

As we see further in Section 3, many youth workers assume that activities relating to science, technology, engineering and maths will be resource intensive both in terms of staff and equipment. Cracking this perception and, ideally, tapping in to their resourcefulness, will be important for driving greater engagement.

## **2.4 Youth workers are experts and champions of informal learning**

Many youth workers are self-confessed informal learners, having shied away from formal and academic routes to work in contexts like community and youth work that would play to their strengths, drawing on natural skillsets of improvisation and resourcefulness.

Youth workers’ own experiences of informal learning gives them an understanding of its distinct value compared with formal learning and an awareness of the fact that what they provide to young people needs to be distinct from what they experience in school. If they fail at this, they themselves will fail to engage young people.

*“Why do kids come? Because it’s more relaxed than school, there’s a jokey side, basic fun quizzes, Burns Night supper, learn about culture, and it’s not compulsory.”*

Youth worker

Not only are youth workers experts in informal learning but they are champions of it, believing strongly that youth work sits in a different space to school with its own set of norms and best practice that should be celebrated (see supporting ‘How to communicate with youth workers’ guide).

*“I call it backway learning, picking stuff up as you go along. They [young people] learn the info, apply the info, learn it again and it sinks in.”*

Youth worker

*“There are indirect benefits to [informal learning], it gives them a sense of belonging, broader life values. Organised by rules, conventions, forming habits.”*

Youth worker

Characteristic of the informal learning setting is the emphasis that practitioners place on the individual young people themselves, tailoring sessions and activities to them and being responsive to their needs, rather than external curricula.

Key informants suggested that this was also a growing trend across the sector, with fewer ‘traditional’ approaches to youth work being adopted, nor the application of youth work principles that were commonly adopted in the past (see Section 4).

## 2.5 Youth worker objectives sit within three broad categories: engagement, life skills and employability

Youth workers talk about their constant juggle between different sets of objectives, illustrated in Figure 2. These include engaging young people to respond to their **immediate needs** (e.g. hyperactivity, violence, boredom); developing their **life skills** (e.g. confidence and self-awareness) and increasing their **employability and awareness of job opportunities**.

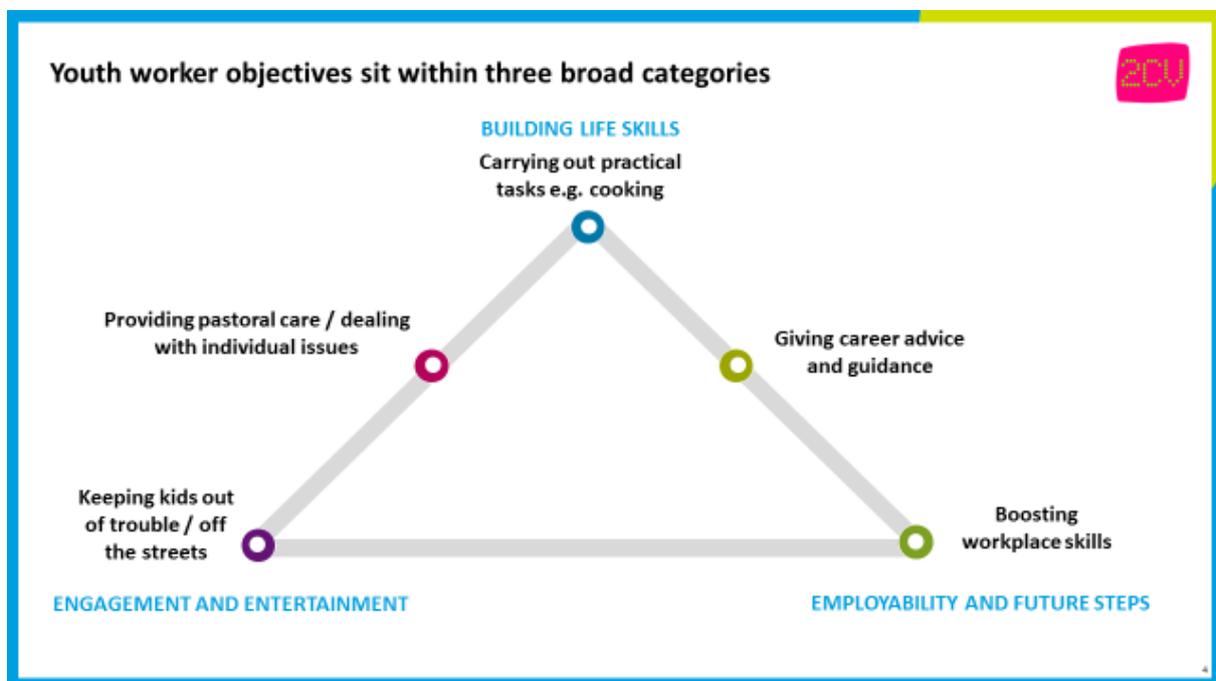


Figure 2 – Youth workers’ objectives fall within three broad categories: engagement and entertainment; building life skills; and employability and future steps.

Most youth workers will describe their work with young people using these terms. Plenty of factors influence where a youth worker’s focus lies at any given moment. For example the age of young people, the nature of their disadvantage, organisational vision, personal skillset

and working style. These objectives are not mutually exclusive; many are simultaneously relevant to a youth worker's practice.

*"I like to make them think more life 'skilly'. Gives them confidence."*

Youth worker

*"It's about life lessons. Like last week we were writing camp lists, what they need to remember for packing. So you explain to them it's important for general life."*

Youth worker

As Section 4 explains, in order to engage youth workers, it is important organisations communicate and design content that clearly links to their existing objectives. Practical examples of how new material can be integrated in a way that will help them achieve one or more of their objectives acts as a useful hook, demonstrating that material is relevant and worth their attention.

## 3. HOW DO YOUTH WORKERS MAKE DECISIONS?

### 3.1 Inspiration comes in lots of guises

Youth workers draw inspiration for their work from an array of sources, from chatting with peers to flicking through old worksheets in the back office or downloading an online resource.

Common examples of where youth workers pull their ideas from include:

- peers and word-of-mouth
- local community group or Meetup session
- friends and family
- YouTube and Google
- youth sector websites e.g. London Youth
- young people's input
- specialised training (e.g. child sexual health)
- formal plans (e.g. Scouts).

Maximising these channels is critical for successfully communicating and engaging with youth workers.

### 3.2 The best laid plans...

*"You can have the best plan in the world but it's not going to be any good if the person you're working with doesn't feel like going along with it."*

Youth worker

Most approach session-planning with a heavy dose of flexibility and personal flair. They use existing plans to get ideas and provide structure but rely just as much on their own intuition and experience of what will work with their particular young people.

Whilst having a rough plan is important, so too is being responsive to the needs of the group in the moment, reacting to their requests and adapting to the changing mood or dynamic of a session. Indeed, according to youth workers, the very best sessions are those that run themselves, where kids are engaged with the general theme allowing the youth worker to improvise and tailor-run the session making sure the kids get the most out of it.

One thing seems consistent: the best session-plan in the world is meaningless if the kids are playing havoc. Selecting activities that will capture the group's attention, whilst being willing to be flexible, are critical for running a successful session.

### **3.3 Subjects are a means of engaging (not teaching) young people**

Most youth workers will incorporate many different subjects into their work. They are often very open-minded in their subject choices and do not see themselves discriminating in favour of some, more than others. Their choice of subject-matter, or 'theme' as they often call it, is steered by its potential to engage young people and help them achieve one or more of their youth work objectives. They are not there to teach the subject, but rather to use it as a means to achieving a much broader (and arguably ambitious) end.

Choosing what subject to include in a session therefore involves asking questions like 'will this entertain and engage my kids?', 'will this help them build life skills?' and/or 'will this make them more employable / open up new job opportunities?'

In this respect, youth workers' treatment of art and music is no different to that of science or bike mechanics. Many see the potential to use 'sciences' just like the 'arts' as tools to engage with young people.

Furthermore, youth workers say they have good experiences when introducing new subject matter to their kids, often allowing them an opportunity to show-off in a non-intimidating, non-school setting.

*"Kids can be very open to new topics. I've had really good experience of this in the past. It gives them a chance to share what they already know on a given topic. Not necessarily something they've learned in school."*

Youth worker

Activities and subject-matter that have obvious practical application and provide young people with real-world skills relevant to their own lives are often favoured. For example, motorbike repairs, cooking and sexual health workshops.

### **3.4 Training and development plays a role, but a limited one**

Most youth workers do not immediately associate training as a source of inspiration or practical support.

One of the strongest associations they carry is of mandatory health and safety or safeguarding courses, those which youth workers have often been obliged to attend.

*"I went on training to become a Scout leader – spread over three years and involved activity planning, working with vulnerable kids, reporting and whistleblowing."*

Youth worker

Beyond mandatory training, youth workers describe very specialist courses they have attended for example relating to child sexual abuse or drug and alcohol misuse. These types of training, whilst not mandatory, tend to be arranged via employers and are mainly relevant for those in full-time, paid specialist positions, e.g. youth social care and support work.

Training, therefore, tends to be something that individuals attend because they either have to, or because they require the knowledge and skills being offered to successfully do their

job. Among the youth workers in this research, very few had attended a training session simply because they thought it looked interesting.

In part, this is due to practical barriers of time and money. Youth workers often do not have the time and money to cover the cost of training themselves and whilst many say their seniors are open to the idea, in practice it can be hard to fit around other commitments and staff absences.

But as well as the practical barriers, training also carries with it some less-than positive associations. Sessions are envisaged as overly formal, 'stuffy', too long and featuring disappointing lunch (!).

As experts in informal learning, many youth workers also do not expect to take their lead from formal trainers. As one key informant remarked, youth worker training should thus be designed to reflect the 'show and do' principle of informal learning.

*"[Training should take a] show and do approach. Give them activities and then show them the relevance of that to their work."*

Key informant

Nevertheless, youth workers do express genuine openness to good training sessions and see opportunities for picking up and sharing ideas, taking home resources, refreshing skills, networking and exchanging experiences among peers.

*"I'd love to do more training – get more ideas. At the moment, everything I do focuses on core outcomes and life skills e.g. confidence building, team building."*

Youth worker

### **3.5 Young people are centre stage**

As discussed in Section 2, young people are a constant source of motivation for youth workers and job satisfaction comes almost entirely from seeing their work have a positive impact on their kids. Unsurprisingly, involving and being inspired by young people are, therefore, key components in day-to-day decision-making.

Not only do youth workers hold young people's needs and personalities forefront in their minds as they plan sessions, but they regularly consult them from one session to the next. Staying in tune with their kids (and young people more widely) is critical to running a successful session. This is particularly relevant for those working in one-to-one settings.

*"Kids contribute to what they want to do."*

Youth worker

*"The young people will trust the workers. If they said 'I've got this activity I think you'll really enjoy', then they'll go, 'Oh I trust you, because you've only taken me on good things before and I enjoyed that, so yes, I'll do that with you.' So it's led by the young person, you know, their interests, you pick up the interest in those things."*

Key informant

### **3.6 Youth workers avoid ‘schooliness’ at all costs**

Repeatedly, youth workers told us how important it was to make sure the time their young people spend with them provides a break from whatever issues they are facing elsewhere. Key to doing their job is ensuring that the youth group environment, the activities they organise and the overall feel of the sessions offers them something different to what they might be getting at home or school. It should give them a fresh perspective and a sense of a safe, free place where they can be themselves.

### **3.7 Time is always of the essence**

Perhaps more so than in school settings where young people are there by obligation, the non-compulsory nature of a youth group and the shorter format means that youth workers are often very aware of time constraints.

*“You can’t spend too much time upfront teaching instruction... Kids will lose track. The ideal is you give them an overview of the whole session...then a bit of explanation, then a demo or activity with the kids getting involved, discussion and unpicking the facts/what they’ve learned. Whatever you do the subject has to suit this format.”*

Youth worker

*“If I have to explain something for more than five minutes, it’s a no-go!”*

Youth worker

## 4. ENGAGING IN STEM

### 4.1 The term 'STEM' is not recognized and can act as a barrier to engagement

*"I thought you meant stem cells!"*

Youth worker

The acronym 'STEM' is not familiar to the majority of youth workers. Although not commonly used, it often has a vague ring of familiarity and as a result, when told what it stands for, youth workers can feel confused and embarrassed by their lack of knowledge of the term.

This, combined with some lack of comfort around the subjects that STEM refers to, can reaffirm the feeling that these subjects are beyond their own capabilities: if they didn't even know the acronym, what hope do they have of being able to incorporate it into their work?

*"I feel like a bit of an idiot not knowing that term – I was rubbish at science at school though!"*

Youth worker

### 4.2 Youth workers are initially unsure about the role of science, technology, engineering and maths

STEM subjects are all closely associated by youth workers with formal learning. Many instinctively feel that this is neither their area of expertise nor something that the young people they work with expect in a youth work setting. Initially this means they can feel out of their comfort zone and lack the confidence they might naturally have when working in other areas (e.g. art, craft, sport).

Many also believe that science, technology, engineering and maths can place unique demands on youth workers; for example, requiring detailed explanations and particular types of resource. As such, they do not always see them as easily fitting into their current practice.

*"Maths feels a bit gritty and too detailed."*

Youth worker

*"We don't just have Bunsen burners lying around! Or the right place to do these types of activity/make a mess."*

Youth worker

Individual uncertainty about STEM subjects is compounded by the question of how disadvantaged young people might respond to it. Youth workers' concerns are often a reflection of the negative reactions they believe young people will have.

They worry that the kids will be put-off or feel uncomfortable around these subjects because they have an obvious academic association. This can trigger a lack of confidence and feelings of being "stupid" which young people can be accustomed to from school. In other words, introducing these subjects can seem like the exact opposite of what youth workers are trying to achieve in terms of boosting young people's sense of self and giving them a happy environment.

*"I think there's a reaction to certain words like engineering, science. It starts to sound formal, sounds like there are parameters and often kids don't excel when this happens."*

Youth worker

*"I think there is a fear-factor of making it too much like school...people want to come to a youth provision, youth service and have a bit of fun and hang out."*

Key informant

This reflects the caution and, sometimes, fear with which these subjects are approached by both adults and young people.

One key informant argued that science got particularly bad press amongst disadvantaged communities, seen as something for 'other people'. They believed there is a need to demystify science so that youth workers can promote scientific curiosity and experimentation in their work with young people.

### **4.3 When allowed further consideration many do see how STEM as relevant to their existing work**

After a little consideration, most youth workers acknowledge that STEM, when framed in the right way, can be seen as relevant to nearly all their work to help young people understand and engage in their world. Their reasons range from supporting them to manage their money, through practical demonstrations of construction to star-gazing when on a trip. Each of these activities is linked to STEM subjects, but it can take a little lateral thinking to make that connection.

*"Everything is science when you really think about it – it's how you can understand how our bodies, nature, everything works!"*

Youth worker

Once they start thinking in this way, they often realise they are already using STEM in their work, albeit in a way that was not necessarily obvious to them before. This often relates to basic life skills, such as covering nutrition when doing cooking activities

*"Actually, when you think about when I'm explaining how to get vitamins, protein etc. that is biology!"*

Youth worker

*“Once you show them how they can do this [integrate STEM] without changing their activities, let them see the application and benefit to the young people and then they will engage better.”*

Key informant

Indeed, some admit to including STEM in their work but doing so ‘by stealth’ so that young people are unaware they are ‘learning’ anything.

*“When they’re helping me work on the bike engines, that is engineering. But we don’t say that as it can put them off if it feels too structured”*

Youth worker

*“You have to speak in young people’s language so it doesn’t feel foreign to them e.g. talking about ounces of weed”*

Youth worker

This is also thought to be the best way for youth workers to incorporate STEM subjects in their work more generally: focus on what interests them and not on the agenda.

*“The other approach is a subversive way of getting young people interested. Rather than say ‘Today we’re going to do a session on engineering or maths’, you’re going to turn people off that way. If you start saying ‘Let’s have a chat about politics,’ young people wouldn’t be interested. But when we start to talk about ‘Well actually, issues in your local area’, they were interested and then you link that to ‘Well that’s politics’.”*

Key informant

Not only is this a way for youth workers to ‘sneak’ STEM subjects into their work with young people, it is also seen as the best way of getting young people to embrace it without risking damage to their self-confidence. Youth workers are well aware that many young people, underneath the bravado, are nervous of looking stupid or otherwise losing face in front of their peers.

*“Young people can feel intimidated by anything that feels academic as many feel they are failing at school.”*

Youth worker

Some take this further and aim to demonstrate to young people that they are already applying these subjects in their day-to-day lives. For example, they are using maths when they work out how much something costs, or technology when they explore how an app works.

This offers potential to boost young people’s confidence. If they realise they are already embracing some of these tricky concepts and that they are already en route to understanding them then the journey seems less intimidating. Some youth workers suggest that there are numerous examples of how young people are essentially embracing STEM skills regardless of whether they are aware of it; in some instances, these can be in less traditional avenues.

*“I work with gangs, keeping them off the streets, out of that culture. Someone who’s hot-wiring cars or dealing weed knows more about engineering or maths than I do.”*

Youth worker

It is also important to note that a number engage with young people who have already expressed interest in STEM careers such as IT and coding. While this reflects the normality of technology in modern living, it is clear that youth workers often feel unclear on how to support them in this endeavour.

At its heart, this demonstrates the essential issue for anyone wishing to communicate with youth workers about STEM. Barriers to engagement with youth workers are very real and, just as when communicating with young people, messages need to be tailored to their specific needs.

Messages need to be pitched just as carefully as when communicating with young people directly because of the very real, though not always the same, barriers to engagement that exist.

*“I don’t know the first thing about coding so I don’t feel equipped to help them”*

Youth worker

#### **4.4 Youth workers see potential to incorporate STEM into their future work**

Despite initial concerns about how STEM training needs to be positioned to young people, most can see at least some potential for incorporating it into their work. The key to achieving this is to find a ‘way in’, which in effect means finding a way to frame subjects so that they meet youth workers’ objectives, as set out in Table 3.

<b>Objective</b>	<b>Details</b>	<b>Where STEM can support</b>
<b>Engagement and entertainment</b>	Table 4	Activities to simply keep them engaged and interested in the session, keep kids out of trouble and (in some cases) off the streets
<b>Building life skills</b>	Table 5	Using STEM to develop life skills, encouraging self-confidence, self-awareness, self-worth
<b>Employability and future steps</b>	Table 6	To inspire young people and pass on knowledge in these areas/potentially open their eyes to new types of employment and support pathways

*Table 3 – The potential role of STEM activities in supporting youth workers’ objectives.*

Taking these objectives as a framework for devising engagement, youth workers at the co-creative workshops designed their own principles for how an organisation like Wellcome could engage their peers in science, technology, maths and engineering, set out in Table 4 to Table 6, below.

- ❖ **Self-contained:** A stand-alone activity that is fun, involves everyone, easy to set up and requires NO planning - games of some kind can be ideal.
- ❖ **Repeatable:** Can be rolled out week after week.
- ❖ **Straightforward:** Should be 'idiot proof' i.e. able to be given to a volunteer with no STEM experience or prep.
- ❖ **Limited set-up:** Requires little or no preparation. Ideally, tools should be easily accessible (i.e. everyday items) or provided to youth workers (so no need to provide own resources).
- ❖ **Minimal supervision:** Likely to be used as intro or 'filler' activity that young people can do without supervision. These are very popular for youth workers as they provide a means of filling a spare 15 minutes as and when required.
- ❖ **'Soft' introduction:** Opportunity to provide simple talking points around the activity that introduces STEM in a soft way.

### Examples and Ideas

- ❖ 'Activity in a bag': youth workers love it when they are provided with all necessary tools for a fun, easy session (e.g. a 'ping pong kit in a bag' provided by sports charity). Not only is set-up easy, but with simple instructions included, *anyone* can set it up.
- ❖ Focussing on everyday activities or problems that they are likely to encounter and relate to.

*"A real-life example, something like money counting that they need to do all the time."*

- ❖ Alternatively, focus on something contemporary or otherwise high profile:

*"Something newsworthy like the hadron collider"*

Table 4 – Engagement and entertainment: activities to simply keep them engaged and interested in the session.

- ❖ **Relevant:** Must be applicable to young people’s lives – their interests, helping solve their problems.
- ❖ **Ongoing:** Offer a programme of activity spanning a few weeks. Staged activities are often popular as they help retain young people’s interest over a period of time.
- ❖ **Easily amended:** Can be tailored to the particular ability and needs of young people. Particularly important among disadvantaged audiences where there can be a huge range of diversity.
- ❖ **Encouraging exploration:** Allow kids to ask questions and assist youth workers to explain concepts beyond the activity in question. In particular, avoid saying “that’s for next year!” as they hear in school.
- ❖ **Overlapping with other interests:** Offer potential to incorporate with other subjects that young people are already engaged in e.g. the engineering behind music production; the science of sports success.
- ❖ **Clarity:** Provide clear outcomes that young people understand and can buy into.

### Examples and Ideas

- ❖ Must be applicable to young people’s lives – their interests, solves problems, helps their lives:
  - “We played a game with bean counters and two teams, each team had a certain amount of money and they had to do something with it, they had to end up with something to show for it and then the teams traded between themselves, with trading rules. And then we rounded up with a presentation.”*
- ❖ Build on their natural appetite for rewards, and on what they already enjoy:
  - “It’s good to try and do more with badges. You need to make it fun and challenging, something with a reward. Kids come for both, they love the challenge!”*
  - “The young people we work with love mine-craft – we encourage them to play on it in groups to build team-working skills, things like this could definitely be developed further”*
- ❖ Assist youth workers through provision of materials:
  - “They [Wellcome] should develop materials and resources for youth leaders to run sessions: generic tools and practical activities e.g. related to weather, grow your own plant/veg garden.”*

Table 5 – Building life skills: using STEM to develop life skills, encouraging self-confidence, self-awareness, self-worth.

- ❖ **Longer term:** Create a programme of discrete parts, but with a longer term view (e.g. a year) so that young people feel it is cohesive.
- ❖ **Incentivise:** Incentivise young people to take part with competitions, prizes, certificates, qualifications, badge-system.
- ❖ **Meet demands:** Help youth workers focus on areas of employment that young people have already expressed interest in (e.g. coding, music production, IT), alongside those areas that they often turn to (e.g. construction, trades).
- ❖ **Funds:** Provide funding streams to youth workers as part of participation so they can dedicate time to planning.
- ❖ **Outside assistance:**
  - Give opportunities for experts, role models to speak to young people
  - Involve local community/local businesses i.e. sponsorship

### Examples and Ideas

- ❖ Work with local businesses offering job prospects:
 

*“I looked at all the construction going on in Cardiff, and I thought there’s enough building here, they can all be employed. Then I started to get in touch with construction firms.”*

*Table 6 – Employability and future steps: to inspire young people and pass on knowledge in these areas/potentially open their eyes to new types of employment and support pathways.*

## 4.5 Consulting young people is key to youth workers' own engagement

All research participants, whether at the 'frontline' or in management agree that it is vital for young people to be involved in devising any programme of engagement. Engaging young people on their own terms is seen as very much the new normal within youth work, whereas the 'top down' approach is often viewed as patronising and old-fashioned. 'Bottom up' approaches offer an opportunity to build programmes that reflect the needs, interests and outlooks of young people, ensuring greater relevance and greater propensity to buy in.

This co-creation is not only important for engaging young people, but also youth workers themselves are sensitive to this and clearly expect it from any organisation which aims to reach people in their profession. This is not just a philosophical point of view: from a purely practical perspective, they need to know that activities, subject matter and approaches will be relevant to young people and ultimately hold their attention.

*"There is an increased awareness that young people have something to say that is worth listening to and that we should all be aspiring to this."*

Key informant

Ideally, they would like evidence that approaches 'work'. This might take the form of feedback from other youth workers and, perhaps, the young people themselves. Some kind of endorsement from young people is likely to be particularly important in demonstrating both that this is a credible approach and that they have been involved in creating it. This is thought to be relatively straightforward. They believe that if STEM is approached in the right way, young people themselves will become champions of these subjects. This in itself could feasibly lead to a cycle of greater engagement:

*"You have to ask them, run a survey and show youth workers this is what young people want!"*

Youth worker

## 5. WHAT ROLE FOR WELLCOME?

### 5.1 Opportunities for Wellcome

Across the research, key informants and youth workers volunteered suggestions for the various roles they saw for Wellcome in this space. Where exactly did they feel an organisation such as Wellcome could be most valuable? The research also highlighted opportunities that, while not articulated by participants themselves, could be fertile ground to explore.

Defining Wellcome's identity in the youth work context is clearly key to engaging with youth workers themselves. As such, it is not a quick-fire question but one worthy of reflection and deliberation. The ideas set out below are a few starting points for discussion.

- **Flexible funder:** time and again youth workers asked not just for funding but a more flexible approach, freeing them up to use money where they need it most and not being restricted by funding requirements and 'glam' elements that funders want to put their name to.

*"A lot of funding pots are restrictive about what you can spend your money on. They don't cover the expenses you have to pay for a mentor, or all the bits and pieces you need to run a training session. These add up! It's the boring stuff like PM (project managers') time, a whiteboard, hiring a venue. It's unglamorous but completely essential to running basic services."*

Youth worker

- **One-stop-shop, online platform:** there is considerable appetite among youth workers for a dedicated online space where they can download resources, ask questions to experts, share experiences and feedback on how particular resources or ideas have gone down with young people.
- **Broker of partnerships:** key informants and practitioners stressed the benefits of partnership working and the positive outcomes that have resulted from recent challenges, with greater interest in collaboration, knowledge-exchange and experimental approaches to delivery. Could Wellcome help foster these relationships? Link people up? Start a conversation?

*"There are opportunities – the sector creates its own policy and direction. A positive, broader [type of] creative thinking. Statutory plus voluntary plus formal education [all sharing knowledge]."*

Key informant

- **Science [STEM] badge / award commissioner:** badges and awards are great ways to excite and engage young people, offering them a challenge as well as tangible reward. Could Wellcome get behind a science award? Or work with other youth services and sector players to deliver this?

## 5.2 Future communications and engagement with youth workers

Whatever role Wellcome ultimately has, hitting the right mark with its communication and engagement with youth workers will be essential.

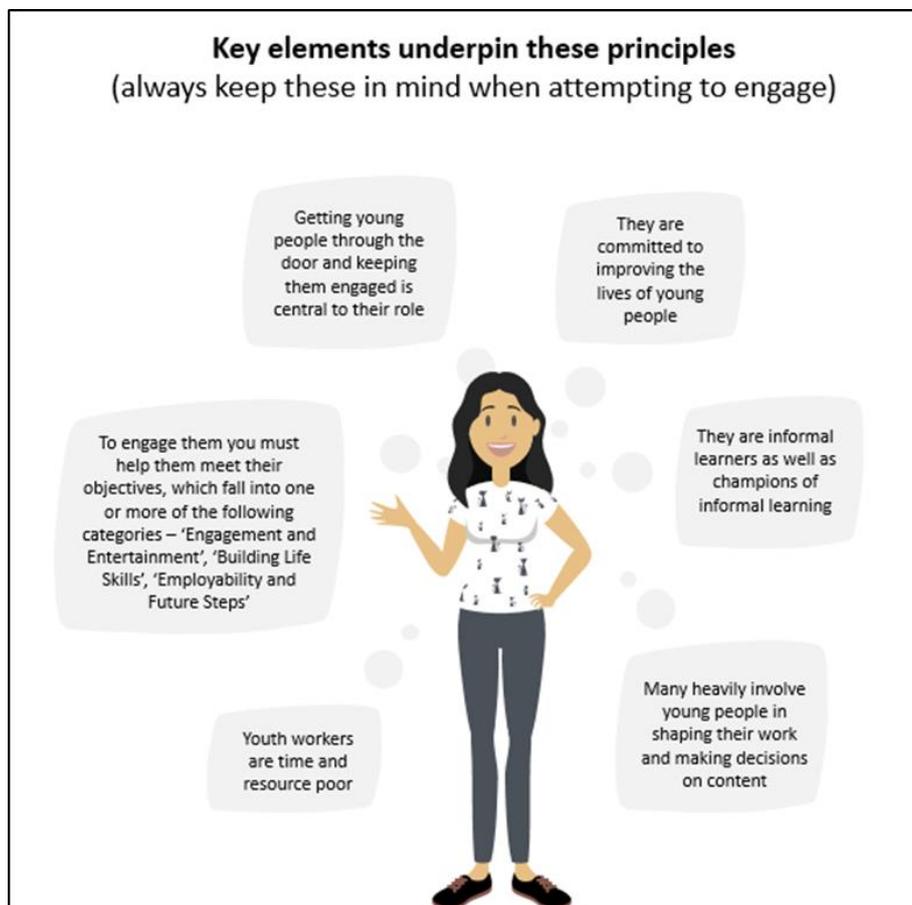
This research has identified some core principles for communicating with youth workers across different contexts: from running training to writing an email or designing activity resources.

### 5.2.1 A 'How to' guide for Wellcome and beyond

The 'How to communicate with youth workers' guide that accompanies this report is designed to help ensure that the messages and actions Wellcome and others promote, really speak to youth workers and trigger a positive response.

The toolkit sets out guidance principles broken down by core areas of engagement: communications, resources, training.

Important to bear in mind, before embarking on *any* form of engagement, are the following **six key elements that define youth workers and their work:**



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**Wellcome exists to improve health for everyone by helping great ideas to thrive. We're a global charitable foundation, both politically and financially independent. We support scientists and researchers, take on big problems, fuel imaginations and spark debate.**

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