

Routledge
Taylor & Francis Group

Research Papers in Education

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/rred20

More is more: exploring the relationship between young people's experiences of school-based career education, information, advice and guidance at age 14–16 and wider adult outcomes at age 21–22 in England

Julie Moote, Louise Archer, Morag Henderson, Emma Watson, Jennifer DeWitt, Becky Francis & Henriette Holmegaard

To cite this article: Julie Moote, Louise Archer, Morag Henderson, Emma Watson, Jennifer DeWitt, Becky Francis & Henriette Holmegaard (2025) More is more: exploring the relationship between young people's experiences of school-based career education, information, advice and guidance at age 14–16 and wider adult outcomes at age 21–22 in England, Research Papers in Education, 40:1, 72-95, DOI: 10.1080/02671522.2024.2330971

To link to this article: https://doi.org/10.1080/02671522.2024.2330971

© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

Published online: 22 Mar 2024.

Submit your article to this journal

Article views: 1920

View related articles

View Crossmark data

Full Terms & Conditions of access and use can be found at
https://www.tandfonline.com/action/journalInformation?journalCode=rred20

RESEARCH PAPERS IN EDUCATION
2025, VOL. 40, NO. 1, 72–95
https://doi.org/10.1080/02671522.2024.2330971

Routledge
Taylor & Francis Group

OPEN ACCESS Check for updates

More is more: exploring the relationship between young people's experiences of school-based career education, information, advice and guidance at age 14–16 and wider adult outcomes at age 21–22 in England

Julie Moote[a], Louise Archer[a], Morag Henderson[a], Emma Watson[a], Jennifer DeWitt[a], Becky Francis[b] and Henriette Holmegaard[c]

[a]Education, Practice & Society, University College London, London, UK; [b]Education Endowment Foundation, London, UK; [c]Department of Science Education, University of Copenhagen, Copenhagen, Denmark

ABSTRACT

Does school-based careers education, advice, information and guidance (CEAIG) have any influence on later life outcomes? This paper reports regression analyses using 7,635 survey responses from young people in England aged 21–22. Significant positive relationships were found between self-reported CEAIG activities experienced at age 14–16 and a range of adult outcomes reported at age 21–22. Both the *quantity* and *quality* of these CEAIG activities were important predictors: the *more* CEAIG activities experienced at age 14–16 and the more *helpful* these activities were perceived as being, the more likely the young people were to report life satisfaction, positive future outlooks and feel better prepared for the future. These relationships are held after controlling for gender, ethnicity, social deprivation and school type. Young people who reported experiencing more and better quality CEAIG activities at school were also more likely to be in education, training or work at age 21–22. Findings are discussed in the light of recent legislation relating to careers support in England, highlighting the importance of ensuring that the needs of these young people transitioning into the workforce and adulthood are met.

ARTICLE HISTORY
Received 18 July 2023
Accepted 29 January 2024

KEYWORDS
Careers education; young people; survey; outcomes

Introduction

Young people's transitions from education into employment are a long-standing policy interest, albeit one that has arguably heightened in recent years as youth employment prospects have been disproportionately negatively impacted by the global COVID-19 pandemic (D. Hughes 2020; Orlando 2022). Careers education, advice, information and guidance activities (CEAIG) can play an important role in helping young people to prepare for and navigate transitions into the world of work (Sampson, Hooley, and Marriot 2011). Yet CEAIG can comprise many different and varied forms of provision (K. L. Hughes and Jane Mechur Karp 2004) and, as

CONTACT Louise Archer l.archer@ucl.ac.uk UCL IOE, 20 Bedford Way, London WC1H 0AL, UK

© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

research shows, the quality and quantity of such provision can vary considerably. Variability has been shown not just internationally, but also nationally and within and between individual settings, with a tendency to be structured along the lines of social inequality, whereby those from the most privileged backgrounds tend to receive more and better provision and those who are most socially disadvantaged experience the least and lowest quality provision (see Groves et al. 2021; Moote and Archer 2018).

There is therefore considerable research and policy interest in understanding the relationship between and impact of CEAIG provision that young people receive at school and their later life outcomes (D. Hughes et al. 2016; Maguire and Killeen 2003), but particularly in relation to economic outcomes (Killeen, White, and Gordon Watts 1992). However, it remains unclear what impact CEAIG has on later life outcomes. Reasons for this lack of clarity include the complex relationship between provision and outcomes, as multiple factors have been found to mitigate the nature and effectiveness of delivery (Maguire 2004), the varied nature of CEAIG interventions, many of which may be limited in duration and intensity, focus and scope (K. L. Hughes and Jane Mechur Karp 2004; Kidd and Killeen 1992) and the many methodological issues associated with trying to disentangle and research the long-term impact of particular forms of provision within the complexity of young people's lives and other influences, in addition to the tendency for studies to have to rely on participants' self-reports and recollections of interventions and impact (Bimrose, Barnes, and Hughes 2008; K. L. Hughes and Jane Mechur Karp 2004; D. Hughes et al. 2016; Mann et al. 2017).

Some of the more robust evidence to date has come from research that has focused on the more immediate or short-term impact of CAEIG on factors such as student attainment (Sampson, Hooley, and Marriot 2011), skills (D. Hughes et al. 2016) and/or aspirations and outlook. Such work suggests that CEAIG may be associated with positive gains in these areas that may in turn, over time, translate into 'job readiness' and/or positive employment outcomes (Hoyt 2005).

Notwithstanding the conceptual and methodological challenges of researching the potential association between school-based CEAIG and later life outcomes, there are some indications in the literature that where young people have reported CAEIG to be useful, good quality and/or of a sufficient quantity, such experiences may correlate with positive outcomes in terms of employment, life satisfaction and potentially income (see syntheses of literature by K. L. Hughes and Jane Mechur Karp 2004; Sampson, Hooley, and Marriot 2011; D. Hughes et al. 2002; Mann, Denis, and Percy 2020 and empirical analyses by; Mann et al. 2017; Mann and Percy 2014). For instance, analysing data from the 1970 British Cohort Study, Kashefpakdel and Percy (2017) found that when participants perceived CEAIG interventions to have been useful, they also recorded positive employment outcomes. However, research by Bimrose, Barnes and Hughes (2008) suggests that care needs to be taken with participants' recollections of the usefulness of a particular experience or intervention, as their longitudinal study found that participants' self-reports and recollections of the perceived usefulness of careers provision received at age 14–16 then declined over time at successive age points (Bimrose, Barnes, and Hughes 2008).

As Sampson, Hooley and Marriot (2011) conclude, the link between CEAIG and later life outcomes is one of the trickiest areas to research and evidence – yet it is also a fruitful area for further inquiry:

> Evaluating career and life success is clearly difficult and isolating the impact of an educational intervention across an individual's life course poses further challenges still. However, there is some evidence suggesting that career development can have positive long-term impacts on both extrinsic and intrinsic measures of career and life success. There would clearly be value in undertaking further research, perhaps using longitudinal methodologies (17).

In particular, calls have been made for more quantitative studies to help better understand the link between early CEAIG and later adult life outcomes (Kashefpakdel and Percy 2017) and recent attention has been drawn to the dramatic changes that have occurred in both the landscape of CEAIG provision in England (see D. Hughes 2013, 2020) and of course youth employment and the considerable challenges now facing the current 'Covid generation' (Mann, Denis, and Percy 2020). Our study is conducted in England, where the Education (Careers Guidance in Schools) Act 2022 increases the requirement for secondary schools to provide independent, high-quality CEAIG activities and support (Department for Education 2023). The young people who participated in our research attended secondary school some years prior to this legislation, at a time of flux and transition in careers education provision that, as reported previously, was associated with patchy and patterned careers education provision for this cohort.

The present paper aims to add to knowledge regarding the relationship between young people's perceptions of school-based CEAIG provision at age 14–16 and their wider life and employment outcomes and views at age 21–22. In particular, our paper addresses the research question:

- What relationship, if any, is there between young people's perceptions of the quality and quantity of school-mediated CAEIG activities experienced at age 14–16 and later outcomes at age 21–22?

Methods

Sampling context and sample profile

The study was funded by the UK Economic and Social Research Council (ESRC), grant number ES/S01599X/1. The project received full ethical approval from UCL Research Ethics (REC 896) and the data will be made available according to the guidelines of our funders upon completion of the project.

We conducted a large-scale postal survey of young people in England through obtaining a sample of young people born 1 September 1998 and 31 August 1999 who were registered on the Open Electoral Roll. A total of 62,194 invitation letters (including general information about the study, details of the survey content, and a link to the online survey) were sent. All respondents were offered a 10-pound incentive for participating. Based on total responses, a response rate of 13% was achieved overall. This was higher than anticipated and therefore no reminder letters were sent.

Sample representativity was assessed by comparing the unweighted sample profile to several population benchmarks (i.e., sex, region, IMD, Urban/Rural status, ethnicity, health, working status, degree completion, and parental education). The Mean Absolute Error and Root Mean Squared Error were then calculated for each variable. The largest difference observed was for respondent degree completion, with our sample having a higher percentage of respondents reporting to have completed a degree-level qualification. However, it is worth bearing in mind that the national data is derived from a number of detailed questions, whereas our measure is one simple question. It is therefore possible that this could at least partly be a result of measurement differences rather than sample differences.

While overall, the unweighted achieved sample of 7,635 young people was a reasonably good match to the population benchmarks for most variables, weighting was created to compensate for any observable bias. A raking algorithm was used to weight the data, following imputation of any missing data present in the variables included in the weighting. Raking aims to ensure that the sample margins match the target population margins for each variable included in the weighting matrix. A sensitivity analysis was performed and showed only very small differences between the unweighted and weighted latent variables. These analyses also involved running the analyses reported in this paper on both the weighted and unweighted samples. Considering that key measures and analyses were comparable using either the weighted or unweighted data, and given the low design effect[1] achieved, (1.178), we present findings using the unweighted data in this paper.

The sample used in these analyses excluded those with ethnicity and gender responses of 'Prefer not to say' ($n = 114$; $n = 227$), those who reported other school types or were unsure of the type of school they attended age 14–16 ($n = 601$). The sample used also excluded those who did not remember their highest GCSE maths and science grades ($n = 225$; $n = 414$). The demographic information of the sample is presented in Table 1.

Sixty-one percent of the participants were female, with 79% being of white ethnicity. Just over half achieved an A* - B as their highest GCSE maths grade, whilst 60% had A*-B as their highest GCSE science grade. While the grades within our sample relating to GCSE science are comparable to those reported nationally for this cohort, the results relating to maths GCSE performance are slightly higher in our sample (Joint Council for Qualifications 2015). Across the sample, 3,543 individuals did not take Advance Level (A Level) qualifications so their A Level attainment is not included. Less than a third (30%) of those remaining had 3 or more A*- B grades at A level. These attainment results are comparable to those reported nationally for the cohort (Department for Education 2018).

Survey overview and recruitment

A questionnaire exploring young peoples' aspirations and expectations and science attitudes (DeWitt et al. 2011; DeWitt, Archer, and Osborne 2014) was revised, validated and piloted with 308 young people before being administered to a national sample 21/22-year-olds in England. The piloting process involved tailoring items from our previous surveys to the specific circumstances of the 21/22-year-old age-group to capture post-18

Table 1. Demographics and school attainment of sample.

Factor	Category	Number (%)
Ethnicity	White	5,974 (79.4%)
n = 7,521	Black	286 (3.8%)
	Asian, Chinese or East Asian	767 (10.2%)
	Other	494 (6.6%)
Gender	Man	2,739 (37.0%)
n = 7,408	Woman	4,529 (61.1%)
	Non-binary or other genders	140 (1.9%)
Index of Multiple Deprivation (IMD)	5th quintile – least deprived	1,205 (15.8%)
n = 7,635	4th quintile	1,336 (17.5%)
	3rd quintile	1,468 (19.2%)
	2nd quintile	1,663 (21.8%)
	1st quintile – most deprived	1,963 (25.7%)
School type (aged 14–16)	Independent	455 (6.5%)
n = 7,034	Comprehensive State School	5,878 (83.6%)
	Academically Selective	701 (10.0%)
School gender mix (aged 14–16)	Co-education School	6,569 (86.7%)
n = 7,579	Single-sex School	1,010 (13.3%)
Parents went to university	Neither parent	5,386 (70.5%)
n = 7,635	At least one parent	2,249 (29.5%)
Parents left school at 16	Neither parent	5,427 (71.1%)
n = 7,635	At least one parent	2,208 (28.9%)
Highest GCSE maths grade	C grade or lower	3,588 (48.4%)
n = 7,410	A* - B grade	3,822 (51.6%)
Highest GCSE science grade	C grade or lower	2,878 (39.9%)
n = 7,221	A* - B grade	4,343 (60.1%)
Took any A Levels	Yes	4,092 (53.6%)
n = 7,635	No	3,543 (46.4%)

status and choice processes (occupational status, income, skills, and employment transitions). Consultation with stakeholder communities and a review of recent research on attitudes towards science (in and out of school) also informed the modifications. A principal components analyses of key survey items that make up our main constructs used in wider-project analyses (e.g. aspirations in science) was conducted during the pilot phase to ensure appropriate factor loadings were retained and to assess the validity of the questionnaire measures. Following data cleansing (which involved removal of duplicate and incomplete responses), responses are completed in less than 10 min and responses with more than 10 instances of flatlining (i.e. giving the same response to all statements within a battery of questions), 7,635 of 7,900 responses obtained remained in the sample for analysis.

The overall questionnaire explores young people's aspirations and expectations, influences on these; actual destinations post-18; learner identities and relationships to learning; general views on science and careers in and from science; experiences of educational science and the STEM labour market (disaggregating between STEM areas; reasons for continuing or leaving); extra-curricular activities, qualifications they were studying for; attainment; and socio-demographic factors. The questionnaire also reports on measures of job satisfaction, income and perspectives and confidence relating to future careers and work. It builds on previous surveys, the development and validation of which have been described elsewhere (DeWitt et al. 2011). DeWitt, Archer and Osborne (2014) also provides further detail on the reliability and validity of the wider survey instrument, as well as the specific items. Complete details of survey items used in the present analyses are included below in relation to the outcome measures of interest.

The present analyses focus on a subset of these survey data, particularly relating to CEAIG provision and the relationship between this support in school at age 14–16 and outcomes later in adult life at age 21–22. Specifically, we focus on data from a series of questions relating to CEAIG provision, collected retrospectively through asking what activities were provided at age 14–16, when in secondary school. In addition to asking about what provision was provided/obtained, we also asked their perspectives on how helpful they found their school CEAIG activities and experiences. Again, details of the specific questions used in the analyses reported in this paper are outlined below in relation to each outcome variable of interest.

Analyses

To address our research question as to whether CEAIG provision and perceptions of the usefulness of CEAIG support can predict wider adult outcomes, binary outcomes (e.g. positive future prospects, preparedness for life) were analysed using binary logistic regressions. Multinomial logistic regression was performed for the analysis of categorical variables with more than two categories (life satisfaction, education/training, income, and job satisfaction). While ordinal logistic regression was considered for outcomes with more than two categories, multinomial logistic regression was preferred due to the parallel-line test being significant, and thus the assumptions of the method not being met. For each model, all predictors were included, regardless of statistical significance.

Depth of participation

Participants were asked 'when you were in secondary school, between the ages of 14 and 16, to what extent were the following helpful?'. Response items listed included: work experience placement, mentoring schemes, volunteering, part-time paid job, questionnaire to find out about my abilities, career advisor meetings, job fair, job shadowing/workplace visits. Response options were 'very helpful', 'quite helpful', 'not that helpful', 'very unhelpful', and 'did not do it'. A continuous variable showing the number/depth of activities participated in was created, with scores ranging from 0 (indicating no participation in any of the 8 activities listed) to 8 (indicating participation in all 8 activities). We note that 42.2% of the sample reported all 8 activities and that 236 individuals in the sample reported that they did no activities.

The percentage of activities perceived as helpful

First, a series of binary variables were created indicating whether or not each reported activity was helpful (1 = yes helpful and 0 = not helpful and/or didn't do it). A combined continuous variable was then constructed to identify the proportion of helpful incidences (ie the number they found helpful divided by the overall number of CEAIG activities they participated in). In this way, the index is not dependent on the number of activities they reported and is a continuous variable with values from 0 to 100 which we treat in our analyses as a linear term. In other words, it is essentially a proportion of how helpful they found the activities they had done. To help with interpretation, this variable was rescaled to reflect increments of 20 on a 0–100 scale (ending with a variable ranging from 0 to 5,

Table 2. Summaries of depth of participation and % of helpful activities.

Variable	Category	Number (%)	Cumulative percentage
Depth of participation, n = 7,633	0	236 (3.1%)	3.1%
	1	321 (4.2%)	7.3%
	2	497 (6.5%)	13.8%
	3	642 (8.4%)	22.2%
	4	719 (9.4%)	31.6%
	5	684 (9.0%)	40.6%
	6	617 (8.1%)	48.7%
	7	695 (9.1%)	57.8%
	8	3,222 (42.2%)	100.0%
Percentage of helpful activities (to nearest 20%), *n* = 7,397	0%	1,357 (18.3%)	18.3%
	1% – 20%	592 (8.0%)	26.3%
	21% – 40%	1,337 (18.1%)	44.4%
	41% – 60%	1,188 (16.1%)	60.5%
	61% – 80%	1,333 (18.0%)	78.5%
	81% – 100%	1,590 (21.5%)	100.0%

outlined in Table 2 , that again, is based on a continuous variable). 18.3% (*n* = 1357) of the sample that reported at least 1 activity found it or none of the others they participated in unhelpful.

Outcome variables

CEAIG provision

The outcome variable involved in addressing the first research question relates to whether or not CEAIG activities were reported at age 14–16. A binary variable was created indicating provision or lack of provision. The majority (97%) reported that they had one or more CEAIG activities.

Future outlook

A combined variable for levels of concern for future and job confidence was created to explore young peoples' future outlooks. A positive future outlook was defined as both *agreeing* that 'I am confident that I will have a job that will allow me to live the life I want in the future', and *not* agreeing that 'I am concerned when I think about what I might be doing a few years' time and opportunities available to me'. A negative future outlook was defined as *not* agreeing to the confidence statement and *agreeing* to the opportunities statement. Respondents not meeting either of these combinations were omitted from the analysis as we are interested in comparing only those having definitive responses to these items. Of those included in the analysis, over half (55%) had a positive outlook. This outcome variable, along with the others listed below, are described descriptively in Table 3.

Perceptions of school preparedness

School preparedness was originally measured by asking respondents 'How well do you feel that your school/college prepared you for adult working life?', with four responses options ('very well', 'well', 'quite poorly', 'very poorly'). A binary variable ('poorly prepared', 'well prepared') was then created to explore whether young people who had more CEAIG support and with higher proportions of the activities viewed as helpful felt

Table 3. Summary of outcome variables.

Factor	Category	Number (%)
Future outlook, n = 4,341	Negative outlook	1,955 (45.0%)
	Positive outlook	2,386 (55.0%)
School prepared you for adult working life, n = 7,535	Very well	488 (6.5%)
	Well	2,208 (29.3%)
	Quite poorly	3,169 (42.1%)
	Very poorly	1,670 (22.2%)
Life satisfaction, n = 7,627	Low	1,492 (19.6%)
	Medium	2,470 (32.4%)
	High	2,869 (37.6%)
	Very High	796 (10.4%)
Education/working status, n = 7,635	Working	4,373 (57.3%)
	Education/Apprenticeship	2,112 27.7%)
	NEET	1,150 (15.5%)
Income, n = 3,972	£14,999 and under	1,124 (28.3%)
	£15,000 - £19,999	1,099 (27.7%)
	£20,000 - £24,999	950 (23.9%)
	£25,000 - £29,999	480 (12.1%)
	£30,000+	319 (8.0%)
Overall job satisfaction, n = 4,365	Not at all satisfied	201 (4.6%)
	Very dissatisfied	433 (9.9%)
	Dissatisfied	609 (14.0%)
	Moderately satisfied	762 (17.5%)
	Satisfied	1,200 (27.5%)
	Very satisfied	1,160 (26.6%)

better prepared for general life from their school experience. Just over a third (36%) felt that school prepared them well for life.

Life satisfaction

A continuous 11-point scale of life satisfaction from ONS was included in the survey. In line with the September 2018 ONS release, coding thresholds were implemented to create a categorical outcome measure. While breaking up a continuous variable can lose some information, this approach was chosen to help with interpretation of results aiming for ease of uptake in policy circles. The following categories were created: 'low' = 0–4, 'medium' = 5–6, 'high' = 7–8, 'very high' = 9–10. Ten percent of respondents had a 'very high' satisfaction with life, with a further 38% having a 'high' level of satisfaction.

Education/working status

Respondents were asked 'Which of the following best describes what you spend most time doing?'. Their responses were grouped into 'Employed' (including 'Employee – in paid work (including furloughed employee)', 'Self-employed', and 'In unpaid/voluntary work'; 'Education/Apprenticeship' ('Education: University', 'Education: FE college', 'Education: Other', 'Apprenticeship', and 'On a Government scheme for employment training') and; 'NEET' standing for 'not in education, employment or training' ('Unemployed', 'Sick or disabled', 'Looking after home or family' or 'Something else').

Income

Due to the nature of data collection on the survey, this is not a continuous measure of income, and was thus analysed in categories. We asked those who were employed and

paid to tell us their gross annual personal income. Over a quarter (28%) of respondents earned less that £15,000, whilst only 8% earned £30,000 or more per year.

Job satisfaction

Participants who were employed were asked "For each statement, please select to what extent you agree or disagree with them: 'I see my present job as helpful to my long-term career ambitions'; 'My job is important, and it makes me feel worthwhile'; 'My job makes a contribution to society'; 'All things considered, I am satisfied with the level of pay' and; 'My job is secure'. Each statement that a respondent strongly/agreed with contributed to one point on a 6-point job satisfaction scale, i.e. those that didnot agree with any of the statements would be 'not at all satisfied' and those who agreed to all statements would be 'very satisfied'. Over half (54%) of respondents were either 'satisfied' or 'very satisfied' with their job (agreeing with at least 4 of the statements), with only 5% coded as 'not at all satisfied'.

Results

Relationship between CEAIG provision, helpfulness perceptions and wider adult outcomes

Future outlook

More career advice and guidance activities reported at age 14–16 significantly predicted more positive future prospects after controlling for gender, ethnicity, social deprivation, school type and the other predictors included in the model (shown in Table 4). The odds of reporting more positive future prospects were 85% higher (1.08^8) for someone who reported 8 CEAIG activities at age 14–16 compared to someone who reported 0. The percentage of CEAIG that were reported as being helpful also came out as a significant predictor. Specifically, findings showed that a 20% increase in the number of CEAIG activities reported as being helpful increased the odds of reporting more positive future prospects by 23%. In other words, someone who reported 81–100% of the CEAIG activities they did as being helpful, had an increased odds of 2.78 times (1.23^5), compared to someone who reported none of the activities they took part in as helpful.

Additionally shown in Table 4, gender came out as a significant predictor, with men having increased odds (1/.57 (1.76)) compared to women of reporting positive future prospects and 3.16 times more likely than non-binary and other genders (however we need to be mindful of small group size for these individuals). Ethnicity was also a significant predictor, with Black subjects having odds of positive future prospects being 1.55 times higher than White subjects. White subjects had odds that were 1.35 (1/.74) times more likely than Asian subjects to report positive future prospect. Maths GCSE attainment was also a significant predictor, OR = 1.20, i.e. those who reported achieving maths GCSE grade A*- B were 20% more likely to report positive future prospect views at age 21–22. IMD, parental education, school type, school gender mix, highest science GCSE grade, and A level enrolment were not associated with more positive views of future prospects in the presence of these other variables.

Table 4. Regression analysis of factors associated with a positive future prospects and positive perceptions of school preparedness.

	Model 1: Positive future outlook		Model 2: Positive perceptions of school preparedness	
Category (*Reference*)	Odds ratio (95% CI)	P-value	Odds ratio (95% CI)	P-value
Percentage helpful CEAIG activities		< 0.001		< 0.001
(*Odds ratio given for a 20% increase in percentage helpful activities*)				
	1.23***		1.35***	
	(1.17, 1.27)		(1.31, 1.40)	
Number CEAIG activities		< 0.001		
(*Odds ratio given for each additional number of CEAIG activities*)				
	1.08***		1.09	<0.001
	(1.04, 1.11)		(1.06, 1.12)	
Gender (*Man*)		< 0.001		< 0.001
Woman	0.57***		0.79***	
	(.49, .65)		(.71, .89)	
Non-binary or other genders	0.32***		0.98	
	(.18, .54)		(.64, 1.50)	
Ethnicity (*White*)		< 0.001		.805
Black	1.55*		0.88	
	(1.04, 2.27)		(.65, 1.18)	
Asian	0.74*		0.96	
	(.57, .94)		(.80, 1.16)	
Other	0.84		1.03	
	(.64, 1.11)		(.82, 1.28)	
Highest science GCSE grade (*A*-B*)		.320		.747
C or Lower	0.91		1.02	
	(.76, 1.09)		(.89, 1.18)	
Highest maths GCSE grade (*A*-B*)		.041		.794
C or Lower	0.83*		1.02	
	(.70, .98)		(.89, 1.17)	
Took any A Levels (*Yes*)		.870		.105
No	0.99		0.90	
	(.84, 1.15)		(.80, 1.02)	
School type (*Independent school*)		.971		< 0.001
Comprehensive school	0.97		0.50***	
	(.73, 1.30)		(.40, .63)	

(*Continued*)

Table 4. (Continued).

	Model 1: Positive future outlook		Model 2: Positive perceptions of school preparedness	
Category (*Reference*)	Odds ratio (95% CI)	P-value	Odds ratio (95% CI)	P-value
Academically selective	0.96 (.68, 1.38)		0.68** (.52, .89)	
School gender mix (*Single-sex school*)		.719		.586
Co-education school	1.04 (.83, 1.30)		0.95 (.80, 1.13)	
Parents attended university (*At least one parent*)		.628		.421
Neither parent	1.04 (.89, 1.22)		0.95 (.84, 1.08)	
Parents left school by 16 (*Neither parent*)		.650		< 0.01
At least one parent	1.04 (.89, 1.21)		0.83** (.74, .94)	
Index of Multiple Deprivation (*5th quintile – least deprived*)		.139		.044
4th quintile	1.04 (.83, 1.30)		0.95 (.79, 1.14)	
3rd quintile	1.01 (.81, 1.26)		1.05 (.88, 1.26)	
2nd quintile	0.86 (.69, 1.08)		0.97 (.81, 1.16)	
1st quintile – most deprived	0.82 (.66, 1.02)		1.21* (1.01, 1.44)	
Log likelihood	4715.98		7538.53	
Cox & Snell r-squared	0.07		0.08	
N	3,610		6,180	

Statistical significance is noted by *** for $p < 0.001$, ** for $p < 0.01$, * for $p < 0.05$, and + for $p < 0.10$.

Interaction terms with gender were also explored, as Moote and Archer (2018) showed that provision at age 16 was patchy, particularly by gender with females not reporting as much CEAIG as their male peers. For this paper, we explored whether experiencing careers activities was related to different associations to future prospects for females and males and whether viewing activities as helpful had a different relationship to future prospects by gender. These gender interactions were therefore included in the modelling work, however as no interactions were significant, they are not included in the results. As well as exploring the interactions for gender, the above model reported in Table 4 was run on subsamples by gender (i.e. women only, men only, non-binary and other genders only). Similar results were found, confirming the lack of signification interaction effects reported.

View of school preparation for life

A significant relationship was found between extent of CEAIG participation (i.e. the number of CEAIG activities participated in) and feeling that one was prepared for life by their school (model results reported in Table 4). Every increased activity was associated with an odds ratio of 1.088, so someone who did 8 activities (1.088^8 = 1.96) had odds of preparedness that were 96% higher than for someone who did 0. Gender was also a significant predictor, with females having decreased odds of reporting feeling prepared by their schools (OR = 0.792), although the size of the effect was relatively small. No interaction effects were found between gender and the amount of CEAIG activities participated in at age 14–16. School type was a significant predictor of preparedness views, with independent school pupils having twice the odds of school preparedness than state comprehensive pupils and 1.47 times higher odds than grammar school pupils. Young people who did not have a parent who left school at the age of 16 had 1.20-fold higher odds of feeling more prepared than those who did.

Table 4 also shows that the proportion of CEAIG viewed as helpful was a significant predictor, with every 20% increase associated with increased odds of feeling prepared of 1.35. Thus, someone who viewed 81–100% of their CEAIG activities as helpful had an increased odds of 4.48 (1.35^5 = 4.48) of reporting more positive views of school preparing them for life, compared to someone who only reported 0% of their CEAIG activities helpful.

Life satisfaction

Table 5 shows the results of the regression analysis for factors associated with life satisfaction. Number of activities (depth of participation) and the percentage of activities reported as helpful were both significantly associated with life satisfaction. Science GCSE attainment, maths GCSE attainment, ethnicity, gender, school type, and IMD were also found to be significantly associated with the outcome. In other words, all of these predictors enable us to predict the outcome category ('low' vs 'very high' life satisfaction). The results for the number of careers activities suggested that a higher number of activities was generally associated with higher levels of life satisfaction. Every increased activity was associated with odds of reporting 'very high' life satisfaction (compared to 'low') being 10% higher.

Table 5. Regression analysis of factors associated with life satisfaction.

	Medium vs Low life satisfaction	High vs Low life satisfaction	Very high vs Low life satisfaction	
Category (*Reference*)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	p
Percentage helpful CEAIG activities (*Odds ratio given for a 20% increase in percentage helpful activities*)				<0.001
	1.07** (1.02, 1.11)	1.19*** (1.14, 1.24)	1.30*** (1.22, 1.38)	
Number CEAIG activities (*Odds ratio given for each additional number of CEAIG activities*)				<0.001
	1.06*** (1.03, 1.09)	1.07*** (1.04, 1.11)	1.10*** (1.05, 1.16)	
Gender (*Man*)				<0.001
Woman	1.11 (0.95, 1.29)	1.02 (0.88, 1.19)	0.23+ (0.09, 0.61)	
Non-binary or other genders	0.57* (0.36, 0.92)	0.31*** (0.19, 0.52)	0.23** (0.09, 0.61)	
Ethnicity (*White*)				<0.001
Black	0.71+ (0.50, 1.01)	0.45*** (0.31, 0.65)	0.75+ (0.53, 1.06)	
Asian	0.87 (0.68, 1.11)	0.72* (0.57, 0.93)	0.75 (0.53, 1.06)	
Other	0.71* (0.54, 0.93)	0.55*** (0.41, 0.72)	0.58* (0.39, 0.88)	
Highest science GCSE grade (*A*-B*)				0.01
C or Lower	0.81* (0.67, 0.98)	0.74** (0.61, 0.88)	0.96 (0.74, 1.24)	
Highest maths GCSE grade (*A*-B*)				<0.01
C or Lower	0.91 (0.76, 1.10)	0.75** (0.63, 0.90)	0.71** (0.55, 0.91)	
Took any A Levels (*Yes*)				<0.01
No	0.81* (0.69, 0.95)	0.74*** (0.63, 0.87)	0.94 (0.75, 1.19)	
School type (*Independent school*)				0.01
Comprehensive school	0.67* (0.46, 0.99)	0.62* (0.43, 0.90)	0.41*** (0.26, 0.64)	
Academically selective	0.63* (0.41, 0.98)	0.54** (0.36, 0.83)	0.47** (0.28, 0.80)	
School gender mix (*Single-sex School*)				0.46
Co-education school	0.85 (0.67, 1.08)	0.88 (0.69, 1.12)	1.00 (0.72, 1.40)	
Parents attended university (*At least one parent*)				0.05
Neither parent	1.12 (0.94, 1.33)	0.93 (0.79, 1.09)	1.08 (0.86, 1.37)	
Parents left school by 16 (*Neither parent*)				0.06
At least one parent	0.86+ (0.74, 1.01)	0.84* (0.72, 0.98)	0.75* (0.60, 0.95)	
Index of Multiple Deprivation (*5th quintile – least deprived*)				0.01
4th quintile	1.12 (0.86, 1.44)	0.95 (0.75, 1.22)	0.85+ (0.61, 1.20)	
3rd quintile	1.22 (0.94, 1.57)	0.97 (0.76, 1.23)	1.19 (0.84, 1.67)	
2nd quintile	1.15 (0.90, 1.46)	0.85 (0.67, 1.08)	1.04 (0.74, 1.46)	
1st quintile – most deprived	1.05 (0.83, 1.34)	0.76* (0.60, 0.96)	0.85 (0.61, 1.20)	
Log likelihood	13,552.70			
Cox & Snell R-square	0.07			
N	6,253			

Statistical significance is noted by *** for $p < 0.001$, ** for $p < 0.01$, * for $p < 0.05$, and + for $p < 0.10$.

Table 6. Regression analysis of factors associated with education/working status.

	Working vs NEET	Education/Apprenticeship vs NEET	
Category (*Reference*)	Odds ratio (95% CI)	Odds ratio (95% CI)	p
Percentage helpful CEAIG activities (*Odds ratio given for a 20% increase in percentage helpful activities*)			<0.001
	1.10*** (1.05, 1.15)	1.08** (1.03, 1.13)	
Number CEAIG activities (*Odds ratio given for each additional number of CEAIG activities*)			<0.01
	1.04* (1.01, 1.08)	1.08*** (1.04, 1.12)	
Gender (*Man*)			0.01
Woman	0.95 (0.81, 1.13)	1.04 (0.87, 1.25)	
Non-binary or other genders	0.52* (0.30, 0.91)	1.07 (0.60, 1.90)	
Ethnicity (*White*)			<0.001
Black	0.87 (0.56, 1.36)	1.87** (1.18, 2.97)	
Asian	0.61** (0.46, 0.81)	1.80*** (1.35, 2.39)	
Other	0.54*** (0.40, 0.73)	1.06 (0.78, 1.46)	
Highest science GCSE grade (*A*-B*)			<0.001
C or Lower	0.75** (0.61, 0.91)	0.61*** (0.49, 0.77)	
Highest maths GCSE grade (*A*-B*)			<0.001
C or Lower	0.83+ (0.68, 1.01)	0.56*** (0.45, 0.70)	
Took any A Levels (*Yes*)			<0.001
No	0.88 (0.74, 1.05)	0.52*** (0.43, 0.63)	
School type (*Independent school*)			<0.01
Comprehensive school	1.87*** (1.33, 2.62)	1.36+ (0.95, 1.93)	
Academically selective	1.61* (1.07, 2.42)	1.23 (0.80, 1.89)	
School gender mix (*Single-sex school*)			0.69
Co-education school	1.08 (0.83, 1.39)	1.00 (0.76, 1.31)	
Parents attended university (*At least one parent*)			<0.001
Neither parent	0.88 (0.73, 1.07)	0.66*** (0.54, 0.81)	
Parents left school by 16 (*Neither parent*)			0.30
At least one parent	1.11 (0.93, 1.32)	1.02 (0.84, 1.24)	
Index of Multiple Deprivation (*5th quintile – least deprived*)			<0.001
4th quintile	0.93 (0.70, 1.25)	0.96 (0.70, 1.31)	
3rd quintile	0.94 (0.70, 1.25)	0.90 (0.66, 1.23)	
2nd quintile	0.75* (0.57, 0.99)	0.70* (0.52, 0.94)	
1st quintile – most deprived	0.59*** (0.45, 0.76)	0.61** (0.46, 0.81)	
Log likelihood	9516.98		
Cox & Snell R square	0.11		
N	6,256		

Statistical significance is noted by *** for $p < 0.001$, ** for $p < 0.01$, * for $p < 0.05$, and + for $p < 0.10$.

Table 7. Regression analysis of factors associated with income.

	£15,000-£20,000 vs Under £15,000	£20,000-£25,000 vs Under £15,000	£25,000-£30,000 vs Under £15,000	Over £30,000 vs Under £15,000	
Category (*Reference*)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	p
Percentage helpful CEAIG activities (*Odds ratio given for a 20% increase in percentage helpful activities*)					0.14
	1.04 (0.99, 1.10)	1.07* (1.02, 1.14)	1.06 (0.99, 1.14)	1.07 (0.98, 1.16)	
Number CEAIG activities (*Odds ratio given for each additional number of CEAIG activities*)					0.17
	1.04+ (1.00, 1.08)	1.02 (0.98, 1.07)	1.06* (1.00, 1.12)	1.06+ (0.99, 1.12)	
Gender (*Man*)					<0.001
Woman	0.91 (0.74, 1.11)	0.68*** (0.55, 0.83)	0.52*** (0.41, 0.67)	0.20*** (0.15, 0.26)	
Non-binary or other genders	0.42+ (0.17, 1.04)	0.61 (0.28, 1.32)	0.00 (0.00, 0.00)	0.32* (0.10, 0.99)	
Ethnicity (*White*)					0.03
Black	0.47* (0.25, 0.89)	0.92 (0.53, 1.59)	0.78 (0.39, 1.59)	1.45 (0.70, 3.02)	
Asian	0.83 (0.55, 1.24)	0.65+ (0.42, 1.01)	1.10 (0.69, 1.76)	1.38 (0.81, 2.38)	
Other	0.70+ (0.46, 1.06)	0.66+ (0.43, 1.02)	0.65 (0.38, 1.11)	0.87 (0.48, 1.57)	
Highest science GCSE grade (*A*-B*)					<0.001
C or Lower	1.00 (0.79, 1.25)	0.73** (0.58, 0.92)	0.52*** (0.38, 0.71)	0.51** (0.35, 0.75)	
Highest maths GCSE grade (*A*-B*)					<0.001
C or Lower	0.98 (0.78, 1.22)	0.82+ (0.65, 1.03)	0.52*** (0.39, 0.70)	0.45*** (0.32, 0.65)	
Took any A Levels (*Yes*)					0.03
No	1.19+ (0.97, 1.46)	0.95 (0.77, 1.17)	0.88 (0.68, 1.15)	1.34+ (0.98, 1.82)	
School type (*Independent school*)					0.11
Comprehensive school	1.61+ (0.99, 2.62)	1.14 (0.73, 1.79)	1.88* (1.08, 3.29)	0.92 (0.52, 1.64)	
Academically selective	1.53 (0.87, 2.69)	1.02 (0.60, 1.76)	1.56 (0.81, 2.98)	1.37 (0.69, 2.69)	
School gender mix (*Single-sex school*)					0.12
Co-education school	0.95 (0.68, 1.31)	1.13 (0.80, 1.58)	0.67* (0.46, 0.98)	0.98 (0.62, 1.55)	
Parents attended university (*At least one parent*)					0.76
Neither parent	1.05 (0.84, 1.31)	1.10 (0.88, 1.37)	0.93 (0.71, 1.21)	1.00 (0.73, 1.36)	
Parents left school by 16 (*Neither parent*)					0.86
At least one parent	1.04 (0.85, 1.28)	1.12 (0.91, 1.38)	1.01 (0.78, 1.31)	1.02 (0.75, 1.39)	
Index of Multiple Deprivation (*5th quintile – least deprived*)					<0.001
4th quintile	0.99 (0.72, 1.37)	1.16 (0.84, 1.61)	0.81 (0.56, 1.18)	1.10 (0.72, 1.68)	
3rd quintile	1.01 (0.74, 1.38)	1.04 (0.75, 1.42)	0.76 (0.53, 1.10)	0.67+ (0.43, 1.05)	
2nd quintile	0.81 (0.60, 1.10)	0.94 (0.69, 1.28)	0.66* (0.46, 0.96)	0.69+ (0.45, 1.06)	
1st quintile – most deprived	0.83 (0.62, 1.12)	0.70* (0.51, 0.96)	0.47*** (0.32, 0.69)	0.34*** (0.21, 0.55)	
Log likelihood	9102.72				
Cox & Snell R square	0.13				
N	3,387				

Statistical significance is noted by *** for $p < 0.001$, ** for $p < 0.01$, * for $p < 0.05$, and + for $p < 0.10$.

Table 8. Regression analysis of factors associated with job satisfaction.

	Very dissatisfied vs not at all satisfied	Dissatisfied vs not at all satisfied	Moderately satisfied vs not at all satisfied	Satisfied vs not at all satisfied	Very satisfied vs vot at all satisfied	
Category (*Reference*)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	p
Percentage helpful CEAIG activities (*Odds ratio given for a 20% increase in percentage helpful activities*)						<0.001
	0.92 (0.82, 1.04)	1.02 (0.91, 1.13)	1.06 (0.95, 1.18)	1.17** (1.05, 1.29)	1.32*** (1.18, 1.46)	
Number CEAIG activities (*Odds ratio given for each additional number of CEAIG activities*)						<0.001
	0.98 (0.90, 1.06)	0.91* (0.84, 0.99)	0.98 (0.90, 1.06)	0.98 (0.91, 1.06)	1.07 (0.99, 1.16)	
Gender (*Man*)						0.39
Woman	1.46+ (0.98, 2.18)	1.41+ (0.96, 2.08)	1.37 (0.94, 1.99)	1.44* (1.00, 2.07)	1.24 (0.86, 1.78)	
Non-binary or other genders	0.32 (0.07, 1.49)	0.44 (0.12, 1.64)	0.56 (0.17, 1.90)	0.65 (0.21, 2.04)	0.40 (0.12, 1.38)	
Ethnicity (*White*)						0.60
Black	1.19 (0.44, 3.21)	1.03 (0.39, 2.71)	0.85 (0.33, 2.20)	0.59 (0.23, 1.53)	0.77 (0.31, 1.95)	
Asian	1.45 (0.60, 3.52)	1.38 (0.58, 3.25)	1.64 (0.71, 3.77)	1.35 (0.60, 3.05)	1.17 (0.51, 2.66)	
Other	1.83 (0.73, 4.61)	1.41 (0.57, 3.53)	1.28 (0.52, 3.15)	1.38 (0.58, 3.29)	1.04 (0.43, 2.52)	
Highest science GCSE grade (*A*-B*)						0.84
C or Lower	1.02 (0.63, 1.65)	1.02 (0.64, 1.62)	0.89 (0.57, 1.41)	0.88 (0.57, 1.37)	0.89 (0.57, 1.38)	
Highest maths GCSE grade (*A*-B*)						0.05
C or Lower	0.98 (0.61, 1.59)	0.76 (0.48, 1.21)	0.92 (0.59, 1.45)	0.83 (0.54, 1.29)	0.66+ (0.43, 1.03)	
Took any A Levels (*Yes*)						0.69
No	0.94 (0.61, 1.44)	0.84 (0.56, 1.28)	0.78 (0.52, 1.17)	0.83 (0.56, 1.23)	0.91 (0.61, 1.34)	
School type (*Independent school*)						0.41
Comprehensive school	0.97 (0.35, 2.71)	0.69 (0.27, 1.79)	0.73 (0.29, 1.84)	0.84 (0.34, 2.07)	1.02 (0.41, 2.54)	
Academically selective	1.60 (0.47, 5.48)	1.18 (0.37, 3.75)	0.85 (0.27, 2.64)	1.23 (0.41, 3.69)	1.77 (0.59, 5.34)	
School gender mix (*Single-sex school*)						0.33
Co-education school	1.31 (0.68, 2.52)	1.52 (0.80, 2.87)	1.46 (0.79, 2.72)	1.33 (0.73, 2.40)	1.07 (0.59, 1.92)	
Parents attended university (*At least one parent*)						0.65
Neither parent	1.19 (0.76, 1.87)	1.18 (0.77, 1.81)	1.04 (0.68, 1.57)	1.25 (0.84, 1.88)	1.15 (0.77, 1.73)	
Parents left school by 16 (*Neither parent*)						0.17
At least one parent	1.09 (0.71, 1.68)	1.12 (0.74, 1.70)	1.38 (0.92, 2.06)	1.06 (0.71, 1.57)	1.05 (0.71, 1.56)	
Index of Multiple Deprivation (*5th quintile – least deprived*)						0.52
4th quintile	1.18 (0.58, 2.42)	1.32 (0.66, 2.64)	1.41 (0.72, 2.77)	1.11 (0.58, 2.12)	1.39 (0.73, 2.68)	
3rd quintile	0.68 (0.36, 1.30)	0.83 (0.45, 1.53)	0.88 (0.48, 1.60)	0.67 (0.38, 1.20)	0.77 (0.43, 1.37)	
2nd quintile	1.02 (0.54, 1.92)	0.93 (0.50, 1.73)	0.91 (0.50, 1.66)	0.75 (0.42, 1.34)	0.80 (0.44, 1.43)	
1st quintile – most deprived	0.98 (0.52, 1.87)	1.04 (0.56, 1.94)	0.92 (0.50, 1.69)	0.69 (0.39, 1.24)	0.82 (0.45, 1.47)	
Log likelihood	10,771.60					
Cox & Snell R square	0.08					
N	3,656					

Statistical significance is noted by *** for $p < 0.001$, ** for $p < 0.01$, * for $p < 0.05$, and + for $p < 0.10$.

Education/working status

Model results summarised in Table 6 show that the number of CEAIG activities and the percentage viewed as helpful significantly predicted employment and training status at age 21/22. The number of CEAIG activities was associated with an increased chance of either 'work' or being in 'education/training' and a less chance of being 'NEET'. The odds ratio for 'education' relative to 'NEET' was 1.08, indicating that those who had all 8 CEAIG had 1.85 (1.08^8) increased odds of reporting in education or training vs NEET compared to those with no activities. For the percentage of helpful activities, the equivalent odds ratio was 1.08. This implies that those who reported 81–100% helpful had odds of education/training rather than NEET that were 1.47 times higher than those with no helpful activities. For working vs NEET comparison, every increased CEAIG activity was associated with a 4% higher odds of working. Thus, someone who did all 8 had 1.35 increased odds of reporting working vs NEET compared to someone who did no CEAIG activities. For the percentage of helpful activities, every 20% increase was associated with an odds ratio of 1.10. Therefore, someone who found 81–100% of their CEAIG activities helpful had 1.63 increased odds of reporting working vs NEET compared to someone who reported none of their CEAIG activities helpful.

Income

The regression results for income are summarised in Table 7. Neither the number of CEAIG activities or the percentage viewed as helpful were significantly associated with income level at a 99% confidence interval.

Job satisfaction

The analysis for job satisfaction was based only on individuals in the sample reporting work as their main current activity, with the results summarised in Table 8. The predictors that were significant in predicting overall job satisfaction were the number of career support experiences and proportion viewed as helpful. There was also some evidence of an association between maths GCSE attainment and the outcome, although this result was only of borderline statistical significance. A higher percentage of helpful activities was associated with increased levels of job satisfaction. Those who reported viewing 81–100% of their careers activities as helpful had 4.08 increased odds of reporting 'very satisfied' versus 'not at all satisfied' when compared to those reporting no helpful activities. Similar relationships were seen when looking at the subsample by gender (i.e. no interaction effects were found).

Discussion

Relationship between the quantity and perceived helpfulness of CEAIG experienced at school and wider life outcomes at age 21–22

This paper outlines several positive associations between having experienced extensive (perceived) high-quality CEAIG activities at school and later life outcomes. After

controlling for the background variables included in the models reported above, more CEAIG reported (retrospectively) at the age of 14–16 predicted more positive future prospects relating to confidence and concern when thinking about future work, positive feelings that school prepared the young participants for general life, greater life satisfaction, and increased job satisfaction for those working at the time of data collection. Our results additionally showed that it was not just about having done *any* CEAIG activities, but also about *how many* activities the young people remembered doing and how many of those activities they reported as being *helpful* (i.e. the perceived quality). The more activities an individual reported taking part in, and the more activities they reported being helpful, the more likely they were to, for example, report confidence and low levels of concern when thinking about their futures in employment or training. This finding was replicated for all outcomes included in the analyses, apart from income where no significant relationship was found.

CEAIG provision also predicted increased odds of reporting being in education or training, and work, versus NEET. For example, those who reported (retrospectively) taking part in eight types of CEAIG activities at school, were almost twice as likely to report being in education and training versus not in education and training at age 21/22. Views of the *quality* of the CEAIG provisions reported retrospectively from secondary school also significantly predicted education and training as well as employment status compared to NEET status. While we appreciate that employment status (investigated here) is different to employability (defined by some as the ability to secure a satisfying job, Harvey (2001) or to 'move self-sufficiently within the labour market to realise potential through sustainable employment' Hillage and Pollard 1998), there is a growing body of work exploring the predictors of employability. However, much of this work uses secondary data analyses and data mining exercises. In this paper, we seek to complement and add to this and existing analyses of the short-term benefits of participating in CEAIG (e.g. D. Hughes et al. 2016; Sampson, Hooley, and Marriot 2011) by analysing primary empirical data to identify potential longer-term influencing factors.

We found that the proportion of these CEAIG activities participated in during secondary schools that these young people found helpful was a significant predictor of more positive future prospects, views of how prepared they felt by school for general life, greater life satisfaction, and increased job satisfaction. In this respect, we suggest that our findings lend further weight to research that underlines the importance of the quality of CEAIG provision for positive future life outcomes and employability (e.g. K. L. Hughes and Jane Mechur Karp 2004; Kashefpakdel and Percy 2017; Mann et al. 2017).

It is important to note that our participants attended school at a time when there was particularly patchy and patterned CEAIG provision, reflecting a period of transition between different policy approaches and modes of delivery for CEAIG in schools in England at the time. However, this notwithstanding, we note that those who did report receiving more frequent/extensive and 'helpful' provision, reported greater satisfaction and more positive life outcomes at age 21/22 than those who did not. We interpret our findings as lending support for the potential longer-term positive relationship between school-based CEAIG and later employment and life satisfaction. However, we also treat these findings with caution, bearing in mind that they may simply reflect a situation whereby more socially

privileged young people benefit from not only more and 'better' CEAIG provision, but also multiple forms of social and educational advantage that can translate into improved/positive life outcomes (e.g. Bourdieu and Passeron 1977). Hence, we recognise the limited and provisional nature of our findings. We discuss the limitations of this work in more detail below.

Limitations and future research

While we benefit on the project from a large sample size that can be cautiously generalised to the wider population of this cohort in England, this study does not escape the limitations of cross-sectional survey work. Due to being based on self-report measures, the research presented here is limited by issues of both internal validity (e.g. response bias, control of the sample and/or spurious responses) and external validity. While the sample was roughly similar to the wider population of students in England based on the background variables reported earlier, any wider cultural comparisons to other educational contexts within and outside the UK need to be made cautiously. As reported, the Maths GCSE results obtained in our sample were slightly higher than those reported nationally for the cohort and the potential impact of this on the generalisability of results needs to be considered when interpreting the findings presented. Further research replicating these results in other countries would help to build confidence in the generalisability of the findings presented. We would also like to add, that while generalisability is of course desired, and an aim in our current and future work, the value of the findings presented in the paper also lies in exploring the mechanisms and intricate processes investigated. We argue therefore that there is meaning and contribution possible relating to these analyses that are separate from any need for generalisability.

In addition, the subset of data used to address the research question in this paper involves retrospective data, with young people, aged 21–22, being asked to think back to their experiences while in secondary school (aged 14–16). We therefore acknowledge that some individuals may have had trouble accurately remembering what activities they took part in, which could contribute to the low numbers shown who reported no CEAIG activities. It is also worth noting that any positive relationships documented in this paper (i.e. CEIAG provision link to future outcomes), need to also be considered within the context of other work which has highlighted the difficulties of retrospective research (e.g. Bimrose, Barnes, and Hughes 2008 who showed that over time, recollections of the usefulness of CEAIG activities were lower). We also need to highlight that the survey data analyses here includes young people's self-reports of their parents' education as well as their own attainment (i.e. highest GCSE science and maths grades) and maybe also need to be interpreted cautiously.

An inequalities picture was also painted while exploring at the relationship between the predictors and life satisfaction, with individuals who, for example, did not have a parent who left school before the age of 16, who were high attainers in maths at GCSE, who were male and White, who attended independent schools, having increased odds of reporting 'very high' life satisfaction. This pattern of results was also present for the education and employment model, with parental education, science and maths GCSE attainment, A level enrolment, ethnicity, gender, IMD, and school type all being significant predictors of employment status. Inequalities relating to income were also noted

in the models presented in this paper. These findings, together with our previous findings showing that often those most in need of this support are not accessing it (Moote and Archer 2018), point to worrying trends that are in need of further exploration and policy awareness. While the background factors discussed above were explored, we also appreciate that the predictors entered into the models presented in this paper are not exhaustive of the possible factors related to the outcomes studied. While we have explored several interaction effects among the predictors, we also acknowledge that the intersectionality of the structural background factors particularly are in need of further exploration in future work. On the [named project] we do this by looking into the qualitative data which covered more depth relating to these topics. Future publications are planned as this is out with the scope of the present paper.

It is also possible that the number of CEAIG activities may be a proxy for conscientiousness, social privilege and/or positivity about future prospects or something else intrinsic to the types of individuals who reported provision (i.e. the individuals reporting more CEAIG in turn reporting more positive views of provision and may also be predisposed to report more positive future outlooks relating to their career prospects as a result). Therefore, we are careful here not to overstate the implications of the findings. However, while we cannot claim causality of the results, we suggest that through identifying clear, significant relationships and through interpretation of the effect sizes, this work documents the long-term value and potential positive influence of these CEAIG activities on outcomes reported later in life. It might also be the case that there is a feedback loop where people who find their retrospective CEAIG activities helpful are more likely to do more activities. Preliminary explorations into the correlations between these two variables showed a value of .20 which would confirm this theory, however it is not a huge correlation really and we might expect a higher coefficient if the strength of this feedback cycle was the only explanation for the findings. The coefficient being under .70 is also indicative of an acceptable range relating to multicollinearity and the collinear statistics were also acceptable (ie. TIF more than .10 and VIG less than 10). It is also important to note that we are assuming linear relationships between these predictors and outcomes.

Implications and suggestions for future research

Considering that CEAIG is designed to 'prepare students for life in modern Britain', these findings relating to positive relationships to general life satisfaction, views of preparedness for life seem pertinent to highlight. We want to draw attention now, that while extremely positive that these relationships have been documented here, and that retrospective analyses can underestimate effects, they need to be understood in the context of previous work (Moote and Archer 2018) which documented that for this cohort, CEAIG provision was limited in quantity and quality and evidence was shown that arguably those who needed it most were not accessing the self-referral systems often in place in secondary schools, as mentioned above. We also would like to highlight that for us, these results show that the more we do for young people (i.e. that more supportive development activities we support/encourage them to participant in) and the higher the quality of the activities we provide for them is (i.e. the more helpful they report finding the

activities), the stronger the relationships might be to the adult outcomes included in this work.

Acknowledging the significant positive relationships identified between CEAIG and wider adult outcomes including income, future job confidence, and job satisfaction, this work highlights the importance of these CEAIG activities in schools, with long-term positive relationships being identified based on a large sample of young people age 21–22 in England. It is our hope that these findings, together with our previous work in this area (Moote and Archer 2018), might also alert policy makers to providing more detailed and extensive support to school and education workers who are administering and evaluating these programmes. Specifically, education and support around issues related to equity and social justice and the intersectional nature of these as well could be beneficial to staff administering and supporting CEAIG activities to young people. We would suggest investigating more closely not just at *who* is getting the support, but the *quality* of the support, as our findings show the link between perceptions of helpfulness and wider adult outcomes.

Concern regarding the variability of the quality and quantity of CEAIG activities provided in schools has been documented in the literature for over two decades now (e.g. K. L. Hughes and Jane Mechur Karp 2004). We add to this discourse by also suggesting that future research and development efforts could usefully explore the creation of an objective measure of the quality of CEAIG provision (from both the young peoples' perspective and the support staff and management individuals involved) that could be used in practice. More scaffolded support, more direction, and a more integrated approach to CEAIG are needed, in our view, to allow the young people to feel that these support activities are connected to their personal trajectories and interests, a connection that may lead to higher participation rates (Moote and Archer 2018).

Conclusions

Through regression analyses of a large-scale national dataset, we document positive predictive relationships between young people's self-reported participation in CEAIG activities at school and a range of adult outcomes at age 21–22. By exploring the potential longer-term benefits of CEAIG provision, the findings point to the potential value of policy makers and school practitioners striving to provide high-quality CEAIG activities for your people in English secondary schools. Our findings suggest that both *quantity* and *quality* of provision matters and that efforts might usefully be directed at ensuring such provision is targeted towards less privileged students, who stand to benefit most, given ongoing patterns of inequality in youth employment.

Note

1. Where the design effect from weighting = $1 + \text{cov}(W)^2$) – where cov(W) is the coefficient of variation of the weights.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The work was supported by the Economic and Social Research Council [ES/S01599X/1].

Notes on contributors

Julie Moote A science teacher by background, Julie worked as a Senior Research Fellow on the ASPIRES projects, exploring how educational and occupational aspirations are formed among young students, and how they change over time. Julie's research also explores the impact of inquiry-based learning programmes in science on motivation and self-regulated processes.

Professor Louise Archer holds the Karl Mannheim Chair of Sociology of Education at UCL's Institute of Education, having previously been Professor of Sociology of Education at King's College London, where she was also the Director of the Centre for Research in Education in Science, Technology, Engineering and Mathematics. Her research focuses on educational identities and inequalities, particularly in relation to gender, ethnicity and social class.

Morag Henderson is the Principal Investigator of Next Steps, an English longitudinal study. She currently works in the Centre for Longitudinal Studies and has recently been promoted to Professor of Sociology. Her main research interest is educational inequalities and she has written extensively on the socio-economic attainment gap; educational transitions; the influence of subject choice on subsequent educational attainment and labour market outcomes; the influence of parenting practices and academic self-concept. She also works in the field of mental ill health and wellbeing. She completed her DPhil in Sociology from University of Oxford in 2013.

Emma Watson worked as the Research Administrator on the ASPIRES project and is now working for Imperial College London.

Jennifer DeWitt works as a freelance research and evaluation consultant and a Senior Research Fellow at UCL Institute of Education. She has worked as a researcher on the ASPIRES and Enterprising Science projects as part of the core team developing the concept of science capital, and is currently conducting research on equity in maker spaces.

Professor Becky Francis CBE (FBA, FAcSS, PhD) is Chief Executive Officer of the Education Endowment Foundation, and retains a fractional association at UCL. She was previously Director of the UCL Institute of Education (IOE). Becky's academic expertise and extensive publications center on social identities (gender, 'race' and social class) in educational contexts, social in/equality, and social identity and educational achievement, and gender theory.

Henriette Holmegaard is an Associated Professor leading the research group Equity in Science Education at the University of Copenhagen. Her research centers on understanding different children and young people's choice processes, transitions and meeting with the cultural practices of different science and engineering disciplines.

References

Bimrose, J., S.-A. Barnes, and D. Hughes. 2008. *Adult Career Progression and Advancement: A Five Year Study of the Effectiveness of Guidance*. Coventry: Warwick Institute for Employment Research and the Department for Innovation, Universities and Skills.

Bourdieu, P., and J.-C. Passeron. 1977. *Education, Society and Culture*. Translated by Richard Nice. London: SAGE Publications.

Department for Education. 2018. *Revised a Level and Other 16-18 Results in England, 2016/2017*. London: Department for Education. https://assets.publishing.service.gov.uk/media/5a82bdb8e5274a2e87dc2beb/SFR032018Maintext.pdf.

Department for Education. 2023. *Careers Guidance and Access for Education and Training Providers: Statutory Guidance for Schools and Guidance for Further Education Colleges and Sixth Form Colleges*. London: Department for Education. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1127489/Careers_guidance_and_access_for_education_and_training_providers_.pdf.

DeWitt, J., L. Archer, and J. Osborne. 2014. "Science-Related Aspirations Across the Primary–Secondary Divide: Evidence from Two Surveys in England." *International Journal of Science Education* 36 (10): 1609–1629. https://doi.org/10.1080/09500693.2013.871659.

DeWitt, J., L. Archer, J. Osborne, J. Dillon, B. Willis, and B. Wong. 2011. "High Aspirations but Low Progression: The Science Aspirations–Careers Paradox Amongst Minority Ethnic Students." *International Journal of Science and Mathematics Education* 9 (2): 243–271. https://doi.org/10.1007/s10763-010-9245-0.

Groves, O., K. Austin, S. O'Shea, and J. Lamanna. 2021. "'One Student Might Get One Opportunity and Then the Next Student won't Get Anything Like that': Inequities in Australian Career Education and Recommendations for a Fairer Future." *The Australian Educational Researcher* 50 (2): 1–18. https://doi.org/10.1007/s13384-021-00468-2.

Harvey, L. 2001. "Defining and Measuring Employability." *Quality in Higher Education* 7 (2): 97–109. https://doi.org/10.1080/13538320120059990.

Hillage, J., and E. Pollard. 1998. *Employability: Developing a Framework for Policy Analysis*. Nottingham: Institute for Employment Studies, DfEE.

Hoyt, K. B. 2005. *Career Education: History and Future*. Oklahoma: National Career Development Association.

Hughes, D. 2013. "An Expanded Model of Careers Professional Identity: Time for Change?" *British Journal of Guidance & Counselling* 41 (1): 58–68. https://doi.org/10.1080/03069885.2012.743964.

Hughes, D. 2020. *COVID-19: Where Do I Go for Careers Support?* Essex: DHM Associates, Careers England and Career Development Institute.

Hughes, D., S. Bosley, L. Bowes, and S. Bysshe. 2002. *The Economic Benefits of Guidance*. Derby: Centre for Guidance Studies, University of Derby.

Hughes, K. L., and M. Jane Mechur Karp. 2004. *School-Based Career Development: A Synthesis of the Literature*. New York: Community College Research Center, Columbia University.

Hughes, D., A. Mann, S.-A. Barnes, B. Baldauf, and R. McKeown. 2016. *Careers Education: International Literature Review*. Warwick: Warwick Institute for Employer Research and Education and Employers Research.

Joint Council for Qualifications. 2015. "GCSE and Entry Level Certificate Results Summer 2015." https://www.jcq.org.uk/examination-results/?post-year=2015&post-location=.

Kashefpakdel, E. T., and C. Percy. 2017. "Career Education That Works: An Economic Analysis Using the British Cohort Study." *Journal of Education & Work* 30 (3): 217–234. https://doi.org/10.1080/13639080.2016.1177636.

Kidd, J. M., and J. Killeen. 1992. "Are the Effects of Careers Guidance Worth Having? Changes in Practice and Outcomes." *Journal of Occupational and Organizational Psychology* 65 (3): 219–234. https://doi.org/10.1111/j.2044-8325.1992.tb00500.x.

Killeen, J., M. White, and A. Gordon Watts. 1992. *The Economic Value of Careers Guidance* No. 702. London: Policy Studies Institute.

Maguire, M. 2004. "Measuring the Outcomes of Career Guidance." *International Journal for Educational and Vocational Guidance* 4:179–192. https://doi.org/10.1007/s10775-005-1022-1.

Maguire, M., and J. Killeen. 2003. "Outcomes from Career Information and Guidance Services." Paper prepared for the OECD Career Guidance Policy Review and the European Commission, Paris. https://www.oecd.org/education/innovation-education/2495163.pdf.

Mann, A., V. Denis, and C. Percy. 2020. "Career Ready?: How Schools Can Better Prepare Young People for Working Life in the Era of COVID-19." *OECD Education Working Papers*, No. 241. Paris: OECD Publishing. https://doi.org/10.1787/e1503534-en

Mann, A., E. T. Kashefpakdel, J. Rehill, and P. Huddleston. 2017. "Contemporary Transitions: Young Britons Reflect on Life After Secondary School and College." *Occasional Research Paper*, 11.

Mann, A., and C. Percy. 2014. "Employer Engagement in British Secondary Education: Wage Earning Outcomes Experienced by Young Adults." *Journal of Education & Work* 27 (5): 496–523. https://doi.org/10.1080/13639080.2013.769671.

Moote, J., and L. Archer. 2018. "Failing to Deliver? Exploring the Current Status of Career Education Provision in England." *Research Papers in Education* 33 (2): 187–215. https://doi.org/10.1080/02671522.2016.1271005.

Orlando, C. 2022. "The Impact of the COVID-19 Pandemic on Young people's Experiences of Careers Support: A UK-Wide and Youth-Centred Analysis." *Journal of the National Institute for Career Education and Counselling* 49 (1): 27–33. https://doi.org/10.20856/jnicec.4905.

Sampson, J. P., T. Hooley, and J. Marriot. 2011. *Fostering College and Career Readiness: How Career Development Activities in Schools Impact on Graduation Rates and students' Life Success*. Florida: Department of Educational Psychology and Learning Systems. http://hdl.handle.net/10545/196698.