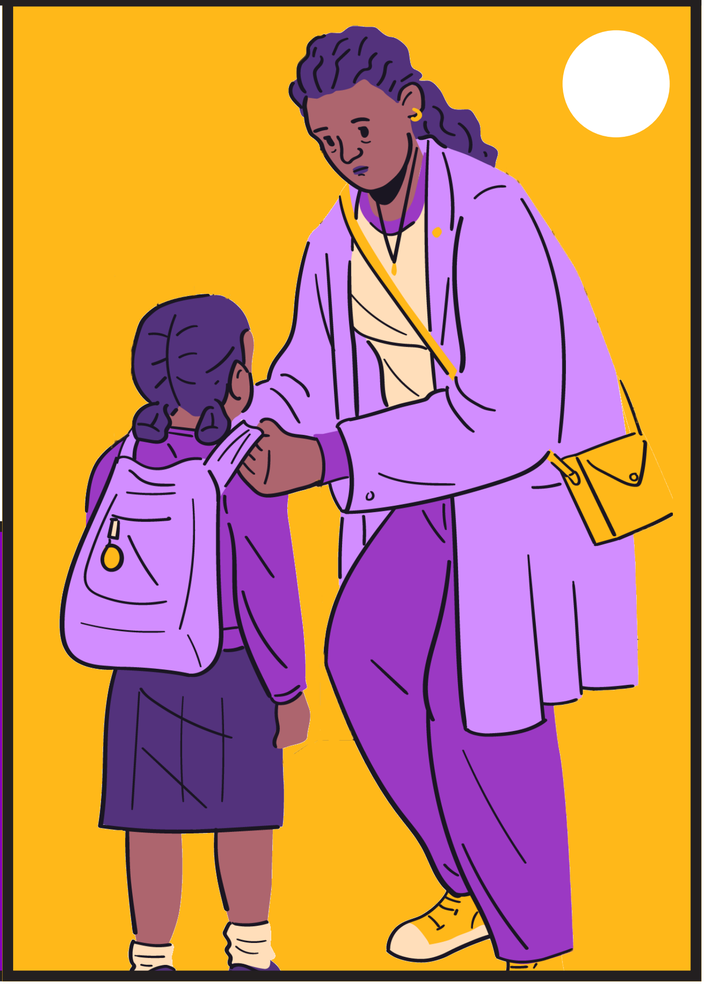
CAREERTECH CHALLENGE

What works for adult online learning:

An evaluation of the CareerTech Challenge

L&W LEARNING AND WORK INSTITUTE



ABOUT NESTA

We are Nesta. The UK's innovation agency for social good. We confront challenges that affect millions of people, from inequality and ill health to the climate crisis.

We believe that innovation offers more potential now than ever before. We see opportunities to mobilise citizens and influence behaviour. Private and public capital that can be used more creatively. A wealth of data to mine.

And so we draw on these rich resources by bringing together diverse teams. Data scientists, designers and behavioural scientists. Practitioners, academics, entrepreneurs and people with lived experience.

Together, we design, test and scale new solutions to society's biggest problems. We partner with frontline organisations, build new businesses and work to change whole systems. Harnessing the rigour of science and the creativity of design, we work relentlessly to put new ideas to the test. We'll keep going until we change millions of lives for the better.

Find out more at nesta.org.uk

ABOUT LEARNING AND WORK INSTITUTE

Learning and Work Institute is an independent policy, research and development organisation dedicated to lifelong learning, full employment and inclusion.

We research what works, develop new ways of thinking and implement new approaches. Working with partners, we transform people's experiences of learning and employment. What we do benefits individuals, families, communities and the wider economy.

Stay informed. Be involved. Keep engaged. Sign up to become a Learning and Work Institute supporter: learningandwork.org.uk/supporters

AUTHORS

Corin Egglestone, Hazel Klenk, Lucy Marsh and Fay Sadro, Learning and Work Institute.

DESIGN

Storythings | hello@storythings.com

Published July 2021

01

Executive summary

Context and background

This evaluation report presents the findings from the project-level evaluation of the CareerTech Challenge, delivered between May 2020 and June 2021. The report examines how the design and delivery of evaluations were undertaken, the findings across process and outcome evaluations and key learning from capacity building support delivered by Learning and Work Institute (L&W).

The CareerTech Challenge, launched by Nesta and Nesta Challenges in partnership with the Department for Education in October 2019, aimed to support the development of new solutions to help people find rewarding future careers. The programme was designed to support adults who were most at risk of rapid labour market change. From a wider cohort of 31 innovators, the CareerTech Challenge awarded 11 innovators between £145,000 and £250,000 to design and deliver innovative tech solutions that can build career adaptability skills and/or motivation to learn for people who are most vulnerable to workforce changes. Innovators comprised a mix of tech start-ups and established education providers.

Each innovator designed and delivered a process and outcome evaluation alongside programme delivery to support a better understanding of 'what works' to motivate and engage adults in online learning and equip them with skills for the labour market. Learning and Work Institute acted as the evaluation partner, providing capacity building support to facilitate consistent and robust approaches to self-evaluation.

The entire CareerTech Challenge was delivered through the coronavirus pandemic in 2020 and 2021. As such, the findings here must be considered within this unique context, and a range of key enablers and barriers to successful delivery and impact have been identified throughout the report. This report aims to identify the overarching design and delivery mechanisms of digital adult learning platforms that support positive outcomes for learners.

Enablers of successful delivery

Innovators designed a range of different online learning interventions. These included: flexible, self-directed training modules focused on building career adaptability skills, AI-driven personalised learning via chatbots, learning literacy apps, learning embedded in video game platforms, and digital peer mentoring.

Those innovators who implemented a range of recruitment approaches and monitored these closely were more successful in recruiting target groups and achieving a sufficient number of learners. Many innovators though failed to anticipate the diversity of recruitment approaches required to engage with and recruit adults, particularly those who had not engaged in formal learning for some time. While some cited pandemic-related factors impeding their ability to recruit as anticipated, wider evidence suggests that more adults than ever took the opportunity to learn something new[1].

Interventions saw relatively high levels of engagement during the course of delivery, citing key **onboarding** and ongoing engagement activities as critical to this success. A range of key enablers and barriers to successful delivery were identified by innovators and learners:

- **Bite-sized learning**, short courses and opportunities to engage in learning that fitted around other commitments were highly valued by learners, and there is some evidence to suggest these types of interventions were more successful in motivating adults to persevere with learning.

- **Personalisation** supported learners to maintain engagement. Tools that drove learners to self-identify key strengths and weaknesses were considered to be highly useful in supporting learners to continue on to further learning.

- Interventions that used **trusted messengers**, such as tutors, who directed adults towards the online learning interventions were generally more successful at maintaining engagement. However, this tended to impact adults who were more used to engaging in learning outside of the workplace. Employer referrals generally worked poorly in terms of maintaining the engagement of learners.

- **Peer learning** provided learners with opportunities to engage in 'live' events and share experiences of learning. However, this only worked effectively for learners who were comfortable engaging with peers; other learners valued the relative anonymity that comes with online learning interventions.

- The **learning design and content** were a vital factor in maintaining engagement and enjoyment. The use of gamified content, clear video and audio content and interactive online content were all highly valued by learners. Highly interactive online content acted as both an enabler and barrier to accessing the intervention for learners with a range of different needs.

[1] Learning and Work Institute, 2020. Learning through lockdown: findings from the 2020 Adult Participation in Learning Survey.

How effective were interventions?

Qualitative evidence from project-level evaluations identify a positive effect on learner motivation. For example, participating in a programme relevant to their employment goals supported extrinsic motivations such as aiming to progress in employment, gain a job or change careers. Specific features of interventions were found to directly impact these motivations, such as accreditation by recognised industry partners and the relevance of the course to the changing employment landscape. Intrinsic motivations were also increased by learners' enjoyment of learning, and the opportunity to do something 'normal' and constructive during the challenges of the pandemic. Many learners reported an increased desire to learn in the future after participating in interventions.

A broad range of newly acquired skills and strengths were identified by learners. These included:

- **Skills reflection.** Interventions helped learners to better understand how their skills could be used for a range of different careers and to explore career options.
- **Progression.** Several innovators reported that a substantial proportion of their learners had progressed into further learning relevant to their careers, had gained more responsibility in their job or had progressed into a new job.
- **Agency.** Bite-sized and self-directed learning encouraged agency, empowering individuals to 'take ownership' of their learning journey.
- **Core skills.** For several interventions learners reported that their personal 'core' skills had improved, such as adaptability, creativity, decision-making, resilience and reflecting on feedback.
- **Confidence in learning.** More than half of innovator evaluations found that their intervention had increased learners' confidence to learn new things.

Overall, project-level evaluations provide limited evidence to suggest that online learning interventions support the development of career adaptability skills, such as self-efficacy, critical thinking and resilience (as measured by pre and post testing). Observable changes in career adaptability skills are more likely detected in the longer term, which may in part explain why there is limited impact evidence across interventions with relatively short delivery and evaluation time periods.

Recommendations

The need for high-quality retraining and career adaptability skills has never been more important. This report therefore presents timely learning of the key considerations for the design and delivery of high-impact online learning for those most affected by changing labour markets.

Innovation funds provide a unique opportunity to test and learn about 'what works'. Where independent evaluation is not possible, self-evaluation should be considered a credible alternative to support a better understanding of effective approaches and impact. Below we set out six recommendations for innovators to consider for future online adult learning interventions and key considerations for future commissioners and funders.

Innovators

Targeted marketing and consideration of learner needs is vital to support recruitment.

Those innovators who established strategies to engage potential learners from 'harder to reach' groups were more successful in securing their participation. This included targeted social media marketing, extensive testing of marketing messages and recruitment through partnerships with learning providers, employers and referral organisations. In future, online learning innovators should ensure that robust recruitment plans are in place and tailored to their target group.

Consider bite-sized learning and personalisation in online learning interventions.

Online learning innovators should consider the inclusion of bite-sized learning and personalisation in interventions in order to support motivation to learn and skills development.

Clarity of course design and material should be a key focus in the intervention development phase.

Whilst experimenting with innovative features, online learning innovators should ensure that course design and content is clear, accurate and consistent in language in order to support ease of access and understanding. Innovators should consider user testing with the target audience to inform the development process.

Develop a clear onboarding strategy to support engagement.

Online learning innovators should consider developing onboarding processes and activities to support learner engagement, with a particular focus on maintaining engagement prior to project start and providing guidance on course commencement.

Integrate elements of social contact in online learning but give consideration to learner preference.

Online learning innovators should consider including elements of social contact in interventions to act as a mechanism for engagement and skills development. However, social contact should be considered as an optional rather than mandatory addition, with consideration of learner preferences.

Interventions should offer a clear sightline to future employment opportunities.

Online learning innovators should ensure that marketing materials and course information are explicit about the employment-related skills, experience and benefits learners will gain through participation in the intervention.

Commissioners and funders

Give careful consideration to programme timeframes

to ensure that they include sufficient time for development, delivery and evaluation. Commissioners and funders should consider the inclusion of a dedicated evaluation mobilisation period, to ensure innovators are fully prepared for full evaluation.

Continue to consider evaluation as a key component of programme delivery.

Where independent evaluation is not possible, commissioners and funders should consider setting clear expectations and minimum standards for self-evaluation.

Make expert advice and guidance available to delivery organisations.

The CareerTech Challenge has demonstrated that capacity building support can enable delivery organisations to take ownership of the evaluation process, leading to a substantial increase in evaluation capability, confidence and interest amongst innovators.

02

Introduction

Introduction

The CareerTech Challenge, launched by Nesta and Nesta Challenges in partnership with the Department for Education in October 2019, aimed to support the development of new solutions to help people find rewarding future careers. The programme was designed to support adults who were most at risk of rapid labour market change. From a wider cohort of 31 innovators, the CareerTech Challenge awarded 11 innovators between £145,000 and £250,000 to design and deliver innovative tech solutions that can build career adaptability skills and/or motivation to learn for people who are most vulnerable to workforce changes. Innovators ranged from tech start-ups to established education providers. The Fund was deliberately content agnostic, focused instead on innovative mechanisms that enable and support adults to engage and learn new skills.

There are significant gaps in the evidence base on what motivates adults to learn online and the most effective approaches to develop career adaptability skills[2]. As such, a key aim of the CareerTech Challenge Fund was to build the evidence base on 'what works' to support adults to engage in online learning and build skills for future labour markets. Innovators were required, with support, to design and deliver an evaluation of their intervention. Learning and Work Institute (L&W) was commissioned by Nesta to act as the evaluation partner for the CareerTech Challenge Fund, supporting innovators to design and deliver a process and outcome evaluation of their intervention.

This report presents a summary of the findings from innovators' evaluations. Evidence presented in each innovator report is drawn together in order to identify the key themes emerging from both process and outcome evaluations. This report aims to highlight the design and delivery mechanisms of digital adult learning platforms that support positive outcomes for learners.

CareerTech Challenge

The world of work is changing, and many workers are currently unprepared for predicted transformations. Recent evidence from Nesta, Pearson and The Oxford Martin School predicts that about one-fifth of workers are in occupations that are likely to shrink over the coming decade. The impact of this will be unequal across sectors, with roles in areas such as manufacturing and administration likely to decrease, and those in areas such as skilled trades and non-tradable services likely to increase. Future skills requirements will increasingly emphasise interpersonal, higher-order cognitive skills (such as fluency of ideas and active learning) and systems skills (such as judgement and decision making). The future workforce will need a combination of broad-based and specialised knowledge[3].

The Covid-19 crisis was a new and sudden shock that exacerbated and sped up some of this trend,

[2] Nesta & CFE Research, 2019. What motivates adults to learn? A rapid review of what drivers learning new skills in the workplace
[3] Pearson, Nesta & The Oxford Martin School, 2017. The Future of Skills: Employment in 2030

with the UK experiencing the sharpest rise in unemployment on record. The original criteria for the CareerTech Challenge focused on a cohort of learners who would have been eligible for the National Retraining Scheme (NRS). However, given the roll-out of the National Skills Fund and the additional economic challenges presented by the pandemic, the criteria for learners to be eligible for the Fund was expanded to include people matching these criteria:

- Aged 24 to 65 years old
- Located in England
- Educated below degree level
- Working in insecure roles (workers may be employed, furloughed, or recently made redundant due to rapid labour market change, but should not be long-term unemployed)

Innovators

Following a selection and scoring process, 11 projects were selected for grant funding in March 2020. Funding levels ranged from £145,000 to £250,000 per organisation. Funded innovators comprised four learning providers and four tech start-ups, with one established technology company, one employer organisation, and one community interest company.

One organisation was decommissioned part way through the Fund due to the significant impact of coronavirus on their delivery plans. This report therefore is based on the experiences and findings from the remaining 10 innovators who delivered their funded projects in full. Further information about innovators can be found in the Appendix.

Report structure

This programme evaluation report includes:

Chapter 2: Provides an overview of the programme and project-level evaluations and capacity building support activities.

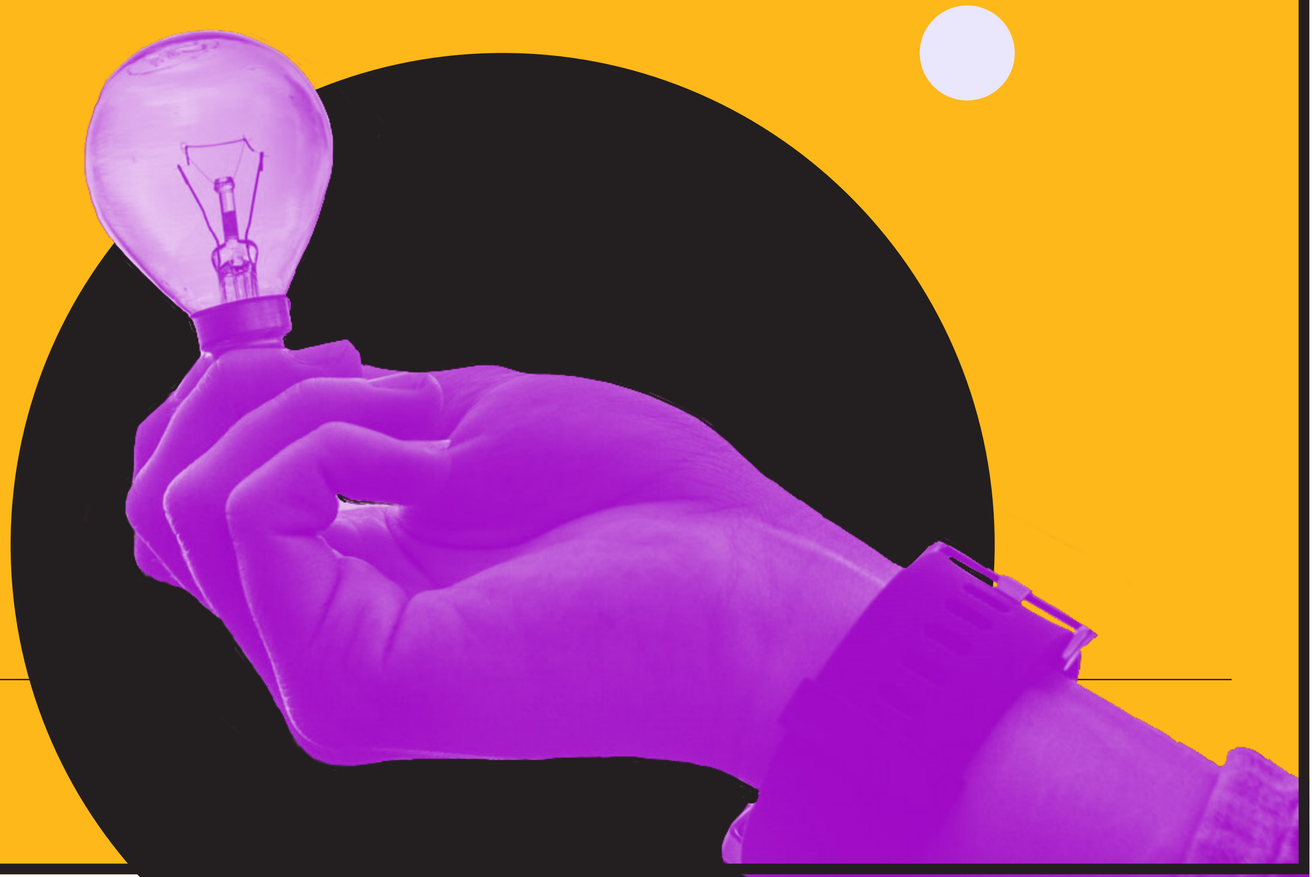
Chapter 3: Examines evaluation findings from across project-level evaluations, offering insights into what works across design and implementation; and impacts of participation.

Chapter 4: Offers conclusions and recommendations for future online learning interventions

Appendix: Provides further detail on the scale and scope of interventions and the programme Theory of Change.

03

Programme and innovator-level approach



Aims of the evaluation

The evaluation aimed to identify 'what works' in the use of online learning to build career adaptability and learner motivation for the cohort of eligible learners. This included an interrogation of how innovative tools can be used to support the engagement of this cohort of learners, and how core skills and career adaptability can be embedded into online provision. The evaluation also explored the conditions and contextual factors that influence the success of different approaches.

The evaluation had a two-fold focus. An innovator-level approach aimed to support each project team to design and deliver an evaluation of their intervention. This approach aimed to help innovators to understand the outcomes of their intervention and to explore the contextual, learner and design factors influencing the success of their approach.

Secondly, a programme-level approach that explored and synthesised key findings across the range of individual innovator evaluations. This approach aimed to draw out key themes and learning from the delivery and outcomes of interventions implemented by innovators and to understand the impact of contextual and organisational factors.

Programme-level approach

The programme-level evaluation drew out key findings from the individual innovator evaluations. This required, where possible, a level of consistency between the aims and methods of the innovator evaluations. It was also vital to ensure that the focus of all individual innovator evaluations aligned with the objectives of the programme. To facilitate these requirements the following activities were undertaken:

- Scoping process, including documentation review, familiarisation interviews and the creation of a typology of funded projects. This process ensured a good understanding of the programme objectives and of the specific details and aims of each intervention.

- Development of a set of evaluation frameworks and resources based on the findings of the scoping process, including a programme-level Theory of Change, a shared outcomes framework, an evaluation planning template, an evaluation guide and toolkit and a suggested report structure. These frameworks and resources were used to support innovators to design and deliver their evaluations along consistent and robust lines and to encourage the use of comparable, robust and validated tools and methods.

Throughout the evaluation process, evaluation managers acquired an in-depth knowledge and experience of each innovator's intervention and evaluation, and gave detailed guidance and reviews on evaluation plans, methods, tools, analysis and reports. Internal analysis meetings were used to identify common themes and lessons from this experience, alongside thematic analysis of innovator evaluation reports.

Innovator-level approach

Innovators designed and delivered their own process and outcome evaluation alongside intervention delivery. Evaluations aimed to better understand whether interventions had been delivered as intended, and identify the impact of online learning with adults most vulnerable to the impact of job automation and the pandemic.

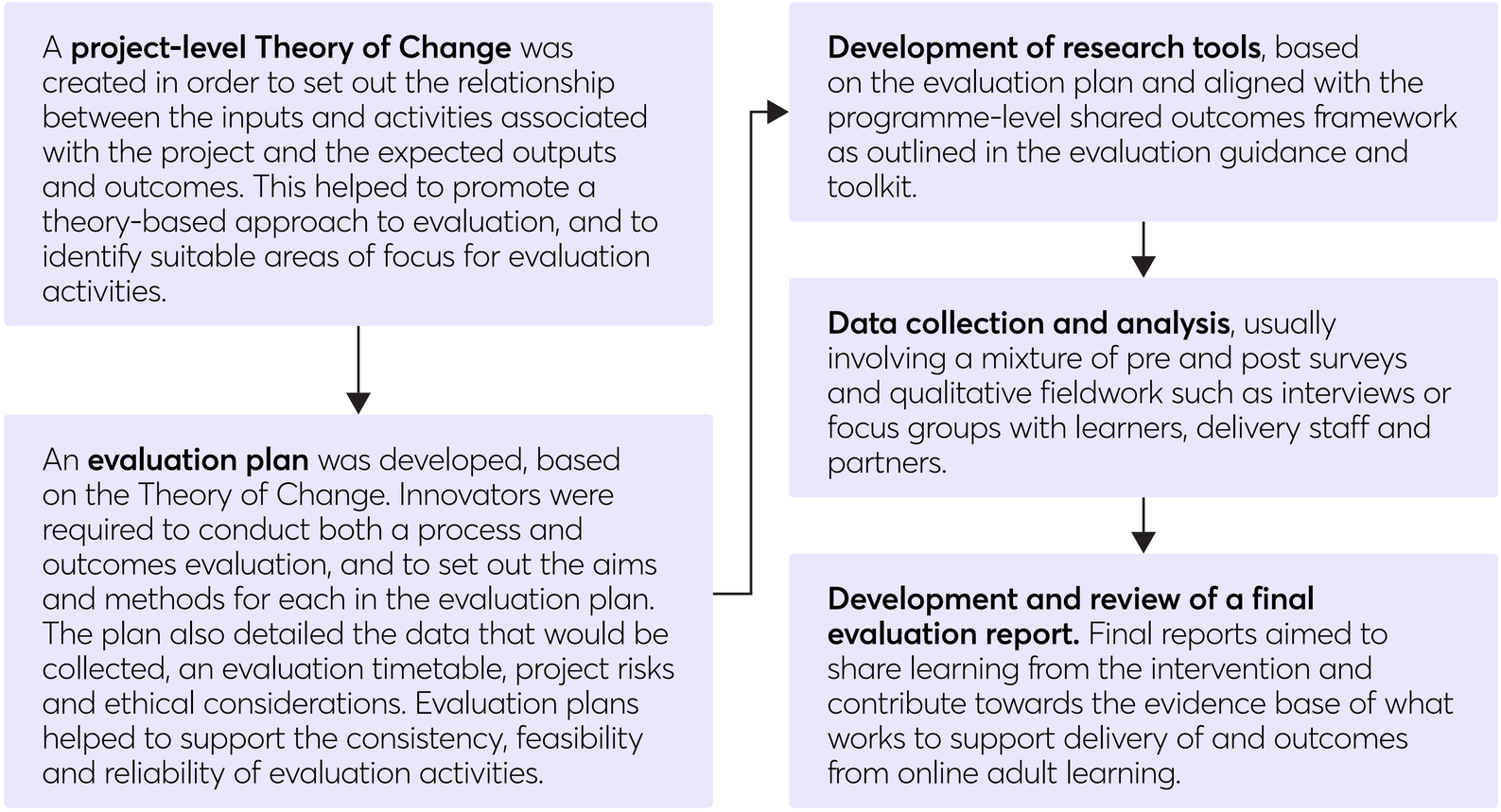
Innovators were allocated a dedicated Evaluation Manager from Learning & Work Institute, who provided evaluation support and guidance throughout project delivery. This approach ensured consistency in evaluation support across interventions, built trust with innovators and knowledge of specific project-level considerations for evaluations. Flexible and tailored guidance was provided, including (but not limited to) revisions and updates to the Theory of Change (ToC),

development of research tools, providing advice on measuring impacts, and conducting analysis and interpretation of findings.

Innovators also attended three whole-cohort webinars, which were used to introduce new phases of the evaluation, including Theory of Change development, research tools and data collection, and analysis and report writing. This support ensured that there was consistency of approach across the innovators but allowed for adaptation to specific needs.

Assisted by the range of capacity building support provided by L&W, evaluation design and development involved a series of stages:

Figure 1: Evaluation process undertaken by innovators



Evaluation frameworks and capacity building support

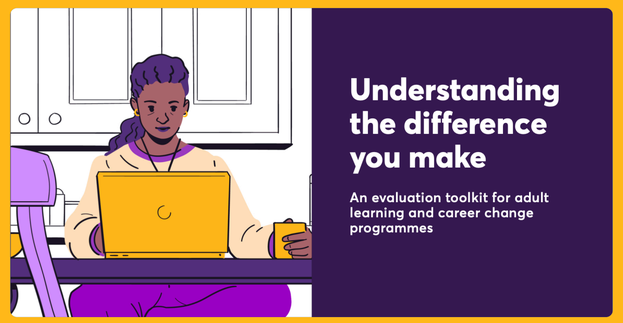
A range of resources, including frameworks for data collection, report templates and capacity building support were developed to assist with the design and delivery of evaluations. These resources were underpinned by a programme-level Theory of Change (ToC), developed by L&W. A shared outcomes framework provided innovators with a range of validated tools[4] to support the measurement of the most common attitudinal, behavioural and skills-based outcomes targeted by each intervention.

[4] Validated tools are sets of questions that are designed to measure a specific outcome and have been tested to ensure they are robust and accurate. Validated tools included in the shared outcomes framework can be accessed at: Learning and Work Institute, 2021, Understanding the difference you make: An evaluation toolkit for adult learning and career change programmes

EVALUATION TOOLKIT

An evaluation toolkit was developed to help innovators plan the stages and activities involved in the evaluation of their projects. It provided innovators with:

- Information on theory-based approaches, ToC development and how this supports evaluation design
- Step by step guidance on how to design and deliver a process and outcome evaluation, including completing output and outcomes monitoring tables, how to recruit participants, the pros and cons of different research tools and how to identify the most suitable ones for their intervention
- Introduction to experimentation in evaluation, including comparison groups and counterfactuals, randomised designs, and behavioural testing
- Guidance on how to ensure evaluation is ethically sound and how to identify potential risks to their evaluation
- Information and guidance on how to conduct quantitative and qualitative analysis and how to report findings effectively and generate conclusions and recommendations



- A questionnaire toolkit containing validated tools identified within the shared outcomes framework, with detailed guidance on their analysis and interpretation
- A process evaluation question bank, which facilitated innovators to explore intervention design and delivery processes within their evaluation. Questions were provided for different groups of stakeholders, for example delivery teams, product developers and learners.
- An evaluation plan template to support the development of innovators' evaluation approach.

The toolkit supported innovators to take a consistent and robust approach to their evaluation, and to understand the requirements and considerations for each aspect of it. The toolkit was published by Nesta in March 2021 and is available **here**.

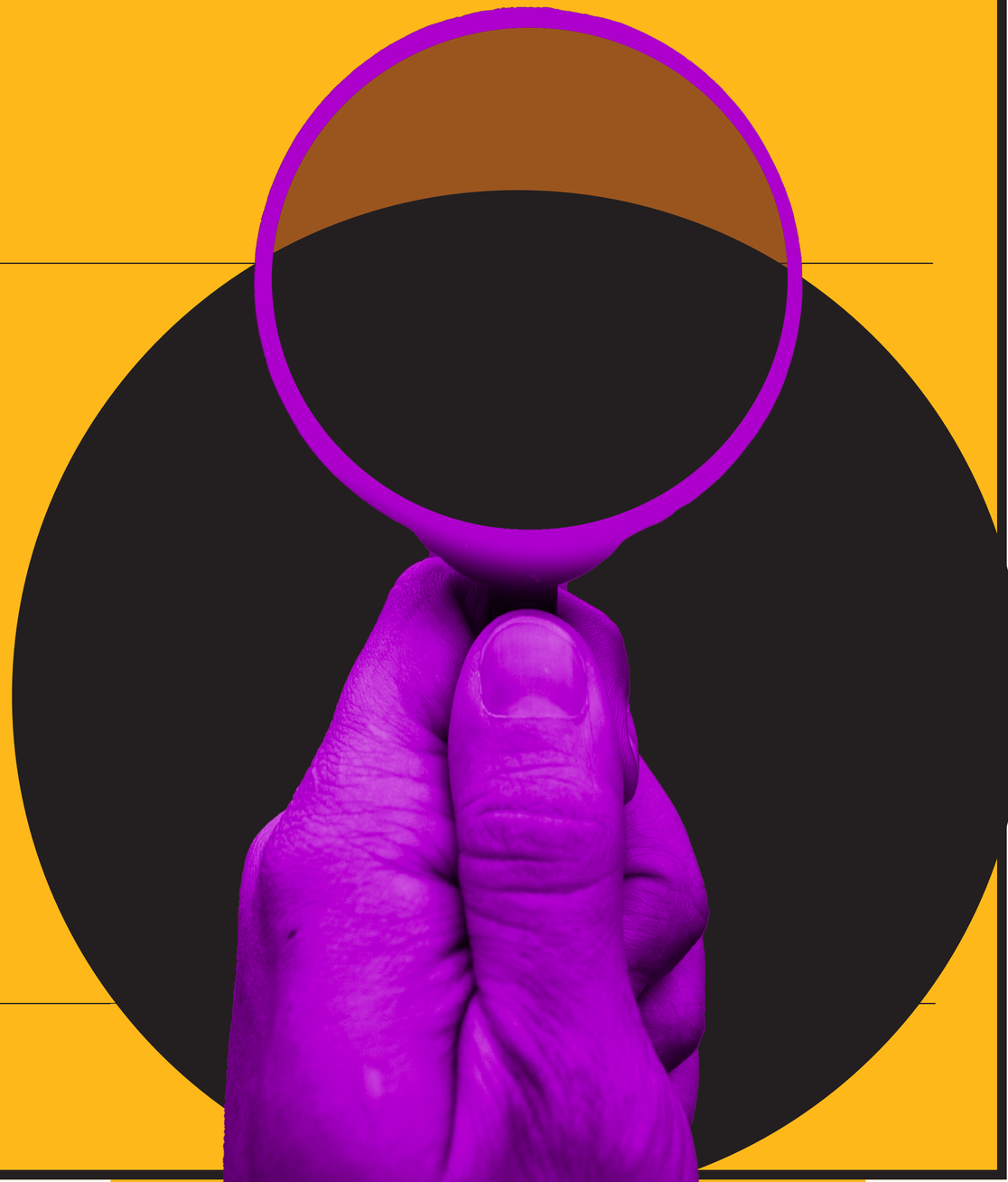
Limitations

A number of limitations should be borne in mind when considering evidence emerging from across project-level process and outcome evaluations:

- Due to the lack of quasi-experimental or experimental approaches in innovator evaluations, it was not possible to produce causal evidence on the impact of interventions. This has therefore limited our ability to make robust inferences of impact.
- Interventions covered a wide diversity of approaches and contexts, which limits comparisons at a programme level. Although this was mitigated by the development of a shared outcomes framework, there remained some variation in the outcomes measured and tools used by innovators.
- With the exception of some limited practical contributions (e.g. conducting learner interviews), Evaluation Managers were not directly involved in most data collection or analysis. Programme-level findings are therefore based on the assumption that all innovator evaluations have been conducted in a robust manner.
- Most innovators were unable to link the pre and post survey responses of individual learners. Analysis of distance travelled across outcome measures was therefore conducted mostly at a cohort level. A cohort-level analysis reduces both the granularity of results and the likelihood of identifying statistically significant findings.
- A consistent limitation across a number of innovator evaluations was the difficulty in recruiting sufficient numbers of learners from the eligible cohort for the intervention in general, or for the research activities in particular. Therefore many of the innovator evaluation findings are based on small sample sizes or include learners outside of the eligible cohort.

04

Evaluation findings



Evaluation findings

Innovators undertook a process and outcome evaluation to understand the extent to which their intervention was delivered as intended and the impact this had on key outcomes targeted.

This chapter explores how interventions were delivered and their effectiveness. Evidence has been drawn from across project-level evaluations to identify the key successes, challenges and outcomes.

How were interventions delivered?

Innovators designed a range of different online learning interventions, as outlined in Table 1 (page 21). These included: flexible, self-directed training modules focused on building career adaptability skills; AI-driven personalised learning via chatbots; learning literacy apps; learning embedded in video game platforms; and digital peer mentoring.

Learner recruitment

Innovators employed a range of recruitment strategies to target eligible cohorts. These included recruitment via:

- Referrals from learning providers, community learning advocates and career advice organisations
- Social media marketing through Facebook, Instagram and Twitter
- Partnerships with employers and learning platforms

The intervention launch period coincided with the global pandemic and the national lockdown in Spring 2020. Subsequent closure of key sectors and mass furloughs prompted a range of government policy responses focused on skills and employability. This included greater opportunities to access free courses[5]. Some innovators reflected that the unique aspects of their online learning offer were diluted given these higher profile government interventions, which contributed towards low levels of participation. However, overall rates of adult learning participation actually increased during the pandemic period[6].

Those innovators who implemented a range of recruitment approaches and monitored these closely throughout the mobilisation period were more successful in recruiting target groups and achieving a sufficient number of learners.

For example, one Innovator developed a targeted online marketing campaign using Facebook's algorithms that targeted age groups and occupations relevant for the Fund. They combined this approach with direct networking with employers to boost participation rates.

More broadly, many innovators failed to anticipate the diversity of recruitment approaches required to engage with and recruit adults, particularly those who had not engaged in formal learning for some time. Some innovators struggled to pivot to a different target audience, particularly those innovators with experience of primarily engaging with younger learners, or those who usually relied on employer partnerships for recruitment referrals.

Referral organisations

Innovators who utilised relevant referral organisations to signpost potential learners to their tool were most successful with recruitment. Those innovators who had existing links with relevant agencies that already supported target audiences were able to utilise these connections and secure buy-in from referral organisations more easily. Referral organisations included further education (FE) providers, community learning organisations

[5] For example, The Skills Toolkit launched on 28th April 2020

[6] Learning and Work Institute, 2020. Learning through lockdown: findings from the 2020 Adult Participation in Learning Survey.

and Job Centre Plus (JCP) Work Coaches. One innovator partnered with FE providers who signposted significant numbers of learners to their platform. Another innovator used literacy advocates and tutors to introduce their literacy app to potential users. Work Coaches from JCP were responsible for recruiting 40% of learners onto another intervention.

Social media marketing

Innovators who used social media marketing effectively invested time and market research activity into designing tailored messages for use on digital channels – predominantly Facebook and Instagram. One innovator tested marketing messages extensively with target audiences before launching their recruitment campaign and innovators who already had highly specific target audiences for their business model were able to utilise niche messaging on their social media adverts.

Similarly, another innovator developed learner-facing messaging in conjunction with teams at the Department for Work and Pensions who were experienced in reaching the Fund's target audience. Those innovators with less experience of social media marketing had more varying experiences. Some described it as time consuming, costly and challenging to navigate different online platforms.

Employer partnerships

Several innovators had established employer partnerships to support recruitment to their intervention. This was considered the least successful means of securing participation of learners. One innovator who struggled to recruit via this approach felt that when tools were offered for free they were valued less by employers and so their use was not encouraged or monitored internally.

Feedback received from employer partners also identified that greater flexibility on content of learning and alignment with their organisational objectives would have supported better engagement from partners. Tools for improving 'general' employability skills were less attractive to employers.

These challenges were exacerbated by the impact of the pandemic, which meant that organisations were operating on significantly limited capacity due to furlough and redundancy and so were reluctant to encourage staff to participate in training as an addition to their roles. Recent evidence suggests that employer investment in skills and training was declining prior to the pandemic and further trends suggest a dip in quality of training[7].

[7] Learning & Work Institute, 2021. Learning at Work: Employer investment in skills.

Table 1: Innovator interventions

Intervention	Learning content	Mode of delivery
LEAP by Agent Academy	Digital, creative & tech skills.	Learners work through real-world inspired client challenges, their work and learning translates into a portfolio to support their employability.
CENTURY by CENTURY Tech	Functional skills in Maths & English (Level 1&2)	AI driven personalised micro-learning, whereby the learner's pathway continually adapts to present bitesize learning modules tailored to support and stretch. Learners can earn badges for completed modules and access a personalised learning analytics dashboard.
Citizen Literacy Taster App by Citizen Literacy CIC	Adults Basic Literacy	Web and smartphone based app that motivates and supports low literacy learners using handwriting and voice recognition combined with adult phonics.
Career Skills for the 2020s by Coventry University Online	Digital Career Skills	A four week, self-paced course hosted on FutureLearn with online collaboration for peer review and group work.
The Future Skills Bootcamp by Digital Mums	Digital & marketing skills	Learners undertake tasks based on real world scenarios. Delivered as a digital bootcamp to support collaborative learning with chatbot and interactive features.
Game Academy by Game Academy	Core skills	Designed for gamers. Learners complete a diagnostic assessment based on games played and undertake a series of in-game and life challenges. Delivered as a bootcamp learners undertake self paced activities together with live learning sessions and peer collaboration via Discord.
Career Elevate by MyKindaFuture	Business skills for your workplace	Digital platform providing peer mentoring while learning. Learners undertake 12 modules and can connect with business experts from their company or other employers.
Create Your Own Future by Saffron Interactive with TUC UnionLearn	Career planning	A conversation or facetime with an AI enabled video mentor involving reflection of motivations and barriers to career adaptability, skills assessment, skills to job matching and coaching to hone career options and appropriate training, as well as a guided action plan.
DigiLearn by Sopra Steria with ELATT	Resilience	AI driven personalised learning platform. Each learner has a personalised journey through 12 lessons based on some of their own characteristics which were captured during registration.
Gamified Intelligent Cyber Aptitude and Skills Training by The Open University	Basic cyber security skills	An eight week, self-paced course hosted on OpenLearn. Learners are supported via eight games embedded into each week's learning content, an adapted personalised learning journey and careers coaching.

Learner engagement

Innovators measured completion rates of learners who participated in their intervention. Funding had been provided on the basis of learners engaging with 15 hours of content, however different definitions of completion were used by organisations. For example, some innovators defined completion as finishing all aspects of the course on a learner's recommended learning pathway. Other innovators specified a threshold of a set number of learning hours.

Although not directly comparable, findings show a large variance in completion rate. The highest completion rate is for a digital skills bootcamp, where over half (55.6%) of learners completed the course. In contrast, those interventions with more flexibility and self-led content saw lower levels of engagement overall. Only 3.2% of learners completed 15 or more hours on one of the digital platforms with personalised learning. For most interventions, completion rates appear to be between approximately 10% and 20% of learners. This broadly aligns with recent studies of online learning within the context of the pandemic[8].

Onboarding

Maximising interaction with potential learners after recruitment, but before the project start, was particularly successful for those interventions that employed live group learning courses. One innovator offered mini-learning sessions as part of their recruitment strategy, inviting potential learners to participate in 15-, 30- and 60-minute example sessions, which successfully converted a proportion of these participants into learners. Another found that running interactive sessions for potential learners who had expressed interest before enrolment achieved similar results. Innovators felt that these approaches helped to keep learners who were waiting to start an intervention engaged, reducing drop-out rates.

Introducing learners to platform features and communication tools after enrolment helped to build confidence with the technology, contributing towards better learner engagement over time. One innovator onboarded learners via a webinar where platform features were explained, which was valued by users. Another innovator added a welcome video onto the first log-in screen to explain key terminology and how to use the platform after feedback suggested that learners were struggling with this. The onboarding process for one platform was altered to carefully introduce each of the tools used as part of course delivery so that it was not overwhelming for learners. A Slack channel was introduced as part of this onboarding process and learners actively used it throughout delivery. One innovator reflected that engagement on their platform could have been facilitated by a 'live' intro to the platform upon enrolment.

[8] OECD, 2020. The potential of online learning for adults: Early lessons from COVID-19 crisis.

Successful delivery mechanisms

Online learning delivery models included self-led literacy apps, game-based learning and mentoring platform interventions. There is good qualitative evidence from project-level evaluations that shows certain delivery mechanisms and processes appear to work better than others in certain situations. Delivery mechanisms that have been shown to have worked well and less well are summarised below.

- **Bite-sized learning.** Short courses or bite-sized learning supported learners to engage with learning content and progress. Learners appreciated that material had been broken down into smaller steps, which encouraged reflection and gave learners the chance to attempt learning without the pressure of completing the whole course in one go.
- **Personalisation.** Tailoring the intervention to personal circumstances and preferences was key to maintaining engagement and may support learners to complete interventions. Learners reacted positively to individual diagnostic assessments and action plans, which helped them to see their strengths, learning needs and goals. An exception to this was a gamified cyber security course, where there was a low uptake of personalised routes. However, in this case learners described how they did not want to miss any part of the course, suggesting personalisation was not needed to encourage learners in this context.
- **Trusted messengers.** Learners engaged more successfully with content when they had personal support and encouragement to do so. This support came from content facilitators within innovator organisations, or via tutors and advocates who had signposted learners to tools. Across one intervention, learners who were recruited via FE providers were more likely to engage effectively with content and to repeat activities or lessons if needed compared to those who self-referred. This was especially true compared to learners who self-referred and only received prompts to continue their learning via email, which were ineffective in the majority of cases. Interventions that recruited learners via employer partners generally struggled to maintain engagement with learners. This suggests that more established adult learners with trusted advocates or 'messengers' engaged more effectively with interventions. This supports previous research where access to professionals has been found to reduce barriers to engagement with learning after course commencement[9].
- **Peer learning.** Peer learning and collaboration predominantly supported learner engagement and helped to foster a sense of camaraderie, encouraging social interaction, and helping learners to connect with those who had similar experiences. For example, an intervention focused on learning through video games featured a community forum where gamers were able to connect with like-minded individuals in order to discuss their learning. An online career skills course included a peer review exercise, and a digital skills bootcamp utilised online collaboration tools to enable learners to complete tasks as a group. However, peer learning could also be a barrier for some learners. This was particularly the case for individuals with low levels of confidence who did not feel comfortable in engaging with their peers, or in cases where only a small number of learners used the peer learning function resulting in limited interaction between learners.

[9] Kantar Public & Learning and Work Institute, 2018. Decisions of adult learners. DfE.

CENTURY

PERSONALISATION: CENTURY TECH

Learners using the CENTURY platform are provided with a personalised recommended learning path which contains micro-lessons, known as 'nuggets'. Each personalised learning path is designed to stretch, challenge and support memory retention. The pathway continuously adapts for each learner, based on their own learning experience.

As part of the CareerTech Challenge, the CENTURY platform was updated to include an additional learner analytics dashboard, designed to support independent study by providing data which helped learners identify areas to focus their learning on. A completion tracker was also added, and badges were awarded when learners completed a certain number of 'nuggets'.

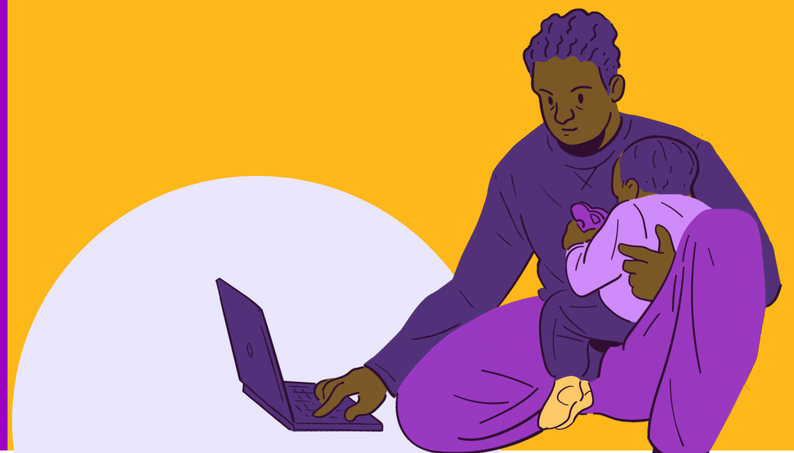
Of the 806 learners, 515 were considered 'active learners'. The average number of page views, average nuggets completed were all significantly higher than 'business as usual' engagement on the platform.

See full case study

TRUSTED MESSENGERS: CITIZEN LITERACY CIC

The Citizen Literacy app is designed to support adults who are beginner readers and writers to develop their literacy skills. Stigma surrounding adult literacy learning prevents many people from disclosing their difficulties and seeking support. Literacy teachers, support workers and advocates played a critical role in introducing learners to the app and supporting them through the process. The Citizen Literacy team provided these gatekeepers with a range of ways to best communicate the app to potential learners, including short videos about how and why people could use the app to support their learning. The team subsequently recruited 787 learners on to the app.

See full case study



Digital Mums

PEER LEARNING: DIGITAL MUMS

The Future Skills Bootcamp is an online, 10-week, project-based learning programme. Content is delivered through an enquiry-led learning model which includes:

- **Real world learning** where lessons are scaffolded around a real business challenge to root learning in tangible contexts.
- **Extended learning relationships** where students work on collaborative projects widening the learner relationships beyond tutor and learner.
- **Growth mindset coaching** where a group coaching framework is layered on top of teaching to support students to build confident learner mindsets.

During the Bootcamp, learners worked collaboratively on live projects in peer groups. Evaluation of the Bootcamp suggested that engaging with other learners in 'live' activities kept individuals engaged and committed to completing the course.

"I used my peer group as motivation. It was for all of us!" – Future Skills Bootcamp Learner

- **Learner control.** The ability of learners to control their own learning was found to be a key mechanism to maintain engagement with interventions amongst more reluctant learners. L&W's Adult Participation in Learning Survey has consistently found work and caring commitments to be substantial barriers to learning[10], and learners across interventions appreciated the flexibility of choosing when and how often to engage with interventions to fit around work or study commitments. Learners also benefited from the ability to practice lessons and activities as often as they wanted to, repeating content if required, meaning that learning did not have to be completed in a linear way. For example, an app-based programme to support literacy allowed learners to access learning whenever and wherever they chose, and to repeat activities until they were satisfied that they had learnt the content. A tailored micro-learning course found that learners from the eligible cohort were more likely to access content throughout the day and required more flexible access than other learners.

- **Live learning sessions.** Whilst flexibility was valued by some, a tension emerged as some learners also enjoyed engaging with live content to support their development. Learners across several interventions identified that live 'classroom-style' learning sessions facilitated their ongoing engagement with the programme. This view was not universal, however, with one Innovator removing live learning sessions from one iteration of the intervention following feedback that this limited the flexibility the programme provided. Evidence of what works to support online adult learning suggests that whilst a combination of self-directed and taught learning is valued for its flexibility, engagement with instructors and peers is important to learners for sustaining engagement[11].

- **Innovative tools.** A wide range of innovative tools and features were included in interventions. Although these were too varied to draw out any common findings, many learners reported that they supported their ongoing engagement with the intervention overall. For example, gamification of course content, use of AI to personalise learning, online coaching sessions and chatbots supported learners to engage with more complex learning content.

[10] cf. Learning and Work Institute, 2019. Adult Participation in Learning Survey 2019.
[11] Doris U. Bolliger & Florence Martin (2018) Instructor and student perceptions of online student engagement strategies, Distance Education, 39:4, 568-583

GAME ACADEMY
BEYOND GAMING

LIVE LEARNING SESSIONS: GAME ACADEMY

Game Academy's online platform used live game play, facilitated by Game Academy tutors, to teach and enhance employability skills such as problem solving, team leadership and resource management skills.

Game Academy learners reported that the blend of semi-automated and semi-live experiences increased their skills and improved their confidence and motivation to seek employment, study or career progression. Live gaming sessions and quests helped learners to relate gaming skills – such as strategy, creativity, decision making, persistence and teamwork – to real life situations. In a later iteration of the platform the live gaming sessions were removed, and learner feedback suggested that not having the opportunity to collaborate with peers or tutors negatively impacted their motivation to continue learning.

See full case study

- **Learning design and content.** Clarity of content was particularly important, with many learners favouring a simple design and language that was clear, accurate and consistent. Learners also responded well to a variety of different media in the content, such as a mix of written, visual, video and interactive exercises. This was especially the case when learners reached a 'transition' point in their learning and when new concepts were introduced. Where innovations sought to improve basic skills, users valued video and audio content that had been created with adult learners in mind, rather than posting content which was already available for younger audiences. Simple, visual diagrams were useful for illustrating more complex learning points, and learners found that videos with captions and subtitles enhanced accessibility of content.

- **Sightline to future employment.** Gaining skills which would benefit learners in the labour market was a key factor driving participation for some. For example, learners on an online career skills course highlighted that the development of employability skills during a period of labour market uncertainty was a key motivation. Learners on a gamified cyber security course described how they had been motivated by their perception of cyber security as a growing area for employment opportunities.

- **Coronavirus.** The coronavirus pandemic was both a facilitator and a barrier to engagement. For some learners, lockdown restrictions and the impact of the pandemic on employment increased the time they had available for learning. For others, the pandemic generated an increased desire to learn something new. However, in some cases where learners were recruited and supported through their learning provider, the disruption to standard learning provision and support services was found to make it more difficult to engage learners with the online intervention. The pandemic also significantly hindered learner recruitment through employers, who did not have capacity to support the introduction of new projects during this time.

How effective were interventions?

All innovators undertook an outcome evaluation to understand the impact of their intervention. Innovators mapped anticipated outcomes through their Theory of Change during the evaluation design phase (see 'Evaluation approach' chapter). These outcomes were examined via a range of different approaches, including pre and post surveys using validated tools, analysis of management information and qualitative interviews with learners[12]. This chapter explores those outcomes most relevant for the CareerTech Challenge – motivation to learn and career adaptability skills.

Motivation to learn

Evidence from innovator evaluations broadly shows interventions to have had a positive impact on learner motivation. In line with Nesta's approach to measuring motivation to learn, this section explores both attitudinal and behavioural indicators of learning[13].

Attitudes

In general, there was little change in attitudes towards learning measured between pre and post surveys, with innovators recording either minor increases or no change in motivation to learn. However, this lack of change may be explained by high levels of pre-existing motivation amongst learners. For example, one innovator found that 59 out of 65 participants disagreed or strongly disagreed with the statement 'I don't enjoy learning' in the pre-survey, suggesting that a substantial proportion of learners were already motivated to learn upon entering the intervention. Many innovators also undertook direct marketing to support recruitment, which suggests that those who responded to marketing may already have had high levels of motivation to learn.

Despite this overall lack of quantitative change, many learners described how interventions had improved their motivation to learn. For example, participating in a programme relevant to their employment goals supported extrinsic motivations such as aiming to progress in employment, gain a job or change careers. Specific features of interventions were found to directly impact these motivations, such as accreditation by recognised industry partners and the relevance of the course to the changing employment landscape. Intrinsic motivations were also increased by learners' enjoyment of learning, and the opportunity to do something 'normal' and constructive during the challenges of the pandemic; many learners reported an increased desire to learn in the future after participating in interventions.

Behaviours

Innovators used a range of behavioural indicators to understand impacts on motivation to participate in learning. Learner engagement with interventions was variable. Although some interventions had high dropout rates, others had a high level of engagement indicating that they were successful in maintaining learner motivation. Interventions with bite-sized learning identified that learners would often reattempt aspects of the course several times. Interventions with considered onboarding processes, such as pre-learning engagement events supported motivation to learn.

Many learners were motivated to continue learning beyond the intervention. Several innovators reported that a large proportion of learners had signed up to further learning, or had looked at other courses on their platforms. For example, four-fifths of learners who had completed a gamified cyber security course were intending to continue with cyber security training, and approximately half had already engaged with other courses on the learning platform. These included computer-related courses, data science or further cyber security courses. Approximately a quarter of learners on a digital skills bootcamp signed up to further digital skills training with the innovator organisation.

[12] No innovator undertook an experimental or quasi-experimental approach. As such, evidence presented in this chapter should not be considered causal.

[13] Nesta & CFE Research, 2019. What motivates adults to learn? A rapid review of what drivers learning new skills in the workplace

Career adaptability

Overall, project-level evaluations provide limited evidence to suggest that online learning interventions support the development of career adaptability skills, such as self-efficacy, critical thinking and resilience. Observable changes in career adaptability skills are more likely seen in the longer term, which may in part explain why there is limited impact evidence across interventions with relatively short delivery and evaluation time periods.

Several innovators measured career adaptability via validated questions in their pre and post surveys[16]. In most cases, little or no change was identified. However, one innovator did find a small but statistically significant increase in career adaptability. This intervention was the longest (50+ hours) intervention delivered as part of the Fund and consisted of a digital skills bootcamp using a project-based online learning model featuring peer learning and mentor coaching.

Some learners also described how interventions had increased the skills they need for future careers. For example, learners on a gamified cyber security course reported that it had enabled them to build skills which would be useful in a future career related to cyber security. Learners using an app-based programme to support literacy described how it had helped them to improve their reading and writing skills. Learners on an intervention focused on learning through video games described how the intervention had encouraged them to reflect on their strengths and how they could relate to their future career.

CAREER ADAPTABILITY

Interventions were designed to enhance career adaptability, which describes readiness and ability to adapt to occupational changes and transitions. The five factors of career adaptability include:

Career Concern: thinking critically about the future and preparing for it

Career Control: agency and responsibility to make career decisions

Career Curiosity: exploring options for future role and skills development

Career Confidence: perception of ability to solve career problems

Career Commitment: resilience in overcoming career challenges[14, 15]

Drawing from qualitative evidence from across innovator evaluations, a range of career adaptability skills were identified:

- **Skills reflection.** Interventions helped learners to better understand how their skills could be used for a range of different careers and to explore career options. For example, two interventions featured a core skills assessment and gave advice on how these could be applied in the labour market. Learners described how they had enjoyed this process of career reflection and reported an increased awareness of different careers relevant to their skills set and of widened future job prospects. In one intervention, nine out of 10 learners reported that they had been encouraged to think about careers they had not previously considered. Core skills assessment also empowered learners to take more responsibility for their own career goals.

- **In-work and onward progression.** Several innovators reported that a substantial proportion of their learners had progressed into further learning relevant to their careers, had gained more responsibility in their job or had progressed into a new job. For example, an intervention focused on employment in the cyber security industry resulted in a relatively high proportion of learners either applying for jobs in cyber security

[14] Nesta & CFE Research, 2019. What motivates adults to learn? A rapid review of what drivers learning new skills in the workplace
[15] CareerTech Challenge Fund: definitions
[16] Learning and Work Institute, 2021. Understanding the difference you make: career adaptability questions.

or pursuing further cyber security training. Another innovator reported that learners' post survey results indicated a reduction in anxiety about making career changes and an 'optimistic outlook' about the future of their careers.

- **Agency.** Bite-sized and self-directed learning encouraged learner agency, empowering individuals to 'take ownership' of their learning journey. Several innovators found that many learners did not follow recommended learning pathways, preferring to choose aspects of the course most of interest or relevance to them. Learners also often chose to repeat aspects of the course, in order to ensure that they were confident with it before progressing. Flexible access to interventions also enabled learners to choose how and when they would participate in the intervention.

- **Core skills.** For several interventions learners reported that their core skills had improved, such as adaptability, creativity, decision-making, resilience and reflecting on feedback. Improvements in core skills were considered important in helping learners to be more confident and adaptable when applying for jobs.

- **Confidence in learning.** More than half of innovator evaluations found that their intervention had increased learners' confidence to learn new things. In particular, analysis of responses to toolkit questions included in pre and post surveys found that for several interventions there were increases in confidence in digital learning, improvements in general confidence or reductions in learning anxiety. Many learners described how participating in the course had improved their confidence in learning and their willingness to pursue further learning opportunities. Confidence was improved through aspects of interventions such as positive and regular feedback, providing a safe environment for learning, support of fellow learners through peer learning mechanisms and enabling participants to try out different approaches to learning. Learners also described how their confidence in learning had been improved simply by successful course completion.

Learner wellbeing

There is some evidence from innovator evaluations of improvements to learner wellbeing. One intervention featured an app that aimed to improve learners' literacy levels. Many learners reported that their mental health and wellbeing, confidence and self-esteem had improved after using this app. Qualitative interviews with learners suggest that this may partly be due to an increased level of independence after improving their literacy levels. They also found that peer support and contact with learning providers may have increased wellbeing.

Another innovator who delivered a digital skills bootcamp with peer learning and mentor coaching used the toolkit questions in their pre and post survey to measure self-efficacy and found a statistically significant improvement. Qualitative evidence from a number of intervention evaluations suggests that improvements in confidence were facilitated by having a safe space for learning. The relative anonymity of learning digitally was critical to this for many learners.

05

Conclusions and recommendations

Conclusions and recommendations

Evaluation and capacity building support has enabled innovators to understand how their interventions work in practice and the outcomes of learners. This report comes at a crucial time for the UK. As the economy begins to recover from the pandemic, recent labour market statistics[17] have identified a mismatch between employer skills needs and increased unemployment. The need for high quality retraining and career adaptability skills has never been more important. This report therefore presents timely learning of the key considerations for the design and delivery of high impact online learning for those most affected by changing labour markets.

Innovation funds provide a unique opportunity to test and learn about 'what works'. Where independent evaluation is not possible, self-evaluation should be considered a credible alternative to support a better understanding of effective approaches and impact. Evaluation across the CareerTech Challenge provided key insights at both a project and programme level. This supported better and more considered approaches to intervention design by steering delivery organisations to examine their own practices and understand how they link their activity to expected project outcomes. Setting minimum quality standards worked well to set expectations and improve the design and execution of the evaluation.

Where self-evaluation is commissioned alongside delivery, commissioners and funders should consider setting time and resource expectations to deliver a robust evaluation, with specific funding. Funders should also be realistic about what can be measured and evidenced through self-evaluation. For example, interventions with relatively short timeframes (one year or less) and/or small sample sizes present challenges in building quasi-experimental or experimental designs that produce causal evidence.

Below we set out six recommendations for innovators to consider in the design and delivery of future online learning interventions and key considerations for future commissioners and funders.

[17] Labour market analysis | June 2021

Innovators

Targeted marketing and consideration of learner needs is vital to support recruitment.

Those innovators who established strategies to engage potential learners from 'harder to reach' groups were more successful in securing participation. For example, targeted social media marketing (for example, by age group or occupation) helped to ensure that advertising was focused on individuals from the eligible cohort. Extensive testing of marketing with target audiences helped to tailor messages to learners' interests and needs. Partnership working with learning providers, employers, referral organisations and other stakeholders provided referral routes for learner recruitment. In future, online learning innovators should ensure that robust recruitment plans are in place and tailored to their target group.

Develop a clear onboarding strategy to support engagement.

Those innovators who developed an onboarding process were particularly successful in maintaining learner engagement. Onboarding activities prior to course commencement, such as mini-learning sessions, webinars or interactive sessions for potential learners, were found to reduce drop-out rates between recruitment and project start. Onboarding processes built into interventions, such as welcome videos and guidance on using platforms or tools helped learners to get to grips with interventions. Online learning innovators should consider developing innovative onboarding processes and activities to support learner engagement, with a particular focus on capitalising on the period between recruitment and project start.

Consider bite-sized learning and personalisation in online learning interventions.

Short courses or bite-sized learning gave learners the opportunity to direct their own learning. Learners valued being able to fit learning around work or study commitments, and attempt or re-attempt aspects of a course without time pressure. Personalisation, such as recommended learning pathways, individual diagnostic assessments and action plans, supported learners to understand their strengths, learning needs and goals. Online learning innovators should consider the inclusion of bite-sized learning and personalisation in interventions in order to support motivation to learn and skills development.

Integrate elements of social contact in online learning, but give consideration to learner preference.

Peer learning through online message boards and forums helped to build a sense of camaraderie amongst learners, and to provide an opportunity for learners to share and learn from each other's thoughts and experiences. Innovators found that tutors or mentors were able to facilitate engagement with the intervention, and to provide specific aspects of support where needed. However, some learners did not engage with mentors due to a preference for anonymity in online learning. Online learning innovators should consider including elements of social contact in interventions to act as a mechanism for engagement and skills development. However, social contact should be considered as an optional rather than mandatory addition, with consideration of learner preferences key.

Clarity of course design and material should be a key focus in the intervention development phase.

Innovative course design was found to spark learners' interest in learning and maintain engagement with interventions. However, learners still considered a simple intervention design and clarity of language to be important in ensuring ease of access and understanding. Learners also responded well to a variety of different media in the content, such as a mix of written, visual, audio and interactive exercises. Whilst experimenting with innovative features, online learning innovators should ensure that course design and content is clear, accurate and consistent. User testing will strengthen the validity of the intervention.

Interventions should present a clear sightline to future employment opportunities.

Those interventions with clear links to job-specific skills tended to have more motivated learners, lower rates of dropouts and better engagement overall. Job specific skills included digital skills, experience in a specific area relevant to a particular industry, or via a clear progression route to industry-related learning pathways. Online learning innovators should ensure that marketing materials are explicit about the employment-related skills, experience and benefits learners will gain through participation in the intervention.

Commissioners and funders

Give careful consideration to programme timeframes.

Longer time scales could facilitate more complex and robust evaluation designs and provide opportunities to test and learn from different delivery approaches. Commissioners and funders should also consider the inclusion of a dedicated evaluation mobilisation period, to ensure innovators are fully prepared to deliver their evaluation.

Continue to consider evaluation as a key component of programme delivery.

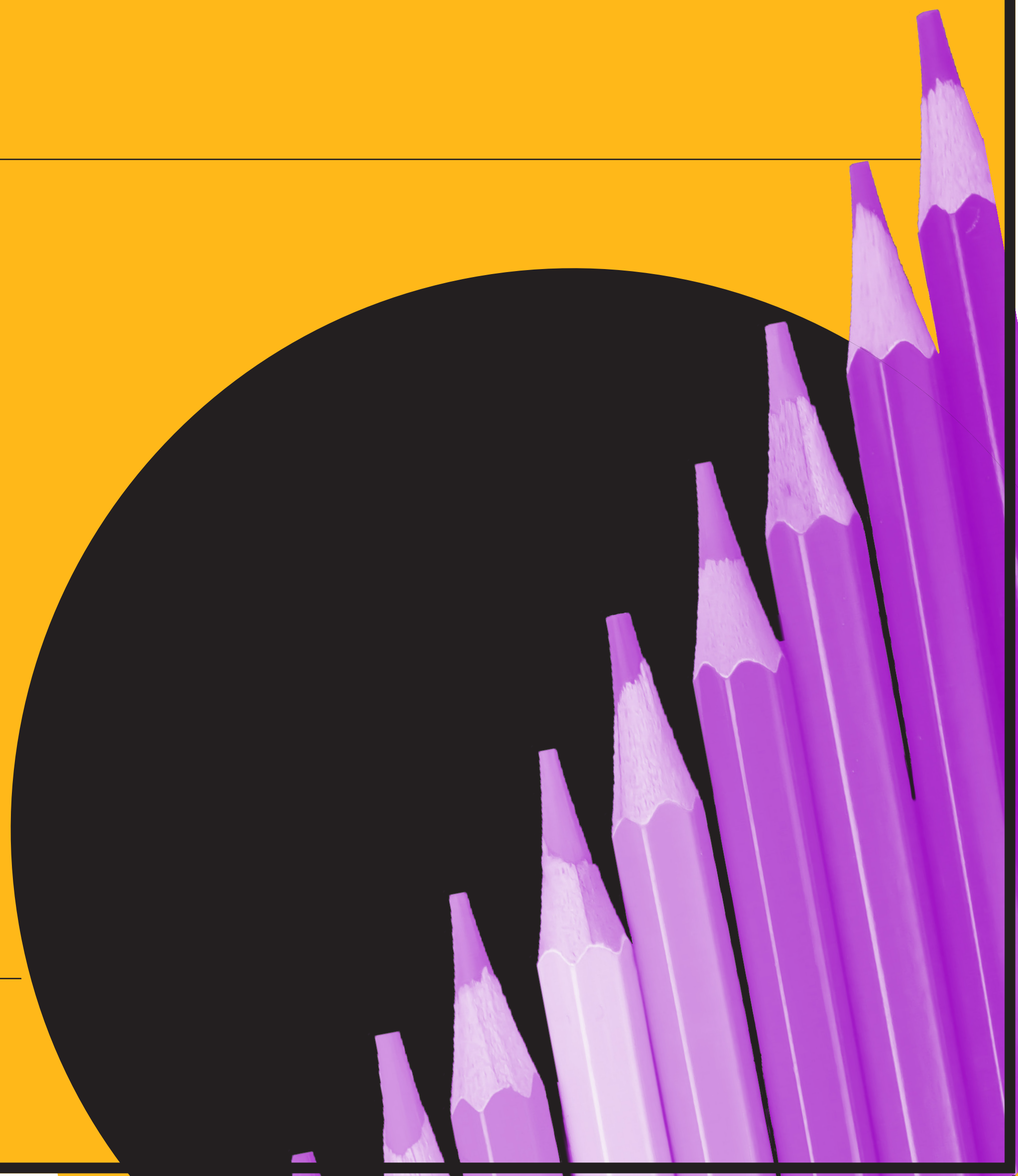
Self-evaluation in the CareerTech Challenge has provided key insights at both project and programme levels. Where independent evaluation is not possible, commissioners and funders should consider setting minimum evaluation standards and provide shared resources at a programme level such as evaluation guidance, toolkits and templates.

Make expert advice and guidance available to delivery organisations.

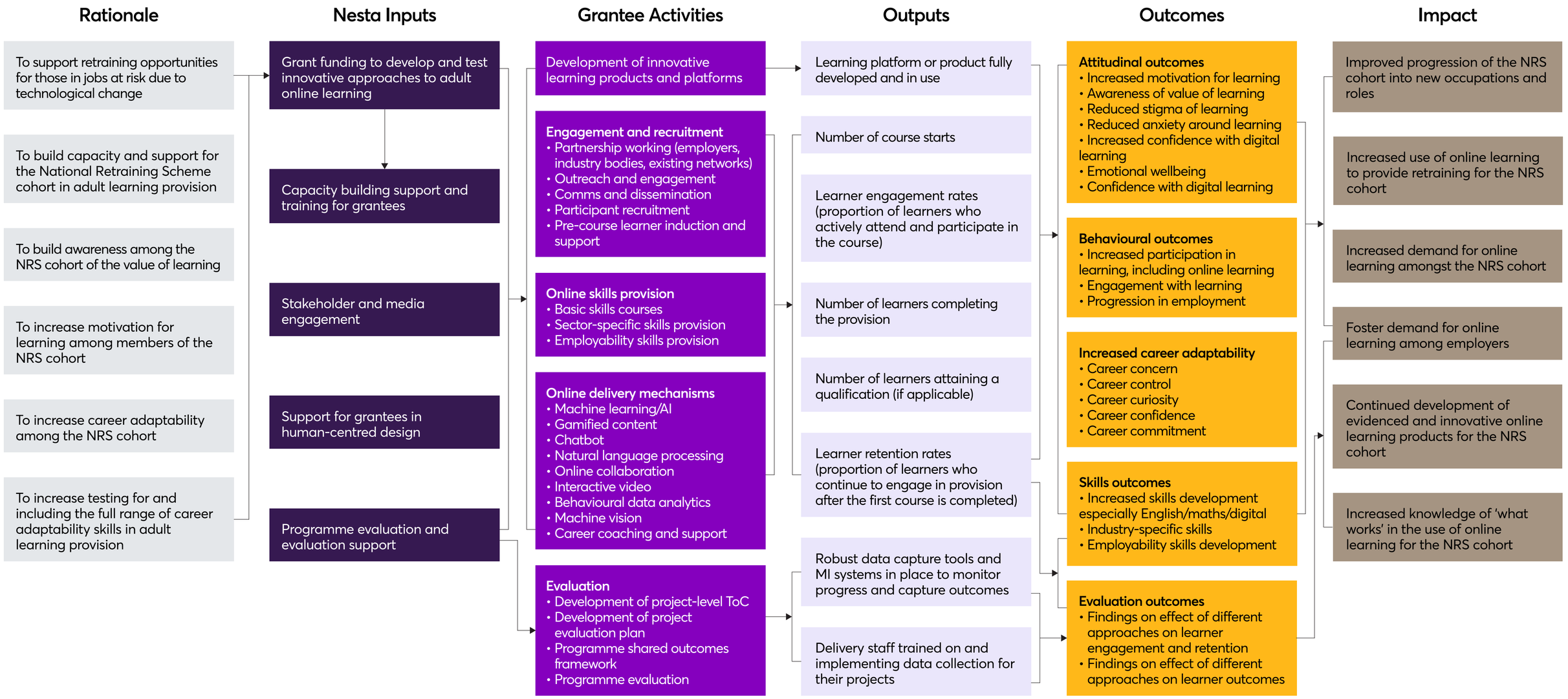
The CareerTech Challenge has demonstrated that capacity building support can enable delivery organisations to take ownership of the evaluation process and has led to a substantial increase in evaluation capability, confidence and interest amongst innovators.

06

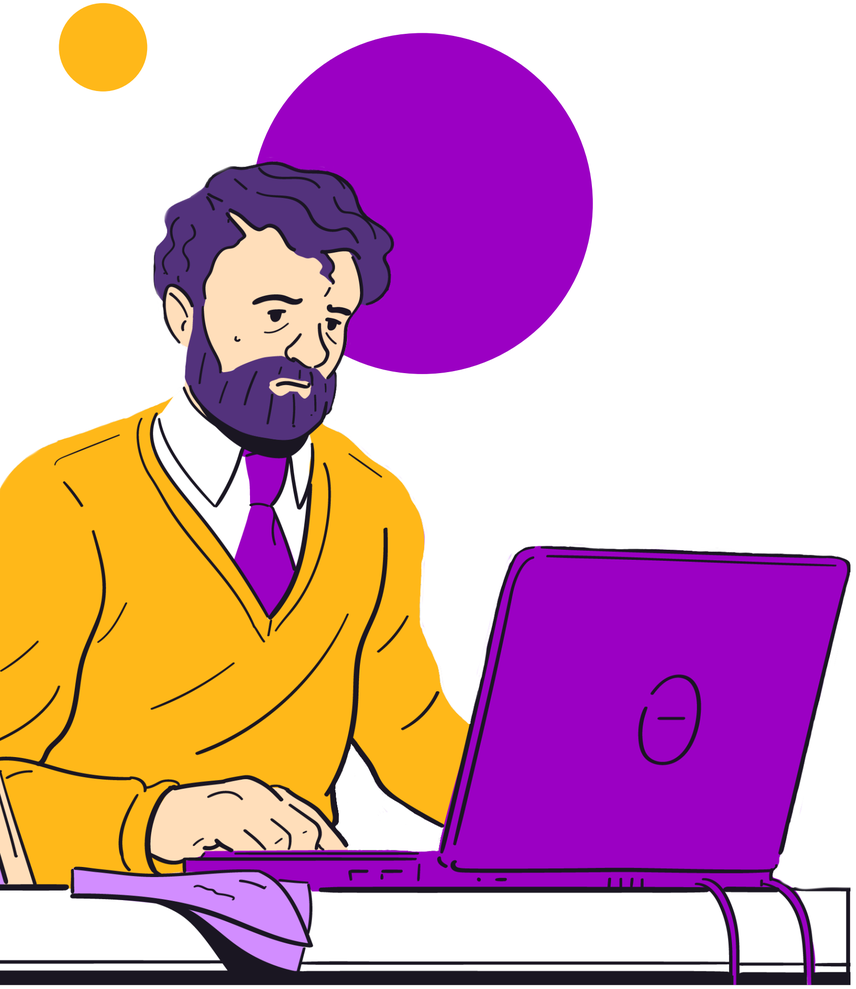
Appendix



Career Tech Challenge Fund Theory of Change



Innovators



Agent Academy is an award-winning deliverer of industry designed learning programmes, aimed at supporting young people in finding meaningful long-lasting careers. We have helped hundreds of young people who are usually 'locked out' of industry because of barriers to employment. The people we support are from under-represented groups and often can't afford to gain experience through unpaid work or get into industry employment through existing connections. Agent Academy offers a solution to all of this. The programmes feature an industry designed and expert delivered curriculum and are always aligned with changing needs of the creative, digital and tech sector. Integral to the programmes are real-life brand challenges and connecting young people into jobs.

CareerTech Challenge Funding supported Agent Academy to expand their existing course into a fully online version, Leap, which provides learners with the digital, creative and tech skills they need to change careers. Agent Academy designed and developed unique, personalised learning content using 'real world' scenarios to increase employability of learners through automatically generated work portfolios which can be attached to the learner's CV.

CENTURY

CENTURY is an intelligent intervention tool designed for students and teachers that combines artificial intelligence with the latest research in learning science and neuroscience. Their team of teachers, neuroscientists and technologists develop world-leading artificial intelligence tools for schools across the world. On CENTURY, learners are provided with a personalised recommended path (RP) containing micro-lessons (known as nuggets). Each nugget contains learning materials and assessment questions. The RP is designed to stretch, challenge and support memory retention in learners. The pathway is continuously adapting for each learner based on their own learning experience. Learners also have access to learner analytics in the My Dashboard page which informs learners of their progress.

CareerTech Challenge funding supported CENTURY to pivot their existing product to provide English and maths courses, including both GCSE and Functional Skills Levels 1 and 2, to a cohort of learners more susceptible to labour market changes.

Citizen Literacy

Citizen Literacy CIC, an independent social enterprise spinout from the City of Glasgow College, worked with its partners: ccConsultancy Ltd; ReachWill Ltd; Micro-phonics Ltd; Scottish TUC Union Learn; That Reading Thing to develop an existing prototype smartphone app to provide adaptive, personalised support and encouragement for adult learners taking their first steps in learning to read and write. The app reduces the stigma and anxiety these learners face by providing an independent learning solution based on the English ETF-endorsed phonics methodology for functional skills. It provides a bridge for developing confidence in learners to move on and approach their local learning providers to continue their journey.

CareerTech Challenge funding supported the project partners to create and develop an introductory adult literacy training course, featuring voice and handwriting recognition for learner input, and an online tutor persona to guide the learners, providing verbal feedback.

Coventry University

Coventry University Online is a relatively new but already experienced provider of distance learning, delivering online courses at scale to global cohorts of degree students up to master's level.

CareerTech Challenge funding supported Coventry University Online, in partnership with FutureLearn, to develop and test a new student-centred digital skills course for adults below degree level, with a focus on the use of different digital tools to enhance learner motivation and improve student completion rates. The Career Skills for the 2020s course was delivered over four weeks and focused on employability skills such as motivation at work, communication, resilience and emotional intelligence, and CV development. Social learning tools were included throughout the course, such as discussion forums and peer review exercises.

Digital Mums

Digital Mums is a social media training company specialising in getting mums job-ready so they can create flexible careers that fit around family life. They believe that encouraging women to become lifelong learners is the route to reducing maternal unemployment and supporting women to find rewarding, flexible careers.

CareerTech Challenge funding supported the development, evaluation and scale-up of their project-based online learning course – The Future Skills Bootcamp – for mums currently in roles at risk of automation.

Every second person in the UK plays video games. Many of the most popular games demand complex problem solving, active learning and decision-making, and ask players to manage teams, resources and adversity. The Game Academy platform enables gamers to acquire new skills and consolidate those they already have through structured game play and online content.

CareerTech Challenge funding was used to build and implement an analysis and diagnosis of learners' game play and capabilities to their existing platform. It aimed to gain an understanding of how analysis and diagnosis of a player's in-game talent can help signpost them to new learning opportunities; and how peer learning opportunities, rewards and role models can increase learner motivation.

MyKindaFuture has built and developed Connectr, an employee experience platform that ensures everyone feels a sense of belonging at each stage of their professional journey. Through the platform, employees are matched with a peer mentor and provided with relevant learning content to help them progress. MyKindaFuture sought to test whether their combination of learning content and peer mentoring improved learner motivation and career adaptability.

CareerTech Challenge funding supported the development of machine learning to improve peer mentoring matching systems, and the digital design of learning content for employer partners.

Saffron Interactive is passionate about developing learning which creates a sense of ownership over new behaviours, and new values for the learner. Regulated and accredited by the Learning and Performance Institute (LPI), Saffron Interactive has ranked in the top 15 Learning Technologies providers in LPI's awards since their inception. For the CareerTech Challenge, Saffron Interactive partnered with Unionlearn, the learning and skills organisation of the TUC.

CareerTech Challenge funding was used to develop Create Your Own Future, an online employment support platform available to union members. Saffron Interactive developed an interactive mentor, a skills assessment, career recommendation engine, an action-planning function and a dashboard – a hub for the learner to help them continue working towards their career aspirations, as well as determining how they want their journey to continue – to create personalised paths for learners.

Sopra Steria is a European leader in consulting, technology transformation and software development. For the CareerTech Challenge, Sopra Steria partnered with ELATT, a London-based adult learning provider, to co-develop an online workplace skills course, DigiLearn. DigiLearn provided learners with the necessary core and hard skills to succeed in the future world of work.

CareerTech Challenge funding was used to support the development and user testing of digital interventions such as chatbots, adaptive learning pathways and gamification to find the most effective way to encourage learner motivation.

The Open University is an expert in distance and online learning. Combining this with industry and academic experience in cyber security education, the project implemented for the CareerTech Challenge Fund aimed to demystify cyber security, giving learners confidence to engage with the digital world and gain further skills to enhance their career options in the changing economy.

CareerTech Challenge funding supported the adaptation of the current OpenLearn cyber security course to a Gamified Intelligent Cyber Aptitude and Skills Training Course (GICAST). Alongside gamification, GICAST used artificial intelligence and behaviour analytics to personalise learning to increase learner motivation.

Wizenoze was founded in 2013 to solve the challenge faced by learners of finding too much, inappropriate and irrelevant information by facilitating access to tailored education through developing industry-leading technologies. For the CareerTech Challenge, Wizenoze partnered with Cell-Ed, a Silicon Valley-based mobile-first learning company. Wizenoze were decommissioned from the CareerTech Challenge Fund part way through the process due to the significant impact of the coronavirus pandemic on their delivery model.

CREATED BY

Learning and Work Institute for the CareerTech Challenge

DESIGNED BY

Storythings

L&W LEARNING AND WORK INSTITUTE

CAREERTECH CHALLENGE

Story|things