CENTURY

Harnessing data for evaluation

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CENTURY, a digital technology company, pivoted an existing (schools based) model of learning towards adults as part of the CareerTech Challenge. CENTURY combines artificial intelligence with the latest research in learning science and neuroscience. Learners are provided with a personalised path containing micro-lessons known as 'nuggets', which contain learning materials and assessment questions. The recommended path continuously adapts for each learner based on their learning experience, and is designed to stretch, challenge and support memory retention.

Through funding from the CareerTech Challenge, a number of additional innovative features were added to the platform to address the particular needs of eligible learners, including:

- A self-sign-up mechanism for individual learners to access the platform without provider referral.

- Automatic email notifications to motivate learners by providing engagement and re-engagement prompts.

- An additional learner analytics dashboard with usage and learning score data.

- A completion tracker widget and downloadable certificate on course completion.

- Badges awarded to learners when they complete a certain amount of nuggets and a weekly streak tracking widget.

Evaluation findings and lessons learned

On average, eligible learners completed more of the course than the average for non-eligible learners. Learners were found to have developed their English and maths skills and had substantially improved performance scores. Members of the eligible cohort were found to learn throughout the day, indicating the need for a platform with flexible access.

CENTURY found the evaluation to be a rewarding process. It provided an opportunity to examine the platform and their user data in much more detail than is normally possible, and to conduct new types of research such as user testing. Overall, CENTURY were not surprised by most of the results, which have reinforced their existing assumptions and hypotheses.

CENTURY considers evaluation and evidence to be highly important when working with partners or stakeholders in the education sector. Assessing the

"I think we all found the process to be rewarding on a personal level … you don't often get the chance to stop and take stock of things in that level of detail and set aside time to do that level of analysis."

CENTURY PROJECT LEAD

impact of interventions or approaches can be difficult given the complex mix of factors involved, and this evaluation has given them the opportunity to identify how specific features of their platform can achieve impacts. They intend to continue using research techniques such as user testing in their future work. The in-depth cohort analysis was considered particularly valuable in providing insights for different types and groups of users, and CENTURY are intending to continue to do this type of analysis going forwards.

Learner case study: Amy

Amy is in her 30s with two young children. She works as a part-time waitress in a café but would like to retrain as a nurse. Amy struggled at school and is currently studying for a Level 2 Functional Skills qualification in maths at her local further education college. Through an existing partnership, CENTURY approached the college to recruit learners for their CareerTech Challenge project. Amy's tutor referred her to the tool, suggesting that it might help her to develop her maths skills. Amy had previously participated in digital learning, and was confident in accessing CENTURY.

Amy used CENTURY for a total of 17 hours over two months, completing 50 learning nuggets. Although she successfully completed most of the nuggets on her first attempt, she found several to be particularly difficult. Amy was able to repeat these nuggets, and did so until she was sure she had understood the material.

Amy liked being able to choose when she could access the tool, enabling her to fit learning around her work, childcare and other studies. She also enjoyed using the dashboard view, which enabled her to reflect on the progress of her learning.

Evaluation approach

CENTURY has in-house research and data science teams who are experienced in producing evaluations for a range of projects and audiences. They collect a large amount of data on the use of the tool as standard, and regularly track activities and engagements within the platform. However, they have less experience of using surveys to measure the outcomes of interventions or of conducting qualitative research, and do not usually analyse or report on data to the depth required for this evaluation.

As part of their evaluation, CENTURY developed a theory of change (see Figure 1 on page 05). This aligns the skills needs and access requirements of eligible learners with the key features – both new and old – of the CENTURY tool. The theory of change also identifies potential long-term impacts such as increased achievement of functional skills qualifications and improved employment progression.

The key aims of the evaluation were to:

- Assess the effectiveness of user-recruitment and partnership development activities

- Understand the appropriateness and effectiveness of the tool's English and maths content for eligible learners

- Assess the effectiveness of the tool in developing learners' attitudes, behaviours and skills as outlined in the theory of change.

Table 1 summarises the methods used in the evaluation.

Cohort analysis

CENTURY had a particular focus on the in-depth analysis of user data as part of their evaluation. This included comparisons of different groups of learners, such as by age cohort or by level of platform activity. It was felt that the evaluation gave them both a need and an opportunity to do more complex analysis than they would normally do. One of the main benefits of this approach is to identify what works and what doesn't work for different groups of learners. CENTURY considered this to be particularly important when delivering a free platform to a large number of users from varied backgrounds with very different levels of engagement. It also enabled a more rigorous testing of the project hypotheses and assumptions, allowing them to look at these through different angles and for different groups.

Table 1: CENTURY evaluation methods

Process evaluation

User testing was conducted throughout the project to identify how the platform could be improved and test new features. In total, 140 individuals took part in user testing, including 14 eligible users of the platform.

A survey of 44 existing (non-eligible) CENTURY learners was conducted to gather feedback on the appropriateness of course content, link to real-world application, accessibility and engagement.

Outcome evaluation

Pre and post surveys completed by 70 and 68 learners respectively. Questions included demographics, job characteristics, outcomes measures from the toolkit and assessments of the tool.

Analysis of management information from 515 eligible active learners, including a range of usage and completion data and performance scores. Where possible, scores were compared to CENTURY learners who were not members of the eligible cohort. Data on interaction with platform features was used as a proxy for learning behaviour. Marketing and recruitment data were also analysed.

"From our perspective it was helpful because we have such a breadth of learner on the platform … to compare behaviours and things like that, primarily looking for differences obviously, because there are plenty … By breaking things down a little more, and just comparing you are able to verify that what you're saying makes sense in a way that's quite difficult to do if … your data is just sort of one mass."

CENTURY PROJECT LEAD

Figure 1: CENTURY Theory of Change

Rationale	Inputs	Activities	Outputs	Outcomes	Impact
Members of the NRS cohort are less likely to complete training	Grant funding and capacity building programme	**Engagement and recruitment e.g.** • Partnership working (employers, unions) • Outreach and engagement • Comms	**New CareerTech feature set developed and in use** Self-onboarding, learner analytics, course completion, email notifications, badges and streaks	**Attitudinal Outcomes:** • Increased motivation for learning • Increased confidence in digital learning • Reduced stigma of learning/anxiety around learning	Improved progression of adults towards achieving functional skills qualification
Learners need access to products and services which motivate them towards completing a course	Existing CENTURY platform/feature set	**Utilising existing CENTURY platform** • Users follow an adaptive, personalised pathway • Users complete micro-lessons in English/Maths • Users receive personalised, metacognitive messaging • Users review and reflect on dasboard of progress	1000 active learners	**Behavioural Outcomes:** • Increased engagement with learning • Adoption of positive learning behaviours e.g. resilience, reflection	Improved progression of NRS cohort into new roles and occupations
NRS cohort need to build skills in Maths & English	Account management support		100 learners complete the course		Increased awareness of 'what works' in adult education
Understand how to motivate adults to complete online learning courses for Maths & English	CENTURY staff time	**Developing new CareerTech feature set** Including user testing and ongoing review	Evaluation report	**Skills Outcomes:** • English skill development • Math skill development	
		Evaluation: • Development of project evaluation plan • Programme shared outcomes framework		**Evaluation Outcomes:** • Findings on effect of different features to promote motivation	