

Education
and
Employers

Starting Early

Building the
foundations for
success

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with contributions from Nick Chambers



Executive Summary

This report makes the case for career-related learning in primary schools, based on new in-depth research, the testimony of some 1,000 teachers and 10,000 children, insights from sector leaders like the National Association of Head Teachers (NAHT), and a growing international research base on what works and why.

Research shows that children from as young as five have ingrained stereotypical views about the jobs people do based on their gender, ethnicity, and social background. Most children's career aspirations are based on family, friends, and the media, with less than 1% knowing about a job from someone visiting their school. Aspirations are narrow and out-of-sync with labour market demands. Career aspirations are also surprisingly persistent over time, similar at age 17-18 as among primary school children. Aspirations ultimately only resolve in later harsh entries to the labour market, as supply jarringly adjusts to demand. These narrow, stereotyped views lead to a steep cost in economic prosperity, occupational diversity, and individual career fulfilment.

This report provides the evidence behind a low cost approach that is underexploited in addressing this challenge: giving children access to role models from the world of work and empowering teachers to connect directly with employer volunteers to organise high-quality career-related learning. These activities reduce stereotypes, enhance confidence, foster a positive attitude towards school, and improve attainment.

Why career-related learning matters in primary schools

Evidence from teachers, children, sector leaders, and researchers suggests that career-related learning enriched with employer activities brings many benefits for primary children:

- Increases motivation and attainment by helping children see the relevance of learning and building positive attitudes towards school, particularly among the most disadvantaged children.
- Improves social mobility by providing children with access to role models who can inspire them and broaden their horizons, showing that their background does not need to determine their future.
- Ensures children do not rule out career options for themselves, simply because they do not realise the details and benefits of the full range of opportunities open to them.

Activities in primary schools look different to the career education that may be familiar in secondary schools. The emphasis in primary is on diversity, exploration, and making learning fun. Activities excite children about the subjects they are doing and show them the relevance to their futures.

The question is not whether “career-related learning” should start at the primary age. We already know young children are playing, thinking, and talking about jobs - the experiences, interactions, and questions that drive this behaviour can hardly be prevented even if we wanted to. The question is whether we actively support such learning through the school system. Schools can introduce more diverse experiences to more children, especially those with fewer chance encounters in their day-to-day life, and frame those experiences in positive, constructive ways.

The potential of career-related learning in primary schools is far greater than today's practice. Education and Employers supports teachers to organise events and surveys show this support is often the first time that teachers have engaged employers in a structured way to support learning. Teachers frequently go on to organise their own events, but help getting started is essential. There is no dedicated, ongoing central government funding for primary schools to do this, unlike the support provided at secondary schools. The appetite and ambition is there in communities, but national strategy, guidance, and funding is needed to translate it into transformative impact.

To understand the potential of career-related learning in the future, we start with its history, exploring how policy has evolved in the UK to the tentative promise of the present day, with government support for pilots and small-scale programmes. We then present statistical evidence and case studies, underpinning the benefits listed above, drawing on randomised control trials, dosage response analyses, and comparison group research. Our report closes by summarising the principles that underpin good practice, addressing questions around support for staff, the potential of virtual events, and how young career-related learning might usefully begin.

The history of career-related learning in primary schools

Primary schools have always sought to provide enriching environments for children, introducing them to how society functions and the different roles available to play in it. Policy support has, however, only traditionally identified career-related learning as a distinct priority in secondary and tertiary education. The last two decades have seen a growing call for greater formalisation and support for primary schools, drawing on grass-roots practice, experimental suggestions from pathfinder programmes, and recommendations in government-commissioned reports.

In its 2017 Careers Strategy, the Department for Education in England made a landmark decision to fund pilot initiatives in primary education. Primary Futures, as founded formally in 2014 by Education and Employers and the NAHT, was the largest programme scaled up in this new fund, with the additional funding enabling it to reach over 67,000 more primary aged pupils. Recent Secretaries of State for Education have themselves attended events as volunteers, introducing their career journeys and the work of government to primary aged children.

Career-related learning remains non-statutory at primary age, but there is widespread enthusiasm among schools and teachers for increasing provision. Recent innovations in virtual live and pre-recorded events with interactive activities, prompted by the ongoing pandemic, point a pathway towards low-cost, blended delivery to provide nationwide coverage, unconstrained by the limits of local geography.

Evidence of impact: Empowering educators

Extensive pupil testimony and teacher experience claim that career-related learning can help children broaden their horizons, overcome stereotypes, and become more motivated in class. This evidence has been seen in multiple surveys since 2014, gathering the ideas of around 1,000 teachers and 10,000 children, underpinned by case study insights and qualitative discussions. Example findings include:

- 90% of primary school teachers reported in 2017 that 'involvement in activities with employers' could impact the **academic achievement** of pupils.
- In 2018, the top three outcomes for teachers were challenging **gender stereotypes**, bringing **learning to life**, and **broadening children's aspirations** - supported by 97%+ of respondents (with 60%+ strongly agreeing).

- After participating in a career-related learning event, 82% of around 9,300 children agreed that “I now understand how learning **Maths/English/Science can be useful** in many jobs”.
- Out of some 1,200 children in schools with most economically disadvantaged students, 78% said “I now know there are lots of jobs available to me when I grow up” and 74% said “I feel **more confident in what I can do** after today’s activity”.
- After a single day’s activities, 25% of 7,900 children even said it had **changed their mind** about their future job interests - with a further 25% saying it might have done.
- The importance of early intervention can be seen in the **persistence of preferences and stereotypes** in career aspirations: sector and status preferences at seven-year olds are often surprisingly similar to those of 18-year olds.

Statistical research evidence of primary age programmes from around the world reinforces pupil testimony and teacher experience about positive impacts:

- A **randomised control trial of primary age enterprise education** in the Netherlands shows gains in areas like self-efficacy, persistence, and creativity.
- Benefits in areas like career aspirations, attendance, and attainment, particularly for disadvantaged pupils, were identified in an analysis of around 5,000 9-10 year olds in the UK **comparing intervention schools against control group schools**.
- A series of US studies relate improved career-related learning and counselling with higher grades in standardised tests, with example **increases of c. 6%pts in proficiency rates in English and Maths** compared to similar schools that did not implement the programme.
- A survey of almost 10,000 primary children showed that the more career-related learning pupils had done - and the more jobs they had heard about - the more likely they were to have a job they were **interested in for the future** and the more **positive they felt about school subjects**.
- In **pre/post analysis** of primary children aged 6-11 in England, participating in career-related learning helped children to reject **stereotypes around STEM and gender equality**, increased confidence in the usefulness of school, and enhanced motivation to **try their best**.

Career-related learning has long been understudied by researchers, reflecting the historical focus of academic funding, limited programmatic scale, and idiosyncratic research interests. The studies above provide empirical grounds to believe teachers and children when they say it helps, but they cannot conclusively demonstrate long-term impact. But with this research in place, we are perhaps in a position to shift the burden of proof. Those who believe careers-related learning does not help primary aged children should be asked to source the evidence behind their claims.

There is much we do not understand and much we cannot precisely quantify. But we are confident in calling for large-scale, longitudinal, comparison-group research. Researchers and funders are invited to track early career-related learning activities through to secondary school transitions and future labour market outcomes. Such research will enable us to better understand the long-term economic value of such activities, how specific activities combine with each other and with other school practices to generate outcomes, and how to enhance benefits for the most disadvantaged groups.

Good practice guidelines

Recent research undertaken by Education and Employers for The Careers & Enterprise Company and for Teach First reveals key elements of good career-related learning. These include: successful leadership, making it open to all, embedding career-related learning in the curriculum, involving external organisations and employers, starting early, and ensuring activities are age appropriate.

Support for continuing professional development for teachers and other school staff is a key thread throughout career-related learning. None of this activity works if schools do not believe in it or get the most out of it, integrating employer and volunteer support into day-to-day activities.

Call to action

Volunteers from the world of work are a foundation stone of rich career-related learning in primary, bringing authentic voices, diverse roles, props, and stories that excite children about the future. The challenges that teachers face in trying to connect with large numbers of diverse volunteers and employers alongside busy teaching days, especially volunteers outside their area, mean this is a key area where practice support is needed.

The Primary Futures platform provides such support. It is a sustainable, scalable, cost effective self-serve model in which teachers take the lead on running career-related learning events with a wide range of volunteers from the world of work – people from all levels - apprentices to CEOs; from all sectors - app designers to zoologists and from a wide range of social, economic and ethnic backgrounds. Teachers can recruit volunteers quickly and easily via the state-of-the-art platform and use resources other teachers have helped develop to plan and manage events. Provided annual costs for IT maintenance and user support are covered, teachers and the enthusiasm of volunteers can do the rest.

But to get to this point, we need a culture change in primary schools, empowering and supporting them to use the platform and to understand its role in career-related learning.

In a recent baseline survey for Primary Futures, 76% of the participating primary schools said they usually invite volunteers from the world of work via methods that reach only restricted audiences and take a lot of time to coordinate: informal networks, such as parents and friends, or asking volunteers directly via social media or letters. Only 9% used online match-making services like Primary Futures to reach diverse audiences of potential volunteers at scale.

We now know what it takes to empower and support teachers. Thanks to funding from the Department for Education in England Primary Fund via The Careers & Enterprise Company, Education and Employers have been able to undertake the largest ever study of primary-age career-related learning. The focus was on getting a better understanding of the impact of interventions at primary age and to see how the Primary Futures programme could be scaled up and rolled out nationally. The evaluation which has just been completed shows that, once schools have been supported to work with the platform, it becomes self-sustaining: 94% of teachers would recommend the platform to colleagues and 81% said they would feel confident using the platform on their own to organise events in the future. But with over 20,000 primary schools in the UK, we are only at the start of this journey.

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Introduction



Palace of Westminster painting by Frank Cadogan Cowper. Located next to Central Lobby ¹

The importance of giving primary aged children the chance to meet people who can inspire them is hardly a new concept.

Erasmus of Rotterdam, perhaps the most famous scholar of his day, was visiting England in 1499. His friend Thomas More asked him to accompany him to Greenwich: “I prithee, bear me company to a certain great house nigh to here. There thou shalt find friends, who have a great desire to see thee”. The ‘great house’ turned out to be the royal palace and the ‘friends’ turned out to be the children of Henry VII. Erasmus was asked to share some of his writings with the children, including the future Henry VIII, aged eight.

We can all recall chance encounters that have shaped the future direction of our lives. But on closer inspection, while any given encounter might rightly be ascribed to chance, the circumstances which sit behind such chances and the ability to act on them to create ‘lightbulb moments’, turning points in life’s journey, are not equally open to everyone.

This report explores the impact of children meeting and engaging with a diverse range of people from the world of work. It is important because children often have ingrained stereotypical views about the jobs people do based on their gender, ethnicity, and social background.

The research shows that the initial career aspirations of 7 year-olds are often relatively unchanged by the time they reach the age of 17. Far too many young people are ruling out career options for themselves, often from a young age, simply because they do not realise the full range of opportunities open to them. The result is a worrying disconnect between their aspirations and projected jobs in the UK. This disconnect raises concerns about our country’s future economic prosperity and our ability to draw on ‘home grown’ talent.

This report also examines the impact that role models from the world of work can have on attainment – people who can help bring learning to life, excite children about the subjects they are studying, and show them the possibilities subjects open up in later life. As the research shows, and as every teacher can tell you, if children are inspired and motivated, they work harder and get better grades.

Our Primary Futures programme has seen the biggest impact among disadvantaged children. Over 80% report an improved understanding of how Maths, English, and Science can be used in their adult lives and a better understanding of the link between their achievement at school and their

1. www.explore-parliament.net/nssMovies/01/0164/0164_.htm

future success. One of the reasons for such an increase is because many children from disadvantaged backgrounds do not routinely have the opportunity to meet a wide range of successful professionals. They might have high aspirations, but these aspirations might be quite narrow, simply because of the small number of role models from the world of work they meet. As the US civil rights activist, Marian Wright Edelman says, “You can’t be what you can’t see”.

Thanks to the power of technology we have the ability to revolutionise the way children get access to such role models. It no longer needs to be chance alone. We can change the odds so that children growing up in deprived areas of the country get more opportunities to see a diverse range of jobs, beyond those of their parents, neighbours and local community.

The last 12 months have seen us all becoming much more familiar with using technology to connect and interact on screen. Remote working has revealed location to be less important for some types of work than previously assumed. This moment affords a massive opportunity to harness. But at the same time, the circumstances of the Covid-19 pandemic mean many more children are at risk of being left behind. Social mobility has stagnated, and the attainment gap is likely to widen in coming years. The opportunity now is to turn the trend around, using some of the very technologies and changing working patterns that initially contributed to these widening disparities. This report provides examples of how teachers are using role models to help close gaps in social background, the innovative ways they have developed to engage children in learning, and the new pedagogy arising from these new ways of working.

The interactive virtual Primary Futures programme we have pioneered gives schools, wherever they are located in the country, access to all our volunteers. This approach enables young people to interact with people from an amazing diversity of backgrounds and experiences – spanning all different sectors, job levels and career routes – people from different social, economic, and ethnic backgrounds. It is also easier than ever for volunteers who can now inspire and inform children at the opposite end of the country. The effects will be transformational.

In the past Primary Futures relied on people visiting their local schools. While in-person visits are important and will continue to be so, it will be considerably enhanced by virtual access to our full network of volunteers – over 60,000 people have registered to volunteer via the Inspiring the Future online match-making platform. So if you are a primary aged child living in Lichfield, you can meet and ask questions of an engineer working on green energy wind turbines off the Norfolk coast; if you live in the centre of Birmingham you can hear from an agricultural scientist working in Hampshire; if you live in Aberdeenshire, you might talk with a cancer specialist in Swansea; and if you live in a rural hamlet in Cumbria you can quiz a digital animator working in film production in Salford.

One thing that we have all seen during the pandemic is people’s willingness to volunteer to support others. And this has been reflected in the number of people volunteering via our Inspiring the Future match-making platform. We are confident that as demand from primary schools rises so will the number of people volunteering and we know from discussions with employers that their appetite to encourage employees to volunteer and help us has also increased.

We need to build on, and rapidly accelerate the progress made to date, taking both a national and a regional approach. All young people in our country must have the opportunity to hear first-hand about jobs and the world of work - and this opportunity needs to start in primary schools.

We owe it to our young people to help them become excited by learning and by their own potential, to see the diversity of what is possible, and to make informed decisions about their future. We can’t just leave it to chance.



Nick Chambers

Chief Executive, Education and Employers

Career-related learning in primary schools: A recent history



Children enjoy a Primary Futures assembly at Barham Primary School in Wembley, 28th February 2019

Helping students think about, prepare for, and pursue their future careers has long been an essential component of provision in secondary and tertiary education across England. The Department for Education in its 2017 Careers Strategy made a landmark decision to extend the policy focus into primary education, beginning with a pilot fund to support the sector explore new approaches and to see what existing schemes could be scaled up.

This recent expansion in policy focus builds on a long history of grass-roots practice in primary schools, experimental suggestions from pathfinder programmes and government reports, alongside calls from the sector and from researchers to provide a more structured, policy-backed approach. Before charting the history of the last two decades, it is important to understand what is meant by career-related learning in primary schools.

What is career-related learning in primary schools?

In general usage, ‘career education’ might encompass understanding the nature of jobs that exist (including labour market information); work-related learning (such as types of work, developing skills for and through work); career management skills (such as CV writing, finding/sifting jobs, interviewing and so on); and careers information, advice and guidance, with activities aimed to support self-development, exploration, and self-management. It can be as simple as working on a project with a potential real-world application and as complicated as multi-week courses, underpinned by careers curricula, specified activities and exams (Souvan, 2020).

At primary age, from 6 to 11, the activities that encompass career-related learning are different to secondary education. It is not about providing advice on specific careers but rather broadening horizons, giving children a wide range of experiences of the world including the world of work. Career-related learning is about showing children the vast range of possibilities open to them and helping to keep their options open for as long as possible. And there is a range of attributes, skills and behaviours that can be encouraged in this early stage of a child’s life, leaving them in the best possible position as they begin transitions to secondary education and to future life. It is about learning to think about personal styles and preferences, making a bridge from what is done in school today to future options, rather than learning how to apply to jobs or prepare for interviews. In primary schools, career-related learning helps children understand who they could become and to develop a healthy sense of self that enables them to reach their full potential (Kashefpakdel, Rehill, & Hughes, 2018).

By the time they start primary school, children are already starting to form taxonomies of adult roles and maps for navigating the adult world that exerts such control over their own, on top of which they construct their own stereotypes and personal preferences (Gottfredson, 1981; Buzzanell, Berkelaar, & Kisselburgh, 2011). The question is whether children are left to forge this thinking in an unstructured manner, or whether they are supported to do so through school – just as they do with other forms of learning.

Writing over twenty years ago, Gothard (1998) drew on examples of good practice to make an appeal for career-related learning in primary. His worry was that activities relating to the core areas of pupils’ personal and social development were delayed and began after young people had developed crucial attitudes, perceptions, and understandings.

“In June 1997, six parents came into the school to talk to pupils about their work. There was a health education theme for Key Stage 1 with 2 GPs talking to Year 1 and a dentist to Years 2 and 3. Year 4 had an artist and a carpenter; Year 5’s choice (a sports person) was not possible to arrange whilst Year 6 had a Baptist clergyman. The parents were encouraged to bring in artefacts related to their work to make the talk more interesting, and pupils were encouraged to ask questions at the end of the talk. The choice of occupation was related to the children’s interest to some extent and to the availability of parents.” (Gothard, 1998, p. 36).

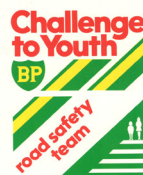
Primary schools have long provided career-related learning

Examples of practice in English primary schools supporting career-related learning and engaging with employers can be traced back over the last three to four decades, and most likely began long before.

Evidence from the HMI series on curriculum matters shows that as early as 1988, there was some level of careers provision for young people from ages 5 upwards in some primary schools (Gillard,

2011. Examples of suggested career-related activities for ages 5 to 13 included hearing stories on work-related themes like the tasks people perform, visiting farms, museums and shops, classroom activities such as plays and drama, and fiction read by an individual with links to local businesses (Gillard, 2011).

Many employers have also long been involved in supporting primary schools. For instance in 1968 BP established its Educational Service which created teaching resources for STEM teachers to demonstrate real-world environments for learning for UK primary and secondary schools.



LET'S PLAY SAFE with the Green Cross Code

Last year's road safety statistics show that young children are beginning to get the message. The most vulnerable age group is the five to nine year olds, and the pedestrian casualty rate for them dropped from nearly 300 to 287 per 100,000. In fact the rate has now dropped by nearly a quarter in the past decade. The tragedy is that there were still some 24,000 child casualties, and their accident rate is still nearly three-and-a-half times the adult rate.

The 'mechanics' of the BP Road Safety Show

The basic idea is to demonstrate simple road safety skills to young children in the five to nine year old age group by using small pedal cars and scaled down street furniture. Children from the audience act out various traffic situations under the direction of the Road Safety Show Team.

Minimum space needed is 40ft x 15ft, an area equivalent to a cricket square. School halls are fine but any indoor space large enough for the expected audience and display area will do.

- The Equipment**
- Model pedal car
 - Model ice cream van
 - Pedestrian crossing beacons
 - Imitation pedestrian crossing
 - Imitation kerb stones
 - Set children's policeman's clothing
 - Set children's ice cream salesman clothing
 - Screening curtain
- Situations**
- Mock accident and investigation
 - Green Cross Code
 - Walking in groups along the pavements
 - Use of pedestrian crossings, sea-beds
 - Traffic paths surrounding stationary ice cream vans
- NOTE: Each show normally lasts about 45 minutes.



Here London schoolchildren viewed the show.

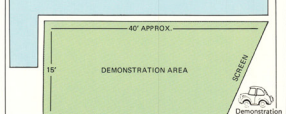


Preparing for the Team's visit

An immeasurable help in the smooth running and presentation of the Road Safety Show is making sure that everything is ready in advance. The team and unit always arrive at the school well before the presentation time. The necessary arrangements will vary according to site.

Finally, easy access to the presentation area for the unit's 150w Transit van. The team will need to park it next to the chosen venue, close at hand for the show, so no other vehicles should be allowed to obstruct this space.

Secondly, the team would appreciate the opportunity to set up their equipment before the children arrive. This adds to the element of surprise so essential to the success of the presentation.



The ideal layout for the Road Safety Team demonstration

On this point it should be emphasized that, barring normal road safety education, there should be no special teaching preparation in anticipation of the team's visit.

Thirdly, the children must be able to see the show. If they can be seated comfortably so much the better, because they will be sitting for the best part of an hour. Much of the action takes place at ground level on the 'road' controlled by the team, which makes a good view of the proceedings essential. Space must be allowed for the children to come out of the audience and take part in the show.

And fourthly, the team will need a suitably screened off area of the hall for their equipment.

The formula has proved to be a great success. In the 14 years since the campaign began the team has taken the road safety message to one-and-a-quarter million schoolchildren. Special guests last year included David Mitchell MP, Minister of the Environment in the Northern Ireland office, who sportingly joined in the proceedings at a school in Belfast.

Nor was Scotland forgotten — Tayside police's Sgt Scrim was detailed to look after the road safety team there and helped make the tour a great success. This year it will be the turn of Wales to receive special attention.



His Majesty, Mr. David Mitchell MP, Minister of the Environment in the Northern Ireland office.

Headlines like "Better than a Dozen Lecturers", one of the great many enthusiastic national and regional newspaper accolades, particularly please the organisers because such headlines sum up the team's aims. The Road Safety Show is not a lecture. It is a dramatization demanding the involvement and active participation of the children.

The services of the BP team are free of charge. As a general rule the team will spend a fortnight in each area, and because the unit was designed to be both compact and mobile, there is no need to transport all the children in any one area to a central venue. In fact, the team frequently succeeds in visiting two schools a day. Their mobility means, too, that school timetables need not be unduly disrupted.

Like many presentations the Road Safety Show gains from audience participation. So to make it worthwhile the team needs a minimum audience of 100 children. There is no doubt that the children find these demonstrations an absorbing — and often amusing — game. But it's a game that could save a life.



His Majesty, Mr. David Mitchell MP, Minister of the Environment, presents the Green Cross Code.

1983

Where to contact us...

Information concerning the BP Road Safety Show team and its services can be obtained from: The BP Road Safety Team Co-ordinator, Mr C Cook, 77 Boundary Road, Wallington, Surrey SM6 6TA. Tel. no. 01-885 7236.

...and where we'll be in '83

- London borough of Harrow, Hillingdon and Sutton
 - Surrey
 - Dorset
 - Wiltshire
 - North Avon
 - Essex
- EASTER HOLIDAY**
- London borough of Harrow
 - West Glamorgan
 - Dyfed
 - Pembro
 - Chryd
 - Staffordshire
 - Middlesex
- SUMMER HOLIDAY**
- East Nottinghamshire
 - Lincolnshire
 - Hampel Hampshire
 - Cambridgeshire
 - Kent
 - London boroughs of Merton, Sutton and Haringey.



The BP Road Safety Show will be here on

Source: the bp archive, University of Warwick, Coventry, CV4 7AL

Meanwhile, Yorkshire Water, Yorkshire Electricity and the Yorkshire Post helped start the Right to Read programme which encouraged staff to volunteer as reading partners with 7-11-year olds. And Greggs established the Breakfast Club programme for schools located in areas of high deprivation and disadvantage. Launched in Newcastle in 1999 the Breakfast Club provided children, particularly those who may not ordinarily eat breakfast, with a nutritious start to their school day.

Many of these early employer engagement activities focused on employer volunteers supporting curriculum learning or general preparation for future life, rather than specific insights about careers that might form career-related learning. Nonetheless, these additional contacts introduced children to a more diverse range of adults and the relationships built between employers and schools laid the foundations for future activities.

Early policy exploration from the late 1990s to the mid 2010s

A series of reports and policy documents from the late 1990s strengthened support for careers provision in secondary school. However, only light or indirect reference was made to potential career-related learning in primary schools.

In 1997, a re-evaluation of the value of careers education in England's curriculum led the government to work towards making careers education a requirement for all 14–16-year-olds (Collins & Barnes, 2017). By 2003, the requirement was extended to 11-13 year olds. Beginning from the first year after primary education, schools were to provide careers education for all 13-19 year-olds through their teenage years, and adult life was piloted (Morris, 2000).

The “Careers Education and Guidance in England: A National Framework 11-19” published by DfES in 2003 stated that many primary schools were already providing some sort of careers education through the curriculum (DfES, 2003) and made a recommendation for staff in Key Stage 3 to make



Pupils guess the jobs of visiting volunteers at Broughton Fields Primary School in Milton Keynes, 8th November 2018

a connection back to primary school careers provision, but stopped short of advising on what such primary-age provision should consist of (DfES, 2003).

Career-related learning in primary education remained, and remains today, non-statutory, with relatively little guidance in terms of options and expectations for provision (Hutchinson et al., 2011). The first formal moves towards statutory expectations can be seen in 2008 with the government-commissioned National Council for Educational Excellence which recommended “Awareness of world of work sessions in primary schools, particularly with engaging role models” (DCSF, 2008).

“High quality IAG is a process that needs to begin in primary schools. The proposed new primary curriculum which we plan to introduce in 2011 will strengthen younger children’s understanding of the world of work. The subject of economic wellbeing will feature in the primary curriculum for the first time.” (DCSF, 2008, p22).

In 2009, the Rose Review of the primary curriculum recommended that curriculum delivery on “understanding physical development, health, and wellbeing” should have elements of economic wellbeing relating to work. The report divided the content for teaching on economic wellbeing into early (age 0-5) middle (age 5-11) and later (age 11-13). Below is a table describing the recommended teaching contents at each stage.

Early (age 0-5)	Middle (age 5-11)	Later (age 11-13)
About the different types of work people do and about different places of work	Why people work and the different jobs people do	About the connections between their learning, the world of work and their future economic wellbeing
About where money comes from, and the choices people make to spend money on things they need and want	What influences the choices people make about how money is spent	About how people manage money and about basic financial capability
Ways to contribute to enterprise activities	How they can contribute to a range of activities that help them to become more enterprising	To show initiative and take responsibility for activities that develop enterprise capability

Recommended Learning Content on Economic wellbeing. (Rose, 2009, 186-187)

Around the same time as the Rose Review, a Key Stage 2 pathfinder pilot was launched, with a formal evaluation funded by government and published in 2010 (Wade et al, 2010). The pilot aimed to “increase pupils’ awareness of career/work opportunities; increase their understanding of the link between education, qualifications and work opportunities; reduce gender-specific career/role stereotypes; and engage parents/carers in the process and so change their attitudes, perceptions and aspirations relating to their children’s education and career choices”. The evaluation found that introducing career-related learning at Key Stage 2 increased and widened pupils’ education and career aspirations in disadvantaged areas.

“The apparent positive outcomes of the pilot for pupils support the idea that providing career-related learning at Key Stage 2 is an optimum time, as it is when pupils are still open and responsive to new ideas, and before they

begin to narrow down their options. However, since the evidence indicates the Pathfinder's particular potential contribution towards 'closing the gap', it is suggested that the DfE stress the potential value of such career-related learning activities for schools where these may be most effective; namely, on schools situated within areas of economic and social disadvantage." (Wade et al., 2010, p.viii).

This activity culminated in a Careers Education Framework spanning the ages of 7 to 19, intending to embed career-related learning activities at "Key Stage 2 and prepare for the introduction of economic wellbeing into the primary curriculum in 2011" (DCSF, 2010). Although the new framework was never formally implemented, this programme of work encouraged some primary schools to develop their practice and prompted thinking and planning among official education sector bodies building on the recommendations from early pathfinder projects.

For instance, the qualifications authority published a report in 2011 providing further evidence for sectoral support for careers education from age 5 through to age 19, including discussions on employer engagement and work-related learning (QCDA, 2011). In the same year, Ofsted published an evaluation study of enterprise activities in 28 primary schools (Ofsted, 2011). Ofsted found that the primary schools were offering children a good understanding of the role of money, the fundamentals of economic and business principles, and enterprise capabilities in general, but noted inconsistency in the delivery of career-related activities, a lack of clear learning outcomes in the primary schools, and poor links between primary school and secondary school provision.

In 2015, the Department of Education published statutory career guidance for governing bodies, school leaders and school staff in maintained schools (DfE, 2015). The guidance document indicated the duty of schools to provide impartial careers guidance for pupils beginning from years 8-13, i.e. age 13 upwards. Although there was no corresponding duty for earlier stages of education, the document emphasises the value of starting careers provision early in general.

"Schools should also ensure that, as early as possible, pupils understand that a wide range of career choices require good knowledge of maths and the sciences. Schools should ensure that pupils are exposed to a diverse selection of professionals from varying occupations which require STEM subjects, and emphasise in particular the opportunities created for girls and boys who choose science subjects at school and college. Schools should be aware of the need to do this for girls, in particular, who are statistically much more likely than boys to risk limiting their careers by dropping STEM subjects at an early age." (DfE, 2015, p.7).

Growing sectoral support during the 2010s

Although the provision of careers education in primary schools remained non-statutory, some schools engaged energetically to develop opportunities in Key Stage 2 to learn about the world of work through the curriculum (Andrews, 2013). Key sectoral bodies also began to place more emphasis on primary age career-related learning.

The Association for Careers Education and Guidance (ACEG) published a new career learning and work-related activities framework in 2012 that set out recommended outcomes for Key Stages 2, 3 and 4, as well as post-16 education and training. The ACEG framework had three main areas: self-development through careers and work-related education; finding out about careers and the world of work; and developing skills for career wellbeing and employability. There were 17 learning outcomes for Key Stage 2, including understanding enterprise, being aware of different jobs and identifying essential qualities employers demand (ACEG, 2012).

In 2015, the Career Development Institute (CDI) published a new framework for careers, employability, and enterprise education for the ages 7-19. The CDI framework saw provision beginning from Key Stage 2, recommending the eight Gatsby Benchmarks as guiding principles for early career education, even though the Benchmarks were initially drafted with secondary education in mind. The guidelines stated that at Key Stage 2 schools should integrate careers, employability, and enterprise learning into existing curriculum thematic areas. They included coverage of Gatsby Benchmark 5: Encounters with employers and employees (Career Development Institute, 2015).

Parliamentary committees also began to pay more attention to primary age career-related learning. In 2013, the House of Commons Education Committee published a report advocating for the extension of the statutory duty of careers provision, with witnesses strongly supporting the extension of provision to at least Year 8 (12–13 year-olds) and some arguing for extension to primary age (HC, 2013). A 2016 report from the House of Lords Select Committee on Social Mobility recommended that careers education and guidance should start early, quoting Nick Chambers and the Education and Employers Charity regarding the importance of a wide experience of the world of work (HL, 2016).

“One Key Stage 2 student explained: ‘I like having the professionals come to our school and talk about [their job]’ because she could then ask them questions. Another said: ‘I kind of felt excited learning about jobs, because some of them I didn’t really know about’. Staff members similarly felt that external speaker talks are valuable. For example, a headteacher stated: ‘The visitors are great. Wherever we can get real life people that do various things is wonderful because children are actually so fascinated, they are buzzing with questions.’” (Zoe et al., 2017, p.9).

Exposure to STEM careers has remained an important area for government policy throughout, often supported by early engagement between primary school children and employers. For example STEM Learning has been working with primary schools since 2005 and its programmes and resources are now accessible to every primary school in the UK. The organisation runs programmes that embed employer engagement experiences into education, such as the UK’s STEM Ambassador programme and the ENTHUSE Partnerships, which enable sponsoring employers to develop strong links with schools. A recent report on employer engagement highlighted Thorntons, who work with a part-time education specialist to organise outreach work with schools beginning at the primary level, and a project for primary schools on recycling plastics created by Veolia and a STEM Ambassador Hub (STEM Learning, 2018). Another example is Jaguar Land Rover, which engages primary schools through its Jaguar Maths in Motion and Jaguar Primary School STEM challenges.

Provision expanded to respond to this growing interest. For instance the London Ambitions Career Offer, commissioned by the London Enterprise Panel and London Councils, set out a pragmatic way to tackle some of the challenges that young people face when trying to make the right career choices (London Councils, 2015). This strategy aimed to support London schools with their careers provision, emphasising equipping young people with relevant experiences, skills, and qualifications from an early age. Titled “Shaping a Successful Careers Offer for all Young Londoners” and prepared by Dr Deirdre Hughes OBE, the strategy recommended that activities in Key Stage 2 should include introducing pupils to role models “e.g. inspiring people; employers [offering] at least one hour of their time to primary schools” (London Councils, 2015, p41). The focus was on “raising awareness about careers now and in the future: widening horizons and not closing down options” (ibid, p39). The strategy was launched by the Mayor of London, Boris Johnson, at Primary Future’s What My Line event at City Hall in June 2015.

“Imagine every young person in London thinking about routes to a successful working life from an early age, confident they are gaining valuable experience and exposure to the world of work. Also imagine every young person feeling sure they can access reliable careers, enterprise and employability support from a wide range of sources. Along the way, they will meet people who inspire them, experience places that energise and motivate them to connect day-to-day learning to future work possibilities, and undertake projects that stretch and challenge them to achieve more and aim higher.” **London Ambitions (London Councils, 2015, p8)**

Two years after the start of the London Ambitions portal, the London Councils and the National Foundation for Educational Research (NFER) undertook research to evaluate the project, which included a primary school delivering good practice in career-related learning (Zoe et al., 2017). Good practice included schools drawing on multiple sources for career-related learning, such as the London Ambitions portal, the Primary Futures tool, Business in the Community programmes, as well as the contacts of staff, governors and parents and established business connections. Nonetheless, while examples of good practice were present, they remained limited and ad hoc. The Department for Education wrote in 2017 that “Outstanding programmes like Primary Futures give primary schools access to a diverse range of experts, who deliver sessions that help raise children’s aspirations and counteract stereotypes about the people who do different jobs. But there is no consistent approach across primary schools and limited evidence and best practice for schools to use when planning their activities.” (DfE, 2017, p.15).

Reflections from the National Association of Head Teachers

“In my 24 years as a Head Teacher, inviting visitors to come into my primary school to talk to the children was nothing new. I suspect it was the same for many school leaders across the country. Indeed, thinking back to my own time in school in the 1960’s I can still remember then the occasional visitor from the world of work.

Those visitors from the outside world to my school in Barnsley often included the local community PC, British Transport Police, the corner shop owner, the lollipop man/lady, the fire brigade and any other locals I could find! That was one of the big challenges.... the visitors tended to be local people, often already known to the children, and those from external agencies who came in with a specific message, often a warning about fire safety, trespassing on the railway lines nearby or similar. It’s probably fair to say that in most cases the children were ‘talked at’ with only limited two-way interaction. Whilst we did plan follow up activities they were perhaps at best random! Looking back there were many missed learning opportunities.

What we really wanted was a way to show the children a world beyond that which they occupied, not in any way to demean their local area but to show them there are wider future opportunities which they might never have either thought of or even heard of. Raising their self-belief and aspirations was one of our challenges and key aims.

So what we really needed was the ability to locate and invite in enthusiastic volunteers from all walks of life, both from the locality and beyond, who could not only share their world but also help to inspire and raise the aspirations

of the children. We wanted learning conversations not just in an assembly but in class-based and small group discussions, as well as ideas from other schools about the best ways to work with volunteers. Schools are incredible innovators!

Those reasons led me in 2013 to volunteer for a NAHT / Education and Employers pilot that looked at how schools could easily invite a wide range of volunteers who could help broaden children's horizons and raise their aspirations. This pilot was very impactful and led to the creation of Primary Futures."

**Steve Iredale, Past President, National Association of Head Teachers
Head Teacher, Athersley South Primary, Barnsley 1993-2015**

The National Association of Head Teachers and Primary Futures

The strongest manifestation of growing sectoral support during the 2010s was the lead taken by the National Association of Head Teachers (NAHT). In 2013 its President Steve Iredale, Head Teacher of Athersley South Primary, was asked by their executive committee to look at what could be done to improve attainment and pupil motivation especially in areas of high disadvantage.

In partnership with Education and Employers, who had set up the Inspiring the Future platform the previous year, Steve Iredale started a pilot at his school, which was located in an area of high disadvantage in Yorkshire. The initial focus was on getting volunteers from the world of work to



A volunteer talks to children about her job – Howes Primary School in Coventry, 15th March 2019

read with pupils. However, it quickly became apparent that the biggest impact was on motivating children, giving them the chance to meet people from the world of work they did not typically get to meet. There followed a series of pilots which examined how to best bring learning to life by helping children relate what they were learning in the classroom to their possible futures. The goal was to help broaden children’s horizons, motivate academic participation, inspiring and informing them, ultimately contributing to improved motivation and attainment.

Using the results of these pilots, Primary Futures was launched formally in 2014. Since then the NAHT and Education and Employers have been strong advocates and campaigners on the importance of early interventions and the impact role models from the world of work can have on children’s life chances – especially those children from disadvantaged backgrounds.

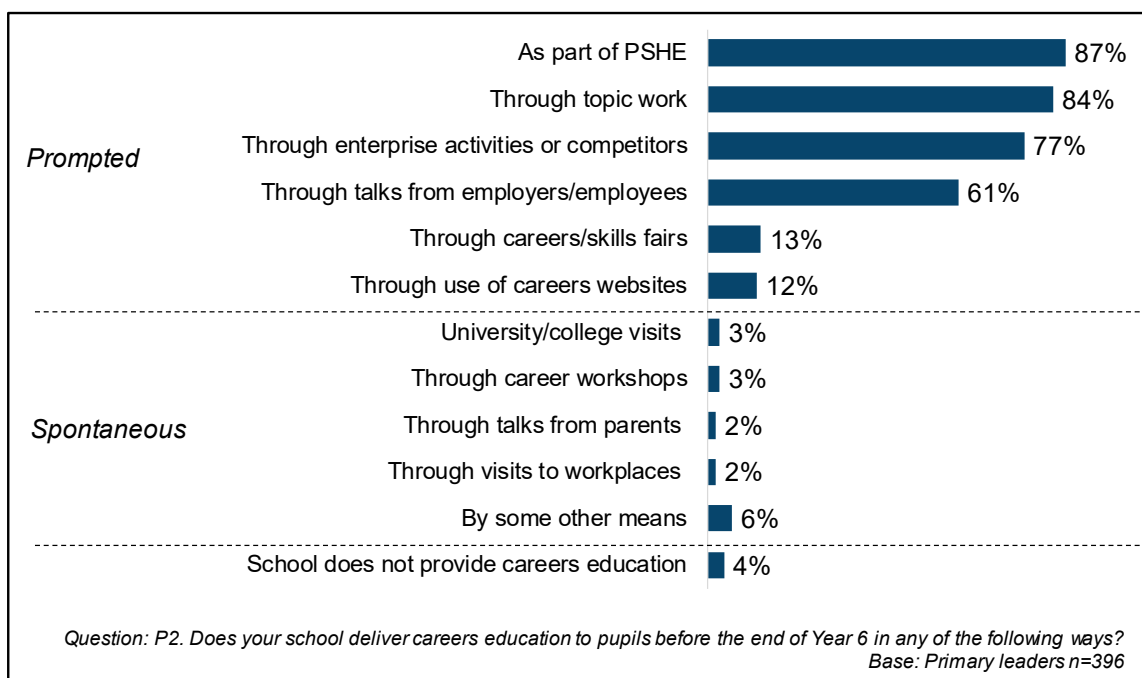
The 2017 Careers Strategy and the future

At the end of 2017, reflecting the developments in the sector and the increasing evidence base, a new government strategy in England highlighted the potential value of career-related learning at all ages, including £2m for primary age provision (DfE, 2017).

“Starting next year, the government will test what careers activities are appropriate and work well in primary schools, providing £2 million to test new programmes or expand ones that work, including in challenging areas. We will also work with the CEC and interested Opportunity Areas to explore new approaches to employer engagement and early careers activities in primary schools. We will share the results widely so other schools can benefit and build their expertise.” (DfE, 2017, p.15).

This strategy was to be underpinned by new research from government exploring the delivery of career-related learning. In 2018, the vast majority of 396 primary school leaders explained that career-related learning was already part of their provision (DfE, 2018b; see chart).

In 2018 the DfE published a statutory career guidance document for schools and colleges (DfE, 2018a). Although the statutory guidance focused on careers education provision from Key Stage 4 upwards, it explicitly indicated that schools should begin careers education from an early age and



Career-related activities in primary schools (DfE, 2018b, p. 76; n=396 primary school leaders)

such career-related activities should be delivered through the curriculum as part of their commitment to Personal, Social, Health and Economic education (often called PSHE):

Schools should ensure that, as early as possible, pupils understand that good maths skills are a necessary element of citizenship, and that studying maths and science can lead to a wide range of career choices. Schools should ensure that, by the age of 14, every pupil is exposed to the world of work. This should include meeting a range of professionals from occupations which require maths and science qualifications, as well as highlighting the importance of maths to all jobs. These meetings should emphasise the opportunities created for young people who choose maths and science subjects at school and college.” (DfE, 2018a, p.21).

The value of career-related learning and employer engagement attracts cross-party support, with MPs from many parties supporting events over the years.

Most recently in December 2020, Gillian Keegan MP, Minister for Apprenticeships and Skills, took part in a Primary Futures virtual event, joining the local MP, Imran Khan, an engineer for Aston Martin, and a graphic designer in talking about their careers and answering questions from children. For instance, the graphic designer pointed out the signs and displays the children had in their classrooms as a way of showing how prominent graphic design could be. To give an example of how graphic design can work, he talked through his thinking process behind a book cover he designed; the colours he used, the pictures, the text – and how this all came together to advertise the product. Gillian Keegan MP spoke about her early work as an apprentice in a car factory and how this experience would ultimately lead to becoming the Minister for Apprenticeships and Skills.

In 2019, Damian Hinds MP, Graham Stuart MP and Emma Hardy MP hosted a cross-party event in the House of Commons which brought together MPs from across the country and across political divides to help primary aged children learn more about their career paths on their way into Parliament



9 December 2020, Primary Futures event with Gillian Keegan MP, Ossett South Parade Primary School in Wakefield

(www.educationandemployers.org/mps-unite). In the same year, the Secretary of State for Education visited a primary school as part of a career-related learning event and expanded on the importance of career-related learning during National Careers Week.

“Careers advice has thankfully moved on from my school days, where I once did a multiple-choice test and was told I should work in catering. Good careers education is such a valuable asset that will help children to explore future possibilities and go on to lead happy, rewarding lives. I’m pleased to know that so many primary school pupils have access to career-related learning to expand their ideas of who they could become in the future. But we want to make sure that support is available to everyone and that it’s of the highest standard, so that is why we are working with industry experts to produce support primary schools” – Damian Hinds MP, Secretary of State for Education (DfE, 2019).

The pandemic and a move to interactive virtual events

In 2020, even as Covid-19 disrupted the economy and education provision, career-related learning continues to develop, responding to the challenge laid down in 2019 by the Secretary of State.

For instance, in October 2020, The Careers & Enterprise Company launched a new careers platform: the Primary Careers Resources Platform, designed to help embed career-related learning in school’s curriculum, conduct career-related learning activities with pupils, and engage parents and other stakeholders in career-related learning (The Careers & Enterprise Company, 2020).

Baroness Nicky Morgan initiated the setting up of The Careers & Enterprise Company when she was Secretary of State for Education, building on her previous history of support for the sector. She too supported Primary Futures, taking part in one of the first ever events in October 2014:



Damian Hinds MP. Secretary of State for Education with pupils from Barnham Primary School, Wembley

“I am delighted to support Primary Futures. We want schools to connect with industry and the business community in order to inspire children to consider the vast array of different opportunities available to them. Professional people are giving their time for free to show children that there should be no limit to what they want to do with their lives. These visits will help to show children what they can achieve. It is exciting to see schools taking the initiative in this way.” (www.tes.com/news/primary-schools-sign-inspiring-talks-boost-pupil-aspirations).

Since those early visits in 2014, Primary Futures has continued to develop. The global pandemic of 2020 has spurred innovation in the platform, pioneering new virtual and interactive ways to connect children with volunteers from the world of work across all different backgrounds and sectors.



An example of the adaptability of Primary Futures was the virtual events organised this year in Davos during the World Economic Forum (WEF). Each January since 2019, Education and Employers has organised for people who are in Davos for WEF to visit local schools and chat to children. Due to Covid-19, there was no-one from WEF in Davos in January 2021, but Education and Employers was keen the children should not miss out and organised for people from different parts of the world to chat to the children virtually.

1. <https://www.educationandemployers.org/davos-2021/>

Primary Futures at Davos for the World Economic Forum

Pandemic (January 2021)



Children share the experience of a virtual WEF event, talking with an author, an interpreter, an organisational consultant, and a manager from a telecommunications company

Pre-Pandemic (January 2019, January 2020)



Raj Janagam, CEO of Surge Impact talks to children at Volksschule Davos (2019)

Evidence of impact: Stereotypes, future insights, and attainment

This chapter summarises the extensive pupil testimony and teacher experience that career-related learning can help children broaden their horizons, overcome stereotypes, and become more motivated in class. This evidence has been identified in multiple surveys since 2014, gathering the ideas of around 1,000 teachers and 10,000 children, underpinned by case study insights and qualitative discussions. Example findings include:

- 90% of primary school teachers reported in 2017 that ‘involvement in activities with employers’ could impact the **academic achievement** of pupils.
- In 2018, the top three outcomes for teachers were challenging **gender stereotypes**, bringing **learning to life**, and **broadening children’s aspirations** - supported by 97%+ of respondents (with 60%+ strongly agreeing).
- After career-related learning, 82% of 9,300 children agreed that “I now understand how learning **Maths/English/Science can be useful** in many jobs”, with the response even more positive for schools in the most disadvantaged areas.
- Out of 1,200 children in the most disadvantaged schools, 78% said "I now know there are lots of jobs available to me when I grow up" and 74% said "I feel **more confident in what I can do** after today’s activity".
- After a single day's activities, 25% of 7,900 children even said it had **changed their mind** about their future job interests - with a further 25% saying it might have done.

Statistical research evidence from around the world reinforces pupil testimony and teacher experience about positive impacts. This chapter summarises five key pieces of research:

- A **randomised control trial of enterprise education** in the Netherlands shows gains in areas like self-efficacy, persistence and creativity.
- Benefits in areas like career aspirations, attendance and attainment, particularly for disadvantaged pupils, were identified in an analysis of 5,000 9-10 year olds in the UK **comparing intervention schools against control group schools**.
- A series of studies in the US relate a programme career-related learning and counselling with higher grades in standardised tests, with example **increases of c. 6%pts in proficiency rates in English and Maths** compared to similar schools not implementing the programme.
- A survey of almost 10,000 primary children aged 4-11 showed that the more career-related learning pupils had done – or jobs they had heard about - the more likely they were to have a job that **interested them in the future** and the more **positive they felt about school subjects**.

- In **pre/post analysis** of primary children aged 6-11 in England, participating in career-related learning helped children to reject **stereotypes around STEM and gender equality**, increased confidence in the usefulness of school, and enhanced motivation to **try their best**.

Before presenting evidence of impact, this chapter explains the theoretical importance of starting early with career-related learning. Career development researchers explain the influence of early thinking about jobs, beginning as young as aged 3-5, and analysis of aspirations show that career plans in Key Stage 2 are structurally similar to ambitions aged 16-18, around a decade later. In primary school we already find the roots of career-limiting stereotypes that fuel social inequalities, hold back individuals from thriving, and constrain economic potential.



An NHS volunteer explains her role to children during a Primary Futures activity

“Anything which refocuses children and gets them reflecting on themselves and their learning/ futures is a positive thing. They need time and someone to listen and advise.” **UK Primary School Teacher respondent to 2017 YouGov survey**

Career-limiting stereotypes

Researchers have found that children start to develop their career preferences during primary school (Gottfredson, 1981; Buzzanell, Berkelaar, & Kisselburgh, 2011; Super, 1980). This academic work has been reinforced by surveys of children, including most recently an analysis of 4,000 five-year-olds in England and Estonia (OECD, 2021b). The OECD found that gender norms were already strongly evident in job preferences at the age of 5.

Children aged 3-5 have already developed basic knowledge about professions, an understanding of professional status hierarchy, and 'appropriate' professions in terms of gender and socio-economic status (Cinamon & Yeshayahu, 2020).

Howard et al (2011) develop a model of children's conceptions of career choice and attainment, recognising the different, common approaches used by children to reason about careers. One case study highlighted by the authors illustrates the importance of early thinking about careers and chance encounters: "Zoe is a Caucasian, able-bodied girl growing up in a [US] Midwestern city. When Zoe turned 4 years old and was asked what kind of job she would like to have when she grew up, she responded that she wanted to be a doctor. When asked about how she decided on that particular occupation, she talked about her pediatrician Dr. Russell whom she indicated was nice and gave her stickers."

The point is not that Zoe will become a doctor – she may do, but equally she may change her mind a dozen times in the coming years. Fantasy jobs and fast-fleeting ambitions are part of life at such a young age – something to be enjoyed, nurtured and treasured. The point is that children at this age are already naturally forming ideas about possible future jobs, based on who they encounter and how they interact with them. These early experiences can either translate into positive, ambition-affirming expectations of the future, or be interpreted negatively by the child, making them feel anxious about the future, and confused about the links between education and success. The question is not whether "career-related learning" should start at the primary age – we already know it starts then and the interactions that drive it cannot be prevented – the question is whether we actively support such learning through the school system. The school system can help introduce more diverse experiences to more children, especially those who might get fewer in their day-to-day life, and frame those experiences in positive, constructive ways.

The research by Howard et al (2011) also helps inform the type of activity that may be most valuable for the younger age groups. The authors note that children often focus on specific, usually external, observable objects, activities, or experiences that are associated with a job/career (e.g., the place of work or the dress of the worker). Children want to be able to picture themselves in various work roles or work environments, incorporating an ever increasing complexity of jobs into their play. In turn, events with volunteers from the world of work should seek to engage props, imagery, and dress; should place work within a physical, interactive context that might be replicated in games; and should be supported with the same spirit of creativity and exploration that characterises play.

Links to gender and occupational equality

Recent work by the Fawcett Society's Commission on Gender Stereotypes in Early Childhood affirms the potentially damaging impact of early gender stereotyping (Fawcett Society, 2020). The Commission found that gender expectations limit children, causing such problems as limited career choices, lower self-esteem in girls and poorer reading skills in boys, and contribute towards the mental health crisis, being at the root of girls' problems with body image and eating disorders, higher male suicide rates and violence against women and girls.

Stereotyped views are widespread by the age of seven, as seen in research from Education and Employers (Chambers et al, 2018) and replicated internationally (e.g. New Zealand: Tertiary Education Commission, 2020).

In New Zealand, the evidence of early stereotyping has inspired the government to officially launch their own primary futures programme called 'Inspiring the Future New Zealand' in May 2021, modelled on Education and Employers' programme and following the launch of Drawing the Future research in the New Zealand Parliament in February 2020.² Minister of Education, Chris Hipkins said:

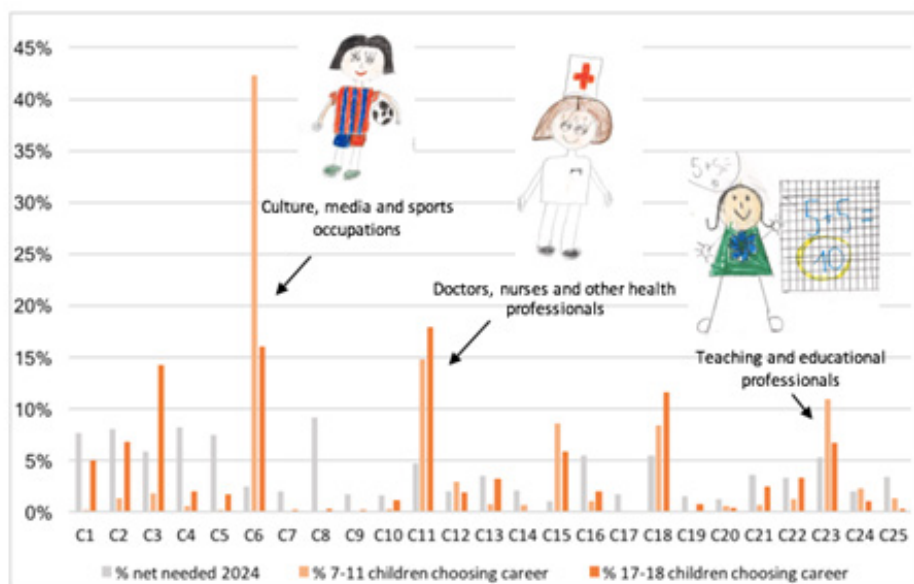
2. https://www.inspiringthefuture.org.nz/en_nz/about/

“From a really early age, kids form stereotypes about what types of jobs are good for boys and what types of jobs are good for girls. We want to help broaden their aspirations. This is not about providing ‘careers advice’ but about breaking down barriers, broadening horizons and raising aspirations, giving children a wide range of experiences of the world including the world of work. You can’t be what you can’t see and we need to stop children from ruling out career possibilities because they believe, implicitly or explicitly, that their future career choices are limited by their gender, ethnicity or socio-economic background.”

Gender stereotyping can be easily identified from the age of 7, with its roots found years earlier. In a large-scale survey of primary aged pupils, over four times the number of boys wanted to become engineers compared to girls and nearly four times the number of girls wanted to become vets compared to boys (Chambers et al, 2018).

Socio-economic background and direct exposure are also important factors. Among girls from more affluent backgrounds, architects, engineers and vets are more popular career choices, whereas hairdresser, nurse, retail sales assistant and beauty therapist are more popular for those from more disadvantaged backgrounds. While sportsman/sportswoman was the most popular career ambition across all ethnicities, there are other ethnically-patterned preferences that may relate to different experiences and exposure to adults. Doctor or scientist appeared in the top five jobs chosen by all ethnic groups analysed except White/White British. Police roles appeared in the top five for all ethnic groups except Black/Black British.

There may also be more negative responses to occupations that are degree-led for children from families where no-one had the opportunity to attend university. This is one of the principles motivating The Scholars Programme, run by The Brilliant Club for children aged 9 to 17, which allows children to work side-by-side with a PhD researcher to experience university-style learning.



Project demand by economic sector (C1-C25) vs primary and secondary school children choosing careers in those sectors (Chambers et al, 2018)

Among young people who knew someone doing the job they drew, parents and extended family were the most influential in children’s career aspirations. Only 1% of children drew a job because they heard about it from someone visiting their school. If not their family, children had overwhelmingly heard about the career from media such as TV or YouTube. In the sample, nearly nine times the number of girls wanted to become teachers compared to boys. This finding may be influenced by what they see around them, as the majority of primary school teachers are female.

Narrow horizons vs economic diversity

From a policy perspective, concerns are also raised by the narrowness of occupational aspirations, the disconnect with projected economic demand, and the persistence of impressions from the 'dreaming' stage of primary school career thinking into the 'planning' stage of secondary school (see chart on project demand by economic sector). These findings are reinforced by the large-scale ASPIRE surveys, that show the persistence of career aspirations from age 10/11 at the end of primary school through to age 17/18 (see chart).

Such evidence on the formation and persistence of stereotypes, the limited exposure of primary age children to diverse, representative and realistic modes of future careers, and the broader case for early intervention has urged researchers at the OECD to call for greater career-related learning at primary school (Musset & Kureková, 2018). Challenging stereotypes and broadening the diversity of talent available to key sectors is not just about equality of opportunity, it is also about quality of outcome. Recent work by the OECD (2021) makes the link between the role of increased gender diversity in science for tackling climate change and the need to start challenging stereotypes at primary age.

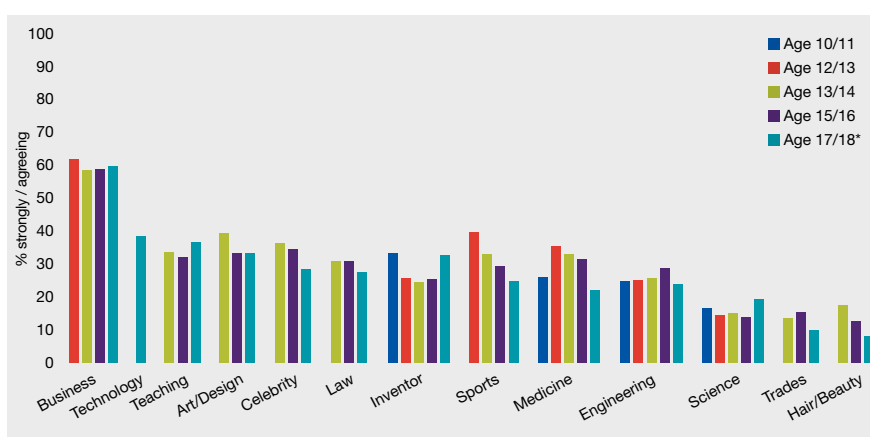
As Fisher and Fisher (2018) have demonstrated using US data, the proportion of parents who know various professionals or managers in the knowledge economy varies widely by their education level. They argue that children's networks, on which they can draw for support, advice or opportunities in the future, is largely determined at random - where they are born, who they sit next to in class, and who their parents know. Their future prospects are significantly affected by parental "social capital", the benefits that people can accrue by virtue of their relationships or membership in social networks. As Granovetter (1973) has demonstrated, social capital is not just about deep relationships; significant power also lies in "weak ties". Access to information and insights about opportunities in the working world via a broad network of light-touch contacts or fleeting interactions can also prove influential. This principle is regularly invoked in explanations of evidence showing that employer engagement can enhance young people's routes through education and into work (see, e.g. Stanley, 2014).

Experience of teachers

Tackling stereotypes is one among many benefits that teachers report achieving through career-related learning.

Education and Employers has conducted or commissioned independent surveys with primary school teachers and leaders multiple times since being founded, with key surveys taking place in 2014,

A summary of British students' career aspirations by age



Source: Analysis of ASPIRE datasets (Archer et al, 2020:5)

2017 and 2018, recently supported by feedback data on events and CPD from a further 200 teachers in 2020/21. The messages that come through are strikingly consistent about the power of direct employer contact to enhance their provision, both among teachers who already work regularly with employers and those who do not.

YouGov ran a survey in April 2017 that included 478 UK primary school staff (Education and Employers, 2017). 90% reported that ‘involvement in activities with employers’ could impact the academic achievement of pupils. Respondents commented on children being more motivated as a result of ‘seeing the big picture of why we are educated’, as well as the inherent value of diversity: ‘people from the community and businesses gives them a broader diet of interactions and helps them gain knowledge in a far more valuable way than a teacher simply teaching a lesson’.

“Children need to be able to aspire to something. They benefit from talking to people from all walks of life and who have different experiences. It helps children understand the value of all aspects of their education not just the passing of exams. They may see that not being good at exams does not prevent them from success. [...] By bringing in role models from all walks of life we can alleviate the drudgery of a highly prescriptive curriculum.”

UK Primary School Teacher respondent to 2017 YouGov survey

Almost 80% of primary teachers who responded to the survey agreed that volunteers challenge gender stereotyping about jobs and subjects, providing one important channel through which attainment can be held back for stereotyped groups.

Links to motivation and attainment

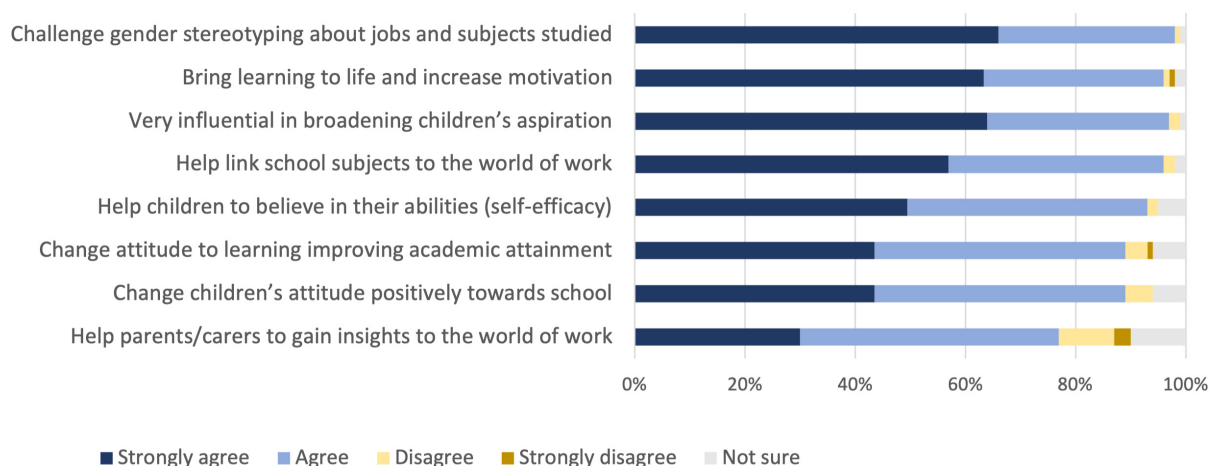
Some employer-supported activities also have a direct link to attainment, because the volunteers are providing curriculum support. A review by Education and Employers of the Number Partners scheme (Morris, 2014) is one such example. The survey examined 28 primary schools that used employer volunteers to provide numeracy support to children aged eight to ten (typically in weekly sessions of 15–30 minutes). As well as the direct benefit of extra time working on numeracy, respondents highlighted increased pupil confidence as the single most powerful observable effect. Participation in such programmes led to feelings of heightened self-assurance—children believing that if they applied themselves, they would be able to resolve maths problems—an attitude strongly related to attainment.

Supporting numeracy is not career-related learning in the strict sense of its definition, but teachers repeatedly emphasise the power of softer benefits from these activities, in addition to any immediate curriculum-related gains. For instance, teachers point to the attitudinal and behavioural changes that come from interacting with diverse adult volunteers, each providing an idea of possible futures, whether directly or indirectly.

In March 2018, Education and Employers, in collaboration with National Association of Head Teachers (NAHT) and Times Education Supplement (TES), surveyed primary schools’ responses to the Government’s 2017 Careers Strategy, how primary schools develop pupils’ understanding of the world of work and the challenges they face in doing so.

Teachers’ responses about outcomes from employer activities (see chart below) illustrate the point. The top three outcomes, supported by 97%+ of respondents with 60%+ strongly agreeing were around challenging gender stereotypes, bringing learning to life and broadening children’s aspiration. The next two outcomes, supported by 95%+ respondents with 50%+ strongly agreeing, make the link directly to attainment – linking subjects to the world of work and helping children believe in their abilities.

Primary Teachers' Expectations from Employer Activities (2018 NAHT/TES survey; n=250)



Education experts at the OECD also identify this link to motivation and attainment. As Andreas Schleicher said in 2017: “The OECD’s international work consistently shows that young children are full of enthusiasm for learning, but as they get older, too often they struggle to see the point of what they are learning and how it relates to their future and, as a result, their educational attainment drops. This is particularly a concern for children from disadvantaged backgrounds who lack successful role models from the world of work. Giving primary school-aged children the chance to meet people from the world of work can help them to understand the relevance of subjects they are studying – and, in so doing, improve motivation and attainment.”

Broadening horizons and channelling aspirations

In primary school, career-related learning is more about broadening, informing and channelling aspirations, rather than raising aspirations in the abstract. Young children are still in the ‘dreaming’ phase of career aspirations; they are more likely to aim absurdly high than too low, wanting to be an alien scientist or some supernatural being when they grow up. The Joseph Rowntree Foundation (JRF) conducted a programme of research revealing that parents of young children typically have very high aspirations for their children (Kintrea et al, 2011; Carter-Wall & Whitfield, 2012) and that initial aspirations are comparably high between geographical neighbourhoods of different levels of disadvantage (Kintrea et al, 2015).

Instead, the challenge lies in accessing and drawing on high-quality information, networks and opportunities, to direct an initial generic “high” aspiration into more specific ambitious goals and a specific pathway as children grow up and transition to secondary school. Children need to gradually build an understanding of how to pursue their aspirations and be supported in doing so. In other words, the challenge is to ensure equal access to resources and opportunities, so as to maintain faith in high aspirations over time. For instance, by the time their children are 9 years old, the maternal aspiration gap has widened significantly compared to when their children were younger: 81% of the richest mothers reporting that they hope their 9-year-old will go to university, compared with only 37% of the poorest mothers (Goodman & Gregg, 2010).

Rather than focusing interventions on raising aspirations in general, the JRF recommends interventions “that help pupils understand how to achieve their aspirations and which raise their attainment” (Menzies, 2013, p4). Role models provide a tangible hook for such aspirations, as well as the lived experience of a specific journey to reflect on. Questions between employer volunteers and children allow that experience to be mined for relevant details and the interactive format makes it more likely children will engage and remember what they learn, particularly where supported by

the classroom teacher to prepare probing questions that relate to children's specific anxieties or misconceptions. Indeed, there may be new opportunities for tackling regional disadvantage unlocked by the shift to remote working for an increasingly wide range of employers that has been accelerated by the pandemic of 2020. For instance, more young people might be encouraged and supported to stay in or return to disadvantaged neighbourhoods, starting new businesses or expanding the remit of existing businesses into those areas. Others might be inspired to move to neighbourhoods that were not in scope before, opening up areas with greater opportunities for social impact and commercial success, underpinned with lower initial costs during crucial preparation and development phases.

Some children struggle with academic motivation if they fail to see the relevance of schooling to their future lives, particularly if they are from families who have seen little personal evidence of positive benefits from schooling. Meeting volunteers from the world of work can demonstrate the value of subjects in post-school life. These findings are similar to what Professor Archer's research team on STEM subjects has identified through the ASPIRE project (Archer et al, 2013). Children with low 'science capital' struggle to see the application of science to jobs other than doctor, science teacher or scientist. They disengage because they do not see the relevance of the subjects to their life; employer volunteers can counter such disengagement.

Many of our children come from families where there are few or no working adults, limited experience of work and sometimes, as a consequence, very low aspirations. I am organising speakers to come into school and talk about their chosen career and excite the children about work." Primary School Teacher in Brighton (Morris, 2014:5)

Primary school middle leaders interviewed by Kashefpakdel, Rehill and Hughes (2018) were quick to point to specific examples to support their arguments, such as a primary school in London who argued: "Children absolutely see the link between what they're learning and the world of work. When we were learning about the circulatory system and we had a doctor in and we had a surgeon at some point and they were talking about surgery and stitching people up, that was a direct link there." (p13).

Other researchers and education experts have engaged teachers about primary-age learning, reinforcing the evidence in this section (e.g. Millard et al, 2017; QCDA, 2010). For instance, the Qualifications and Curriculum Development Agency (QCDA, 2010) reviewed 'work-related learning' for young people aged 5-19, with insights on the impact and guidelines for good practice drawing on the testimonies of 12 primary school teachers.

Testimony from pupils

It can be hard to get a complete picture when asking primary school children to describe the impact of a particular activity on their attitudes or behaviour. In work with younger children, we draw on diverse methods, including drawing exercises, video footage, exploratory discussions, and word clouds, as well as short tick box surveys in simple language.

The challenge – and delight – of breaking stereotypes

In 2016, Mullen Low made a two-minute film pro bono for Education and Employers. Shot on location at Whitstable Junior School in Kent, 66 children were asked to draw a picture of a firefighter, a surgeon, and a fighter pilot. 61 drew men, five drew women. They were then asked if they would like to meet real-life versions of their drawings. #RedrawTheBalance captures the exact moment the children saw the three people talking off their helmets and masks and the astonishment of the children's faces that they were all female. The wide eyes, shocked smiles and delighted conversation with the three volunteers tells more than any survey.



The Big Reveal! Screenshots from #RedrawTheBalance, using employer volunteers to inspire children, tackle gender stereotypes, and enhance motivation at school.

None of this means it is easy to overcome gender stereotypes or that the workforce in certain professions is not primarily male (or indeed primarily female in other professions); but these events provide a platform for the teacher to talk about the professions, what it takes to succeed, and inspire children not to dismiss certain subjects at school or certain careers out of hand simply because of the stereotypes and common role models they see in those areas.

The film continues to generate interest and has been recreated all over the world, including Denmark, China, and Canada, after the original received over 100 million views. The video can be viewed at: www.inspiringthefuture.org/redraw-the-balance, with international versions available via: www.educationandemployers.org/17497-2.

What jobs do children draw?

Visual media was also key in Education and Employers’ international survey of primary age children in 2018, Drawing the Future (Chambers et al, 2018). The report was launched formally during the World Economic Forum in Davos in 2018, the result of a collaboration between Education and Employers, NAHT, the OECD, TES, and UCL Institute of Education. The launch can be seen at www.weforum.org/agenda/2018/01/kids-draw-their-future-jobs-careers.

Drawing the Future used a simple template to combine drawing alongside a number of key questions



An example use of drawing as part of career-related learning (Chambers et al, 2018)

to better understand what shapes children's aspirations. Specifically, the survey asked children aged between 7 and 11 years-old to draw what they wanted to be when they were older, and asked where they heard about that job, for instance through their parents, family, television and/or social media. The survey reached 13,070 primary school children in the UK between September and December 2017, as well as around 7,000 children from 19 countries outside the UK.

Drawing allowed children to describe what would seem to be routine aspects of an event to help them 'tell a better story', eliciting information from children who might usually be shy and allowing children to interact on their own terms – for example by not necessarily maintaining eye contact with an adult.



Using drawing to help children explore their ideas about jobs and future aspirations, as possible prompts for class discussion or one-on-one discussions with teachers to challenge stereotypes or make the link to classroom learning (Chambers et al, 2018).

The jobs drawn by children point towards the need for greater visibility and inspiration regarding the diversity of careers that exist. Stereotyping and narrow aspirations come through strongly in the data from the age of seven, with children from less privileged backgrounds drawing mechanics rather than engineers, or retail sales assistants rather than shop managers.

The narrowness of the children's aspirations was a concerning finding for Andreas Schleicher, Director of Education and Skills at the OECD, who described it as an important wake-up call for those who design and reform education systems, typically from a position of prior educational success. He wrote in the foreword to the report:

“The next generation of children will need to create jobs, not just seek jobs. They will draw on their curiosity, imagination, entrepreneurship and resilience, the joy of failing forward. Their schools will help them discover their passions and aspirations, develop their potential, and find their place in society. But that is easier said than done, and good reading, math and science skills are just part of the answer. To develop their dreams and invest the effort it takes to realise them, children need, first of all, to be aware of the world and the opportunities it offers them. We often take that awareness for granted, perhaps because schools tend to be designed and run by people who succeeded in them. But this report paints a different picture.”

Andreas Schleicher, Director of Education and Skills, OECD (Chambers et al, 2018, p. vii)

At the World Economic Forum the following year, in January 2019, the OECD and Education and Employers launched a new report relating this concern to the challenges and opportunities presented by the Fourth Industrial Revolution. The report concluded that the skills mismatch observed in the labour market has its roots in primary school, and that giving all children, regardless of gender and social background, the same chance to meet professionals in a variety of fields is the key to widening their view of the world of work (OECD, 2019).



Envisioning the Future of Education and Jobs, 2019.
www.educationandemployers.org/davos-2019-report

What impact do children report?

These assessments are supported by the experience of teachers, as described in the previous section, and also by evidence from recent surveys of children participating in Education and Employers' Primary Futures activities in England from 2019/20 and 2020/21 (Education and Employers, 2021). These surveys show children report similar benefits to those observed by their teachers (n=9,316³).

Career-related learning activities with employer volunteers are reported to enhance motivation and support broader horizons:

- 65% of children were more confident in what they could do after the Primary Futures activity, with 82% able to explain why it was important to try their best if they are going to get better.
- 73% of children found out about a new job during the activities with 75% learning lots about a variety of different jobs.

Following activities, children reported a better understanding of the relevance of learning and importance of school:

- 88% of children agreed that doing well at school would help them in the future.
- 82% of children now understood how learning Maths, English and Science could be useful in many jobs.

3. Children who answered at least 3/12 of the attitudinal questions, being 95% of the full sample of post-event feedback forms.

Children also reported that activities helped them to develop important life skills and to challenge stereotypes:

- 73% of children reported that the activities with volunteers helped them to learn to listen better to others and ask questions.
- 84% of children understood following the activity that boys and girls can do the same job.
- 80% now agreed that people like them can be successful when they grow up.

Children also report changing their mind as a result of the events. 25% of 7.9k children who answered the question said they had changed their mind about their future job interests - with a further 25% saying they might have done, being unsure about whether their mind was still the same.

Girls and boys generally gave similar answers to the questions. One area where there was a marked difference between boys and girls was in girls being more likely to say that “Today made me feel that I can become anyone I want when I grow up” – with 81% of girls agreeing compared to 74% of boys.

On most questions, children from more disadvantaged schools⁴ were more likely to report an impact from the event, generally 1%pt to 3%pts higher⁵. For two key questions in particular, children from more disadvantaged schools were more likely to report an impact: “I felt the volunteers today were similar to me and I could relate to them” (37% agreeing compared to 32%) and “in today’s activity I learnt to speak clearly and explain my ideas to a group of people” (61% agreeing compared to 54%).

Evidence from researchers

In May 2018 Teach First commissioned Education and Employers to undertake an international literature review of career-related learning in primary schools (Kashefpakdel, Rehill, & Hughes, 2019). Two key studies identified are a Randomised Control Test on enterprise education from the Netherlands and a large-scale pilot evaluation funded by the UK government, with evidence on links to attainment underpinned by additional school-comparison studies in the US.

This research base has been enhanced by recent evaluations of the Education and Employers Primary Futures programme, with the scale-up and evaluation funded by the Department of



Headteacher Karen Giles takes children’s guesses during a Primary Futures ‘What’s My Line?’ assembly

4. Measured via a free school meals ratio among pupils of over 30%, the top 12.5% in the sample.

5. Two questions had 1%pt lower agreement rates from the more disadvantaged schools.

Education's Primary Fund via The Careers & Enterprise Company, the AKO Foundation, and Bank of America (Education and Employers, 2021). Dosage-response analysis shows that primary aged children who did more activities or heard about more jobs were more likely to have at least one job in mind for the future and more likely to report positive influences from the event. Pre/post event analysis from a subset of this programme, tracking children longitudinally over one to three terms, also identifies changes in attitudes, confidence and motivation.

Randomised control trial on enterprise education

Huber et al (2012) used a randomised control trial methodology to evaluate the effect of taking part in a programme for 11-year old students to run their own enterprise over five non-consecutive full days.

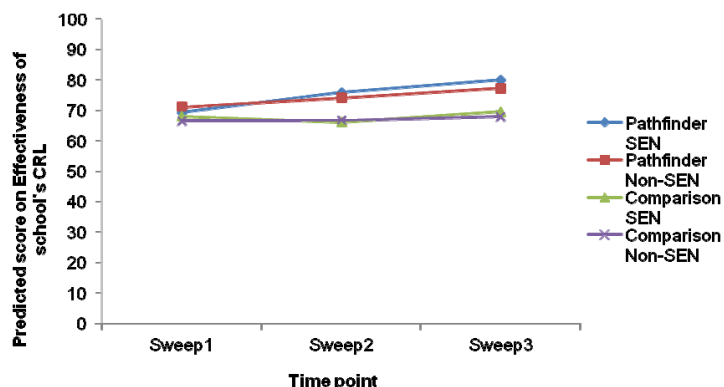
Compared to the control group, participants had significantly improved self-assessed non-cognitive skills and displayed changes in a range of important areas: self-efficacy (defined by the authors as 'belief in own ability'), need for achievement ('desire to do well'), risk-taking ('predisposition towards risky activities'), analysis ('ability to assess complex situations'), persistence ('ability to continue despite setbacks') and creativity ('ability to create many activities').

Despite the focus of the trial, no increased desire in entrepreneurship emerged. This might reflect an increased awareness of the challenges of such efforts, which might offset any increase in confidence or engagement as a result of participating in the programme.

Comparison group analysis in the UK

Wade et al (2011) assessed a major Key Stage 2 Career-related Learning Pathfinder programme. Undertaken in the 2000s and targeting primary school children in deprived areas across seven local authorities in the UK, it was focused on developing pupils' perception of their own place in the world of work and view of their self-efficacy.

Figure 2.1 Change over time in pupils' perceptions of the effectiveness of career-related learning in their school: by SEN



Longitudinal, comparison group evidence that a KS2 pilot increased children's confidence in the effectiveness of career-related learning (Wade et al, 2011).

Comparing survey responses from some 5,000 children aged 9-10 in 38 intervention schools to 120 control schools over three sweeps, the study found:

- i. A broadening and raising of pupil career aspirations;
- ii. Increasing confidence from disadvantaged pupils that they would achieve a higher status or higher skilled job in the future;

- iii. Increasing understanding of the link between education, qualifications, and careers and a more positive attitude towards school and education;
- iv. Decreasing gender stereotyping about careers; and
- v. Improved attendance and attainment.

American studies on attainment

Some of the strongest quantitative evidence of impact on attainment comes from the US, where funding and research activity have prioritised career-related learning in younger children more than in the UK. A series of studies relate improved career-related learning and counselling in primary school with higher grades in standardised tests.

In one study of 96 primary schools from the state of Indiana (Wilkerson et al, 2013), schools with an accredited programme – the Recognized American School Counselor Association Model Program (RAMP) achieved a proficiency rate of 78% in England/Language Arts and 80% in Maths, compared to 72% and 74% in a comparison group, randomly sampled across Indiana with locale-based sampling to increase the accuracy of the comparison with respect to important factors like ethnicity of intake and free lunch percentages. This difference was statistically significant at the 1% level or better considering the variation within the accredited group of schools (n=24) and within the comparison group (n=72).

A second study using a similar methodology examines 150 state-funded primary schools, sampled at random across Washington state (Sink & Stroh, 2003). The authors report that: “Over several years, participants who stayed in high usage [i.e. those delivering comprehensive programmes] schools significantly outperformed their counterparts in the comparison schools on the Grade 3 ITBS Vocabulary, Comprehension, Reading, and Mathematics, and Grade 4 WASL Listening, Reading, Writing, and Mathematics tests.”

This body of research focuses on ‘comprehensive counsel[ing] and career guidance programmes’, which correspond to a specified approach to counselling which is all-age and holistic. Investigating the detail of the approach in the US helps relate its work to potential activity in the UK.

Such programmes span pre-Kindergarten (age 3-5) to 12th Grade (age 17-18) and beyond and incorporate three key domains: social emotional support, academic achievement and college and career readiness. Some of these programmes are accredited by ASCA, the American School Counselor Association, confirming that the programmes operate to a given level of specification and quality (see ASCA, 2019 for more evidence of impact). ‘College and career readiness’ is seen as an essential component of these programmes (Jeffries-Simmon & Ackleson, 2017) and is integrated with other forms of support from age 3-5 onwards. Best practice guidelines focus on a broad and inclusive approach to career-related learning.

ASCA recommend a series of age-appropriate “college and career readiness activities” from pre-Kindergarten onwards (Curry & Milsom, 2017).

At the youngest ages, they focus on play techniques relating tools to professions, such as using building blocks or Lego to prompt a discussion about construction jobs and stethoscopes to talk about medical professions. In doing so they exploit the opportunity to step outside of traditional gender stereotypes, introducing the idea of jobs and lifelong careers, and incorporating visits and activities with outside speakers (an obstacle course and discussion with real firefighters is given as an example). This work is integrated into the rhythm of school, such as with “daily career highlights” and games drawing or wearing the colours of colleges and universities.

At ages 7 to 9, the variety of jobs that exist can be discussed more explicitly and stereotypes can be challenged more proactively with games and competitions like “fishing for careers”, alongside work on financial literacy and college awareness.

Case Study: Career Aspirations in New Zealand

In 2019, New Zealand became one of more than 20 countries around the world to participate in Drawing the Future. New Zealand's Tertiary Education Commission (TEC) asked primary and middle school students to draw what they wanted to be when they grew up. Schools and students responded with enthusiasm and the TEC received over 7,700 drawings which were representative of the country, including school decile, age, gender and rural vs metro areas.

This sort of research had never been done in New Zealand before and little was known about the career aspirations of young people. The results were an eye-opener! While a total of 106 different jobs were drawn, more than half of students (52%) saw themselves in one of just nine popular jobs – with sportsperson the top choice.

Patterns of unconscious bias around gender, ethnicity and socio-economic status were also evident in New Zealand. For example:

- Boys were four times more likely to aspire to be an engineer (eg civil, mechanical, electrical).
- Girls were ten times more likely to want to be a teacher or lecturer
- Girls were eight times more likely to aspire to an occupation in the health, community and social services sector.

The results also reflected New Zealand's culture, with farming in the top 10 jobs drawn for both girls and boys. Also, while international findings commonly had teacher as the top result for girls, more New Zealand female students chose sportsperson and vet than teacher.

Students were also asked how they knew about the job they drew. A third knew someone in the role such as a family member, and others knew about the role through media or seeing someone in person in that role. Consistent with international findings, less than 1% knew about their chosen role through an in-school volunteer from the world of work.

Drawing the Future became a call to action for New Zealand communities, government, and industry to engage with children early to capture their imaginations and broaden their aspirations.

"From a really early age, kids form stereotypes about what types of jobs are good for boys and what types of jobs are good for girls. We want to help broaden their aspirations," said Minister of Education Chris Hipkins.

"This is not about providing 'careers advice' but about breaking down barriers, broadening horizons and raising aspirations, giving children a wide range of experiences of the world including the world of work. You can't be what you can't see and we need to stop children from ruling out career possibilities because they believe, implicitly or explicitly, that their future career choices are limited by their gender, ethnicity or socio-economic background."

The Drawing the Future Research Report was launched at an event at New Zealand Parliament in February 2020. At the event it was announced that, in order to tackle the issues highlighted by the Drawing the Future research, Inspiring the Future will be launched in New Zealand schools in May 2021.



Aged 9-11, ASCA recommend a simple taxonomy for understanding different sectors of the economy, the diversity of roles within them with example pay and progression pathways. The social value and interconnectedness of different roles is explained. Careers fairs, visits and projects are used to bring the diversity and taxonomy to life. Parental engagement and incorporation of the world of work is best practice throughout.

Another key to success is that such programmes are comprehensive – the three domains are integrated with each other; success in one supports success in another. Motivation at school and inspiration about future opportunities supports behaviour and emotional control at school; better behaviour and grades all contribute to a positive environment in which learning about future opportunities is more likely to take hold.

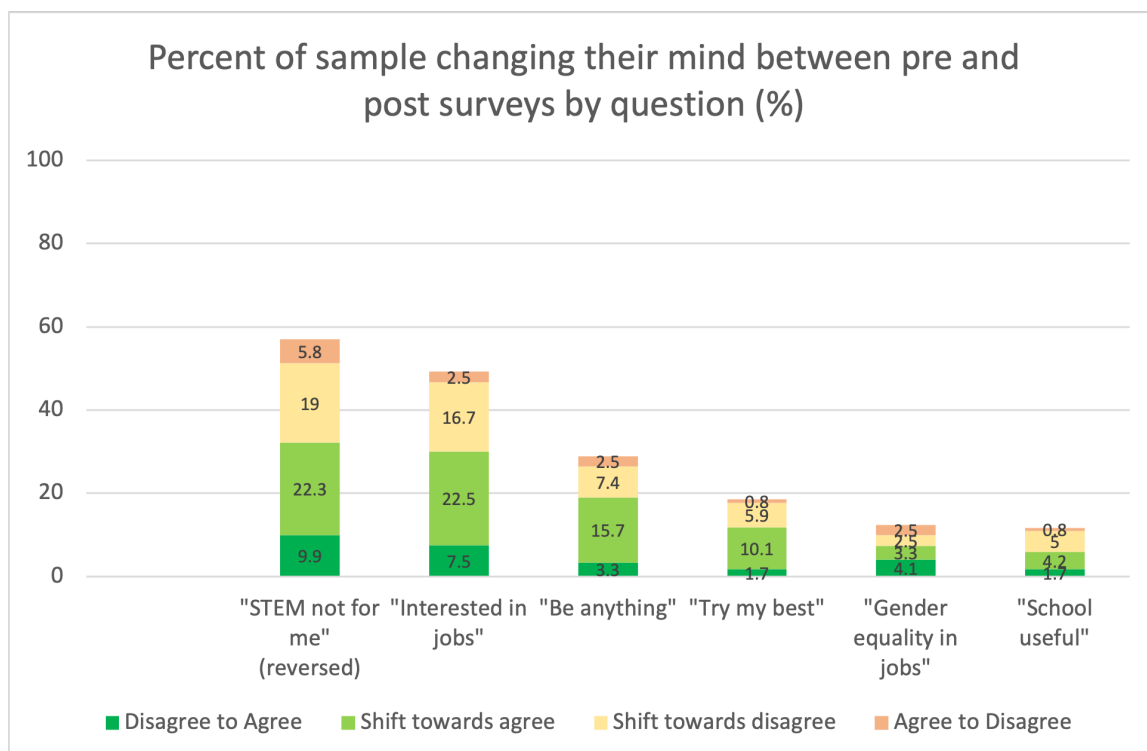
The research does not specifically isolate components of success, i.e. whether it is the social and emotional support that drives success or the career-related learning components. This focus is probably deliberate – the value of an integrated programme comes from its constituent parts working together.

Career-related learning, supported by employer activities, is not a separate complement to the primary-aged curriculum, it is an integral part of it.

New research from the Primary Futures expansion 2019-2021

The Careers & Enterprise Company's Primary Fund recently supported an evaluation of Primary Futures that involved working in a targeted way with a small number of schools to track pupil attitudes longitudinally over a period of between one and four terms, while Education and Employers worked with the school to run several employer-supported career-related learning events, most commonly three events per school.

Nine schools provided pre/post data on 125 children in England, mostly aged 6 to 11. Recognising that young children at this age often give positive answers, particularly when asked in the abstract, and that individual answers can vary from day to day depending on mood and recent events, the results are analysed to identify the net percentage of children who change their mind in favour of a more positive answer.



1. ** significant at 1% level or better; * significant at 5% level or better. For whether the probability of changing mind (regardless of direction) varied based on initial view, i.e. likely to be a non-random shift considering base rates (Wald statistic p-value in logistic regression for changing mind, with controls for initial view, standard errors clustered across the nine schools).

The strongest shifts are in children who change their mind to say they want to know about a greater range of jobs (10.8%pts net positive shift), think they can do anything when they grow up (9.1%pts), and considering that science and engineering are for people like them (7.4%pts).

Without a comparison group who did not participate in the Primary Futures events, we cannot rule out these changes in attitude being driven more by changes over time or by other confounding factors rather than the events themselves.⁶ Nonetheless, the positive responses from children in the post-event surveys and the dosage response data discussed below suggests that some of them do feel the experience influenced their perspective on such topics, building credibility that the events are responsible for at least part of the change over time.

A large-scale post-event evaluation of Primary Futures also asked children about the number of career-related learning activities they had done that day and the number of jobs they had heard

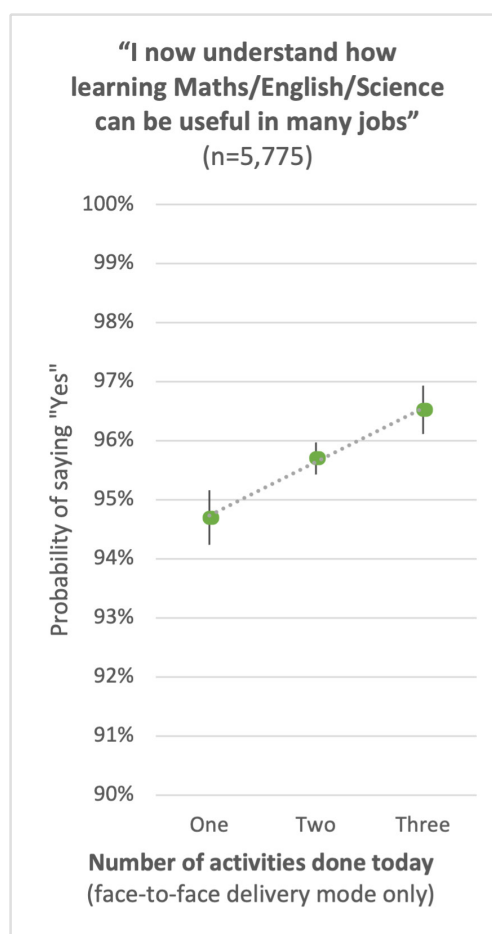
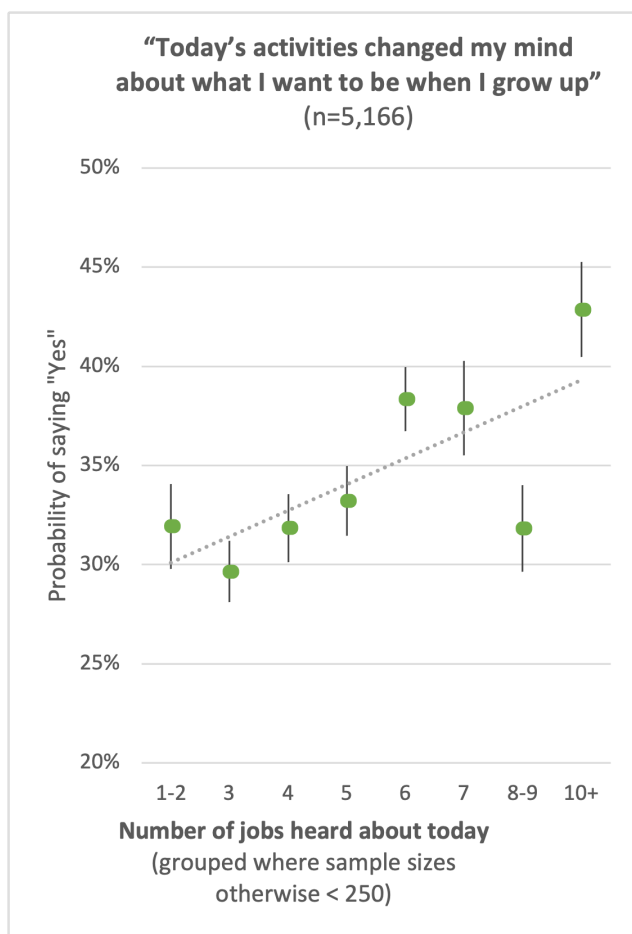
6. The limitations of the one group pre-test / post-test experimental design, as used here, are widely understood. The common ethical and operational constraints which result in the methodology being commonly used in the education domain are also widely known, including the difficulty in constructing and tracking a comparison group for interventions believed by the participating stakeholders to be beneficial. Such constraints are compounded by the absence of significant sectoral support and funding for more robust experimental design. For more information please see Knapp (2016).

about. This framing of the survey enables a dosage response assessment that builds confidence in the influence of such events on children’s attitudes, being less susceptible to the concern that children may simply be giving positive feedback in the immediate enthusiasm following an event.

Positive odds ratios identified in logistic regression analyses⁷ are confirmed by inspecting plots for distinct numbers of jobs or events, entered individually into the regression analyses (see charts below). For instance, when children heard about 6 or more jobs, they were around 40% likely to say the events changed their mind, compared to nearer 30% among those hearing about 3 or fewer jobs.

A further example in the second chart shows how children were more likely to agree that core subjects are useful for lots of jobs if they have done more volunteer activities that day. The difference is only small, as so many children agree in the first place, but an improvement from 94.7% agreeing after a single event to 96.5% agreeing in a day with three events is still meaningful for low cost activities that can be applied across a large cohort.

This finding replicates an insight from similar events conducted with older children. Analysis of the British Cohort Study of teenagers during the 1980s found that the more career talks they did with external volunteers aged 14-16, the higher the wages of full-time workers aged 26 (Kashefpakdel & Percy, 2017). The British Cohort Study analysis also found that volume matters, in that the first few individuals heard from rarely translate into much of an average effect for young people, even if the talks may still be very useful to a minority of children who happen to be interested in that topic. Once children get to insights from four, five or more different individuals, the impact begins to accelerate.



* Coefficients plotted using logistic regression with core controls. Linear trendline fitted to average points. Vertical bars represent one standard error above and below the mean, representing a c. 68% confidence interval for the mean value.

7. With controls for gender, age, school FSM, and school rurality. The first chart has an odds ratio of 1.22 for each extra job heard about, p-value 0.00. The second has an OR of 1.05, p-value 0.00.

Case study: Tackling Gender Stereotypes

Redraw the Balance at Kingswood Primary Academy in Northamptonshire

Kingswood Primary Academy is a one-form entry school with around 250 children based in Corby, Northamptonshire. The school is part of the Greenwood Academies Trust and has a high proportion of pupils in receipt of free school meals and with English as a second language. The school sees activities with volunteers as key to broadening horizons for children and also wanted to focus on challenging gender stereotypes. The school held a Primary Futures 'Redraw the Balance' activity as part of a National Careers Week in March 2020 with Year 3 children (7 – 8-year olds).

The activity involved children first drawing pictures of what they thought people in particular job roles looked like and then meeting volunteers who have those jobs. Headteacher Chrissie Barrington used Primary Futures to source seven volunteers from non-typical gender job roles, including a female drummer, a female chef, a male nurse, a female police officer and a female pilot from the RAF.

The children's drawings typically reflected gender stereotypes around roles, with 75% drawing a drummer as a male and 67% drawing a female nurse. Chrissie said: "The children were fascinated to meet people from the world of work that challenged stereotypes and used the opportunity to ask interesting questions. All in all a very valuable learning experience."



Job role	Male	Female
Drummer	20	7
Nurse	9	18
Park ranger	16	11
Chef	17	10

primary futures

2014

After running pilots with 16 NAHT schools, Primary Futures was launched in October 2014. Prime Minister David Cameron commends Primary Futures saying “it’s a great campaign and one that deserves the widest support”

2015

The 2015 'Who's in Health' campaign marked the start of a long relationship with NHS England. Recent projects include a pre-recorded virtual Classroom Chat, enabling schools to hear from passionate NHS workers via video.

2016

The #RedrawTheBalance video explored gender stereotypes at primary level. It has been viewed by over 100 million people and recreated in China, Canada and Denmark.

In November 2016, Prime Minister Theresa May commends the scheme.

2018

January 2018 saw the launch of landmark report Drawing the Future, an international study which asked over 20,000 children to draw the job they wanted to do and determined the factors influencing career choice. Drawing winners were selected and had the opportunity to meet their career heroes.

**2019/
2020**

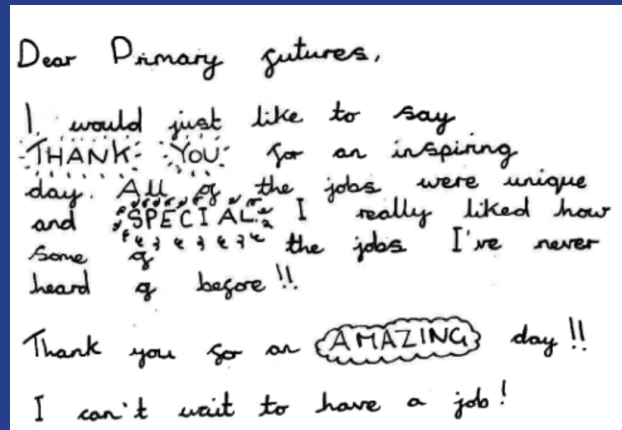
A national pilot undertaken to understand how the Primary Futures programme could be scaled up and to analyse the impact of interventions in primary schools.

In May 2020, Primary Futures launched brand new virtual interactive sessions enabling children to hear from volunteers all over the UK via their devices in school or at home.





Campaign to engage coastal communities begins in Blackpool and Folkestone
June 2016



Thank you note from a pupil following an event in Lincolnshire
October 2017



Launch of Inspiring Bradford as part of a campaign engaging Opportunity Areas
October 2017



Primary Futures event marks the start of the Year of Engineering
November 2017



Primary Futures expands internationally, reaching children in Australia and Uganda
Summer 2018



Launch of Inspiring Theatre with pupils in Scarborough
July 2018



Pupils have the chance to meet volunteers from the Royal Warrant Holders Association
October 2018



Primary Futures goes to Davos in Switzerland
January 2019



Bramble Brae school in Aberdeen takes part in a 'What's My Line?' assembly with volunteers from the world of work
January 2019



The first Primary Futures event takes place in Northern Ireland in Ballysally
March 2019



Pupils in Coventry, North Lincolnshire and Dorset meet inspiring role models
April 2019



Children from Beckfoot Heaton Primary School are invited to 10 Downing Street to show their drawings of future ambitions to Boris Johnson
August 2019



Children at St Breward Community Primary in Cornwall virtually met Antarctic Explorer and Researcher Kim Crosbie, who is based in Edinburgh
November 2020



To bring some festive cheer to children and schools, Primary Futures developed special 'What's My Line' video activities featuring volunteers in seasonal jobs
December 2020

Volunteers continued to inspire children virtually during regular activities, such as this online 'What's My Line' assembly where children in Doncaster linked with local volunteers including a Policewoman, a Flights Standards Officer and a Managing Director
January 2021



Following the popular festive videos, Primary Futures created further video resources to help challenge gender stereotypes during National Careers Week
March 2021



Good practice guidelines

This chapter explores the principles and success factors behind effective career-related learning in primary, drawing on reports that The Careers & Enterprise Company and Teach First commissioned Education and Employers to complete. As well as principles around diversity, curriculum integration and involving employers, effective leadership and support for school staff are essential. Career-related learning is still new to many teachers in primary schools – success relies both on continuing professional development and on practical support in the form of advice, tool-kits, and external resources. The potential of strategically coordinated approaches at a local area level is highlighted through a case study in Derby Local Authority (p51-52)

We then explore the importance of having a balance between relatable volunteers and diverse volunteers. New data from remote activities with employers, initiated as a result of the Covid-19 Pandemic, shows that virtual events can be as effective as in-person activities and help overcome geographical disadvantage, pointing towards the potential for blended, higher volume models in the future. Finally, we consider how young activities might start. The case for an early start, based on play, make pretend and life stories, is bolstered by insights from career theorists, practitioners, neuroscience and economic return-on-investment calculations.

Principles for career-related learning

The Careers & Enterprise Company in England commissioned Education and Employers to research what works for career-related learning for primary school children (Kashefpakdel, Rehill & Hughes, 2019).

The report maps how primary schools approach career-related learning and offers guidance on evidence-based practice, drawing out six key principles:

1. Successful leadership.

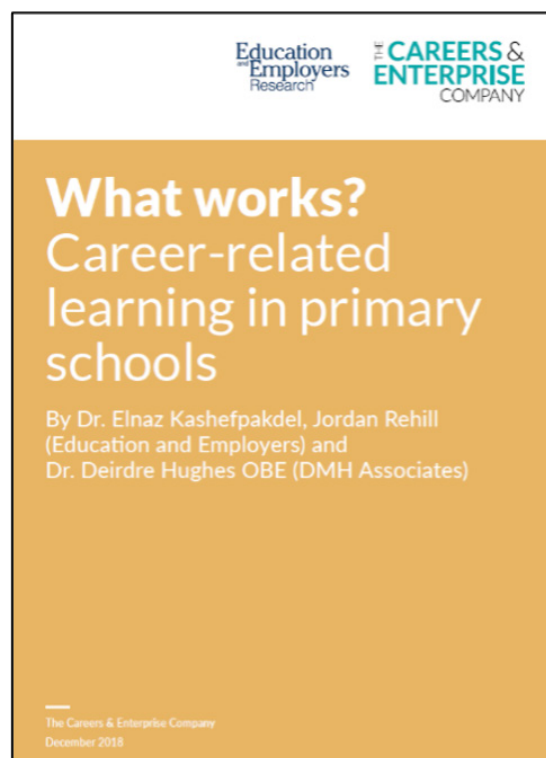
Evidence shows that positive impacts from career-related learning are greater when a consistent and whole school strategy is in place.

2. Make it open to all.

Career-related learning in this phase should not be targeted at a particular group or groups. Instead it should be offered universally to all pupils in primary schools.

3. Embed career-related learning in the curriculum.

Schools and senior leaders should make the relationship between career-related learning and the aims and ethos of the school explicit, supporting buy-in from curriculum staff, subject leaders, and the senior leadership team.



4. Involve external organisations and employers.

It is important that the person imparting knowledge about jobs and careers brings real-life, authentic experience of the workplace. When employers engage with children, they are perceived as having authority and authenticity. Local schools should also focus on sharing best practice and signposting other schools in their network to organisations and programmes that can support the delivery of a consistent career-related programme. The evidence suggests that being able to draw on online and offline brokerage services can help to formalise connections to employers and give teachers the ability to invite volunteers from a wide range of backgrounds.

5. Start early.

The literature has shown that perceptions about the suitability of different sectors and career paths are embedded in the minds of children from an early age. It is therefore important that career-related learning starts at an early age.

6. Ensure activities are age appropriate.

There is evidence to suggest that primary career-related learning activities are most effective when they are planned, delivered, and adapted appropriately for the age group.

The power of a coordinated, whole-school approach is illustrated in a case study from Bradford, West Yorkshire (p58-59). In this case study, the head teacher explains how she drove a three year strategy to enhance self-belief, loving learning and broadening horizons, underpinned by an extensive programme of career-related learning and employer supported events - including over 130 visitors to the school!

How to support staff with career-related learning

These principles build on our earlier work exploring the role of staff in organising career-related learning, as commissioned by Teach First and funded by the AKO Foundation in May 2018, as part of an international literature review of career-related learning in primary school.



The review stressed the importance of a whole school collaborative approach, identifying that a wide range of staff are involved in career-related learning in primary schools, including senior leadership, learning co-ordinators and curriculum staff, supplemented by employers and external organisations. As such, all these roles need to be given attention within initial teacher education and early professional development, particularly as the concept of career-related learning can be fluid and open to interpretation in primary schools. There is no clear consensus or single set of guidelines as to the types of activities involved, which can be most beneficial, or indeed what types of activities might be detrimental, reinforcing stereotypes or inducing career preferences too early in young children. As such staff need to consider a wide range of possible activities, tailoring to their local context.

Professional development for teachers and the engagement of external experts and employer volunteers is also important. Survey evidence shows that teachers do not have equal knowledge and expertise in all areas of learning, often reporting a lack of confidence or information about career-related learning and vocational pathways, and a lack of suitable staff to support business involvement (Kashefpakdel, Rehill, & Hughes, 2019; Huddleston & Stanley, 2011). The NAHT's School Improvement Commission identifies a similar priority for school improvement in general, with recommendations including a CPD entitlement for all teachers, access to external support networks, and a designated senior leader for CPD in every school (NAHT, 2020).

Key success factors from a staffing approach included the importance of a designated person with direct responsibility for career-related learning, explicit links between career-related learning and the aims, ethos and curriculum priorities of the school, and the provision of support to teachers with teaching and learning resources, topic ideas and lesson plans. Nearly 60% of teachers identified 'how to integrate career-related learning into the curriculum (including teaching materials)' as a priority training need, followed by 'understanding and monitoring the impact of career-related learning' (50%), and assistance with 'planning and/or organising careers events' (50%). Interviewees also noted that schools could be supported through better signposting to key organisations that can broker connections with employers. This could help teachers deliver a wide range of activities and maintain more regular links with such organisations.



Children gather round to listen to a volunteer talking about her role

At the heart of any approach to career-related learning and a stronger role for teachers is the need to professionalise the area. This should include stronger acknowledgement of career-related learning in initial teacher training, the development of a range of levels of continuing professional development, and new forms of in-service training to support learning coordinators and senior leaders understand the wide range of ways that career-related learning can enhance provision and transitions during primary education.

Hallmarks of success

These 'hallmarks of success' developed with the NAHT outline the outcomes and activities that primary schools should aim for and provide when delivering career-related learning:

Desired influence on children:

1. Excite and motivate children about their learning by linking and embedding in the curriculum strong connections between education and the world of work.
2. Broaden children's horizons and raise aspirations.
3. Help children see a clear link between their learning experiences and their future.
4. Challenge stereotypes that children and their parents often have about jobs and the people who do them.
5. Support all children to raise their standards of achievement and attainment.
6. Help children learn more about their own talents and abilities and instil greater confidence.
7. Reinforce the importance of numeracy and literacy in later life.

Activities:

1. Invite volunteers from the world of work to visit and chat with children.
2. Deliver career-related learning programmes that help children connect their subject learning to opportunities now and in the future.
3. Organise trips e.g. to a workplace, museum, or university and use these trips as opportunities for career-related learning.
4. Make good use of online learning materials in the classroom such as games, videos, role play, and individual group activities.
5. Explore the diverse routes adults have taken to get their current job e.g. vocational (including apprenticeships), academic, starting their own business etc.
6. Tailor career-related learning to the different ages and needs of all children.

Case Study for a Strategic Local Area Approach: Our Future Derby

Our Future Derby presents a new approach to designing, delivering, and embedding innovative career-related learning into primary schools. It focuses on seven of the most deprived wards of Derby as part of the Department for Education's Opportunity Area policy, with priorities to enhance social mobility and offer children new opportunities to learn about the world of work. Led by the Education and Employers charity in a consortium with Learn by Design, dmh associates, Forum Talent Potential, and East Midlands Chamber, the partnership combines national reach with local expertise and community connections.

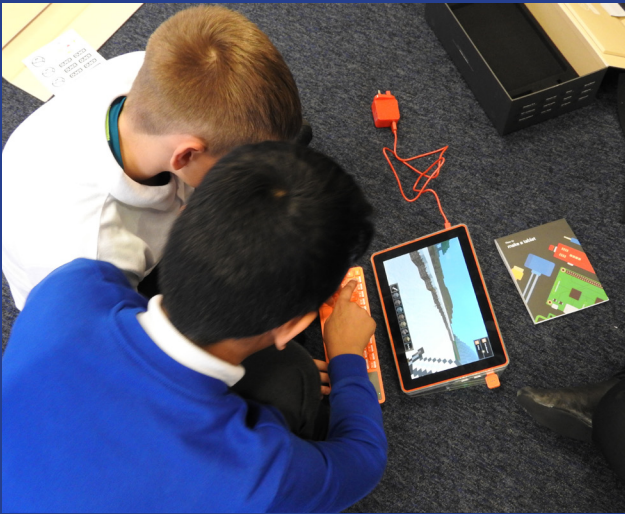
The project takes a coordinated approach with volunteers from the world of work and a community engagement programme with communications to parents and carers. Career-Related Learning Champions in each school are supported to develop their expertise to sustain the project, including curriculum-focused CPD and support with events. A resources hub, career-related learning newsletters, and certificates support schools and foster a sense of community.

The 32 primary schools engaged in the project throughout, with only one school temporarily pausing when Covid-19 struck in March 2020, re-engaging later in the project. A total of 84 employer-driven career-related learning activities were delivered, with schools choosing from a menu of in classroom activities and workplace visits, including the Primary Futures 'What's My Line?' activity, STEM days, and occupational games. 15 CPD masterclasses supported senior leadership teams and classroom teachers to embed CRL within the curriculum.

Impact assessment was led by Dr Deirdre Hughes OBE, using pre-activity drawing exercises based on the Drawing the Future templates, post-activity surveys, teacher surveys, and parent surveys, along with stakeholder and project analysis to develop policy and project recommendations for the future. Key findings include:

- 96% of teachers (n=182) would recommend the Our Future Derby programme, rating it highly on the quality of volunteers and the benefits for children.
- 78% of teachers (n=160) indicated that they were motivated at this stage to embed CRL in classroom activities but needed help learning more.
- Children were more likely to agree with 'People like me can do any job they want when they grow up' after the events (93% of 256, compared to 89% of 910), variation by ethnicity was also much reduced after the events.
- 81% of the children (n= 201) reported they had learned about 5 or more jobs through the CRL activities. 90% (n=241) agreed that 'the people they met with were very helpful'.
- Justyna Owen, a teacher at Allenton Primary School said: "The sessions gave our children a great insight to some STEM careers and the importance of education for any future career choices."

A successful first year between April 2019 – December 2020 has now been extended until July 2021, building on key recommendations like scaling-up the programme, further developing the children's new 'Careers Learning Log' tool to support reflection and secondary transitions, increasing the programme's visibility among parents (with platforms like Class Dojo to translate messages into home languages), and ensuring there is more than just one teacher taking a proactive role in each school and being supported to use the Primary Futures platform.



Relatability of volunteers

The tension between relatability and diversity is implicit in much of the discussion of good practice. Surveys of children after Primary Futures events found that when children felt they could relate to the volunteers, they consistently reported greater enjoyment and influence from the event (Education and Employers, 2021).

Children identifying volunteers as relatable were 46% likely to say the event changed their mind about future jobs, compared to 23% among children who said the volunteers were not similar to themselves (logistic regression with core controls; n=3,127, odds ratio 2.95, p-value 0.00). Using the same analytical technique reveals that children were also more likely to report that the event had helped them think that people like them could succeed (91% vs 98%) or that they could become anyone when they were older (86% vs 96%). Relatability of volunteers also increased the chance that children said the events helped them have more favourable views of school, increasing from 95% to 97%, and that core subjects were useful for jobs, increasing from 91% to 97%.

At the same time, it is diversity of volunteers – bringing in volunteers different to the staff in school and those children normally interact with – that drives insights into different parts of society and different types of work. Sometimes diversity might be initially uncomfortable for the children or the volunteer – someone in a job they did not expect or describing a part of society that feels alien and out of reach. These uncomfortable feelings have the potential to drive lightbulb moments for children. Teachers have a role to play in helping volunteers and children understand each other, taking steps to understand each others' worlds and the bridges between them.

As with much of career-related learning, the benefits come most strongly from volume. The tension is best resolved by having both relatable volunteers and volunteers as diverse as possible to support activities. Alumni networks might be helpful for providing a few compelling examples of career journeys that passed through the same school. External networks can then provide the range and diversity of career journeys, ensuring that the common journeys of past intakes do not dominate the range of possible journeys for future intakes.

Remote activities vs. in-person activities

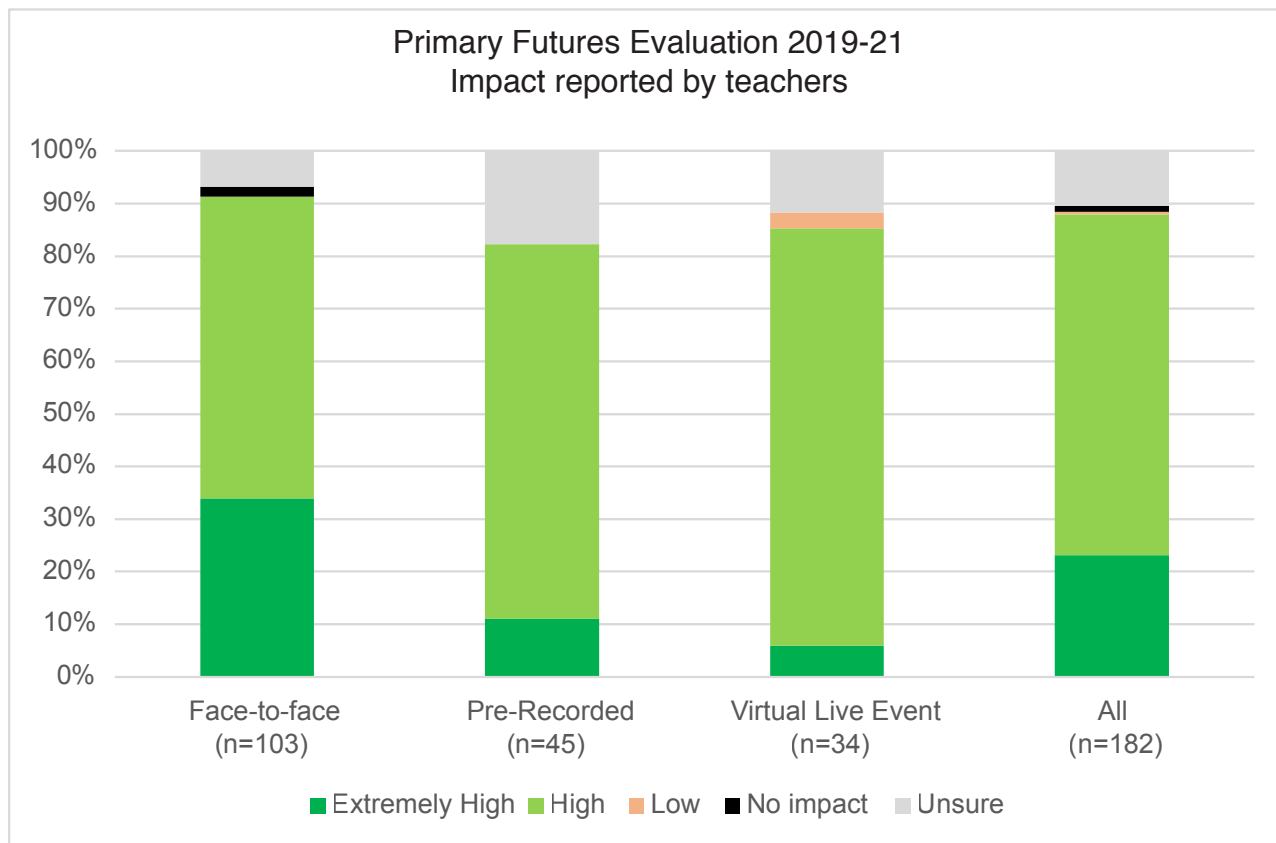
A recent large-scale evaluation of Primary Futures took place during the 2019/20 and 2020/21 academic years, coinciding with the Covid-19 Pandemic. In response, the programme rebuilt itself around virtual delivery of career-relating learning, bringing employers into classrooms via video technology rather than in-person. This enabled a comparison of how pupil engagement and impact varied between the two modes of events, discussed in detail in Education and Employers (2021).

Teachers often welcomed the virtual activities, appreciating the extra support at a time when many of the usual engagement events were not possible:

“We were very fortunate to be able to have Primary Futures....the careers featured were engaging and perfectly matched to our context. Despite children accessing this remotely, pupils were hooked and inspired. They were given first-hand insight into varied careers and industries and were given the time to explore this in a supportive, fun forum...Feedback has been excellent, and this has been from parents too, who were also able to watch alongside their children at home. The assembly has inspired further learning and has energised the ambition of some of our hard-to-reach pupils.”

Rebecca Austwick, Headteacher, Bentley High Street Primary

In aggregate, surveys of teachers after events identified positive feedback across different modes of delivery, with over 80% reporting high or extremely high impact for virtual live, pre-recorded or face-to-face events (n=182).⁸ Perhaps reflecting the newness of the medium and the challenges of the ways of working during the pandemic, teachers expressed greater levels of uncertainty for remote events and fewer teachers felt confident in reporting “extremely high” impact. Nonetheless, teachers were delighted and determined to do more with the medium: 33 out of 34 teachers doing virtual live events said they wanted to continue using it for ongoing career provision



Children were confident about the new format. With an analysis controlling for school characteristics (rurality, FSM of intake) and pupil characteristics (gender, age), there was no difference in reported engagement in the events as rated on a scale from 0-10.

Children were also just as likely to say the events had changed their mind about the future regardless of whether it was virtual or face-to-face. The more jobs children heard about, the more likely they were to change their mind for both virtual events (odds ratio 1.06 per extra job, n=830) as face-to-face events (odds ratio 1.04, n=4,335).

Children were asked about 15 different attitudes towards jobs, school, their future and their skills. Across the questions, being a virtual live event as opposed to a face-to-face event was only statistically significant at the 5% level in one case, whether the event had helped children realise how Maths, English and Science could be useful to lots of jobs, where children gave more favourable answers for face-to-face events. For weaker relationships, significant at the 10% level, virtual live events outperform face-to-face events for learning about a new job and underperform for trying hard or speaking clearly. Collectively this suggests that both virtual live events and face-to-face events can bring benefits overall.

8. Impact reported relative to the motivations teachers originally had for the event. Most teachers chose multiple motivations, with 90%+ choosing insights into the world of work, broadened horizons, and higher aspirations, with 55%+ choosing improved life/essential skills and access to employers. 41% said motivation to study harder.

In the future, we hope career-related learning finds space for both types of event, using the convenience of remote activities to increase the overall volume and diversity of encounters children can have. Remote activities in particular have the potential to reduce the barriers of geography for more remote schools in accessing volunteers. At the same time, the energy and interaction of live-events – passing volunteers’ props, work examples, or uniforms around the classroom – is something to be treasured.

How young should we start?

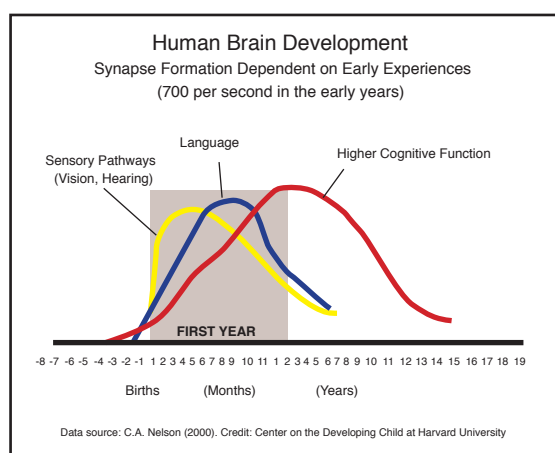
Career theorists have argued that initial ideas about career formation for children as young as three or four already lay the foundations for future perspectives (e.g. Cinamon & Yeshayahu, 2020; Howard et al, 2011 among others).

The risk is that fleeting fantasy jobs based on media, chance encounters, and imagination soon give way to habitual answers. Well-meaning adults, family, and teachers frequently ask very young children about their interest in particular jobs or what they want to do when they are older. The questions are soft and friendly, but initial answers - chosen even on a whim - can become a default answer drawn upon as a convenient formula in future conversations. Such chance encounters, especially at a young age, are more likely to reflect the limits of a child’s immediate surroundings and media exposure than the full range of futures that might be open to them. At the same time, while children are still in the fantasy stage of imagining futures, it may be the perfect time to introduce wildly diverse ideas – before self- and society-imposed stereotypes start to narrow horizons.

Practitioners, meanwhile, identify a wide range of age appropriate activities. Good practice in America describes play techniques at the age of 3-5 relating tools to professions, prompting discussion about different roles and how they all fit together (Curry & Milsom, 2017). Education and Employers' Primary Futures programme, bringing volunteers, props, pictures, and workplace stories into the classroom, receives even more positive feedback from children in Key Stage 1 than Key Stage 2 (Education and Employers, 2021).

The potential value of early intervention is reinforced by research work in education outside the context of career-related learning, with insights from neuroscience and return-on-investment (ROI) analyses.

Neuroscience of early brain development



The scientific understanding of human brain development provides metrics supporting the intuition that younger children are more open to new ideas and the development of certain skills, cognitive functions, and self-identity – key to laying the foundations for future ambitions, pathway choices, and occupational identity.

In the womb and up to about two years of age, the connections that allow brain communication (synapses) form at an incredible rate – averaging perhaps 700 per second, but reaching 40,000 per second.

From then, a process of synaptic pruning begins to dominate the developmental process through to

around age 10, by when around half of the synapses present at 2 years of age have been eliminated (Santos & Naggle, 2010).

The pruning process, particularly a type of pruning termed small-scale axon terminal arbor pruning, is thought to represent a key mechanism through which learning takes place, embedding in physical form the memories, principles, and behaviour patterns that make up much of our thoughts (Craik & Bialystok, 2006).

From a learning perspective, the logic is straightforward: “use it or lose it”. Synaptic patterns, ultimately underlying functions such as muscle memory, identity formation and attitude development, that are returned to more regularly and more intensely are retained, whereas others are gradually eliminated. If children repeatedly see the same set of jobs discussed, repeatedly hear the same sets of assumptions around what work is like, the connections to education pathways, and which opportunities are open to whom, these patterns are more likely to stick – imprinted in their neural pathways. For every child inspired to rebel against the default assumptions patterning the conversations around them, more will absorb them – and act as if they are true.

These insights from biological observations have been adopted by government programmes as a key rationale for increasing investment into both early years and primary school age interventions in general, such as the Early Intervention Foundation in London, the First 1001 Days all-party parliamentary group, the Royal College of Paediatrics and Child Health, and the Children in Adversity programme in the US.

The work of such programmes hopes to mitigate historic spending patterns in which per capita investment by the state is higher for those in secondary and tertiary education than in primary or early years education. For instance, UK funding per student in primary education has typically been around £5.5k, compared to £6.5k in secondary and over £9k in higher education (Dominguez-Reig & Robinson, 2009).

Economic analyses of return on investment

Economic research in the field of education and human capital development tends to draw similar conclusions regarding the importance of early intervention.

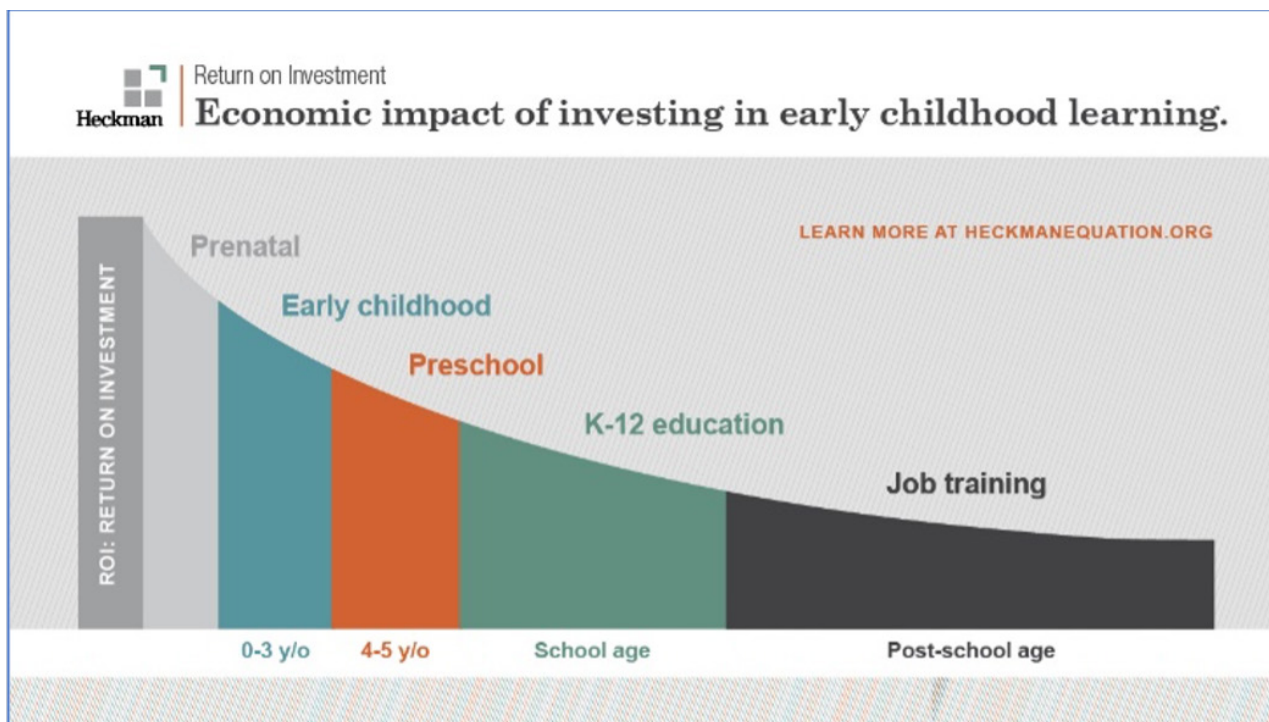
The underlying argument is that early child development is a critical stage of human development, partly because it provides a foundation for the future acquisition of health, cognitive and non-cognitive skills. The impact of an effective intervention in childhood is also considered to have a longer period of time over which benefits can accumulate. Keller (2006) uses worldwide panel data since the 1960s to analyse the effects of primary, secondary, and higher education on per capita growth for flow measures of education (enrolment rates, public expenditures, and expenditures per student), arguing that investment should be prioritised towards lower education stages. This investment is analysed in broad terms – covering everything from budgets to buildings – without breaking down investment in different areas, such as curriculum, extra-curricular activities, facilities, or career-related learning.

Nobel Memorial Prize-winning economist James Heckman developed and evidenced a concept called the Heckman Curve (see graphic), in which the highest economic returns are seen in pre-school programmes, particularly for disadvantaged cohorts, with returns gradually declining through to job training in post-school age (Heckman, 2006).

These results have been identified by other researchers (e.g. Kautz et al, 2014), although not consistently and the curve is contingent on high quality interventions being compared. For instance, a recent replication using estimates of benefit-cost ratios across over 300 programmes found that differences due to age can easily be dominated by other differences, such as the length of time from intervention to impact and difficulties with targeting activities (Rea & Burton, 2020). It is also possible

that early age interventions are particularly challenging to get right, since there is less immediate and clear-cut feedback regarding the likely long-term economic consequences. The authors endorse an analysis that excludes programmes with negative impact and outlier studies with extremely high returns. Using this approach, they identify slightly higher average cost-benefit ratios at age 5-15 than at pre-5 or older age groups, supporting the principle of primary age investments.

Research for the World Bank similarly identifies higher returns to primary age years of education than secondary age years of education (Montenegro & Patrinos, 2014), reinforcing earlier findings from Boissier (2004) on the importance of literacy and numeracy in general and the importance of investments in primary age education in particular.



The principles from neuroscience and education ROI analysis have not been directly analysed in the context of career-related learning, but they reinforce the potential of primary age career-related learning – starting in the form of play and pretend at the very youngest ages. If we're playing pretend anyway, why not be thoughtful about what we choose to pretend? And why not be diverse, creative, and ambitious in who we bring into school to tell their stories of possible futures?

Social mobility

In their sobering assessment of the last seven years' work, the Social Mobility Commission (2020) emphasises the importance of making progress in primary schools. "51% of disadvantaged pupils reach the expected standard in reading, writing and mathematics by the end of primary school, compared with 71% of all other pupils." (ibid: 36).

The report notes the progress made in reducing innumeracy and illiteracy at primary school and the weighting of pupil premium funding towards primary schools, but stresses the need to do more. With evidence that children on free school meals respond well to engaging with volunteers about their jobs and that such activities promote engagement at school and motivation to learn, career-related learning should form part of a multi-faceted, long-term strategy for improving social mobility.

Case Study: A Whole School Approach – Embedding Learning

Zoe Mawson, Head Teacher,

Beckfoot Heaton Primary School & Nursery, Bradford

Our school serves an area of high deprivation in Bradford, West Yorkshire, within one of the 10% most deprived wards in the country. In 2016, we created a 3 year vision which we named, “Growing To Be Great”. Prior to this, expectation and ambition for children was too low, both in school and within the community. For Growing To Be Great to succeed, a fundamental shift needed to take place.

Children needed to believe that they could be great and this started our journey towards our now well established Aspiration strategy. Three elements of this strategy work together seamlessly to help children realise that they can have high aspirations for themselves.

Self belief = Great people
Loving learning = Great learners
Broadening horizons = Great life

The school and community can develop these aspects to some extent but the real gains start to happen when partners from the world of work, work alongside schools to help realise them.

I could never have imagined the impact we would gain, when I first became interested in inviting volunteers into school to work alongside children.

At the start of the journey, the majority of pupils at Beckfoot Heaton would find it very difficult to have any discussion about their futures. Many had never heard of the word university and had limited ideas about the jobs that might be open to them.

More than anything, too many children did not believe that a child “like them” could have a great future.

We had to change their belief in themselves and so began a programme of inviting visitors to school who were representative of the groups on roll. Children liked the messages they heard but they also were very appreciative that people were giving up their time to come to talk to them. This was a recurring theme when visitors attended. Are they really interested in me? Do they really think that I can do it? Are they coming here for free because they want me to do well?

This rocketed when we were selected to launch Inspiring Bradford, an initiative of the charity Education and Employers. 60 volunteers took part in the event in October 2017 whom we contacted via Primary Futures. This free service developed by the National Association of Head Teachers and Education and Employers give schools access to an amazing range of volunteers.

Children were captivated as Carolyn Fairbairn, Director-General of the CBI, talked to pupils and staff about the importance of being ambitious for their future. Carolyn and the other guests, some advanced in their careers, some starting out, opened children’s minds to not only the types of jobs available but also the relevance of their school life. Seeing how things that children were learning now could help them in their adult life intrigued many children and most certainly helped them see subjects in a different light and giving a new found energy to “loving learning”.

The quality of children’s learning has improved over the last few years, in measurable outcomes but also in the PRIDE they take in their work. Regardless of cognitive ability, all children demonstrate effort and commitment to learning, knowing that it contributes to their futures.

Our work with Primary Futures has resulted in the formulation of the Aspiration strategy which is now firmly installed in our curriculum maps. Children at Beckfoot Heaton have been in contact with over 130 visitors, all bringing something a little different but ALL helping children to believe in themselves and “broadening horizons” about their futures.



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