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# Patterns of participation and non-participation in learning in mid-life and their determinants

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#### ABSTRACT

The literature on educational choices and participation has tended to focus on youth and to some extent on older adults, with little attention to the group in between. This paper therefore analyses participation in various types of learning by people in their 30s and 40s. This group are often juggling career and family life commitments meaning that there are substantial barriers and time constraints on learning participation. We draw on large-scale quantitative longitudinal data for Britain to examine the trajectory of engagement with learning using latent class analysis to identify patterns in the data and regression modelling to investigate explanatory factors. We show that both highest gualification reached by their early 30s and participation in learning activities of some kind in young adulthood are key antecedent factors predicting higher chances of participating in learning in mid-life. The research confirms the importance of cumulative processes in learning as in other aspects of the lifecourse.

#### **KEYWORDS**

Lifecourse; mid-life; adult learning; barriers to learning; cumulative advantage

# Introduction

Mid-life, defined here as from one's early 30s to about the age of 50, is a distinct phase of the lifecourse. At this stage, some individuals will already be well-established on a career track but may seek additional qualifications and vocational training to help them to progress further. Others will have had spells of precarious work and of unemployment by their 30s. They may therefore have had little access to employer-provided vocational training but will have become motivated to gain qualifications to move from the lower echelons of the labour force into better-paid and more secure jobs. The mid-life phase is also a very busy, often over-busy, part of the lifecourse in which people are juggling the demands of work with looking after children, and sometimes older relatives too. Family commitments and time constraints impact on the opportunity to participate in learning and present very real barriers for many at this stage of their lives.

Understanding the choices made about whether or not to participate in learning, and the types of learning engaged in, for people in mid-life is therefore quite complex and demands careful analysis. Yet, while there are innumerable papers on the educational choices of young people, and a burgeoning literature on older adults and learning, the mid-life phase has attracted rather little attention. This paper therefore focuses specifically on this phase of the lifecourse. It contributes three things to the literature. Firstly, participation and non-participation in a range of different types of learning in mid-life are considered. Secondly, we analyse the various patterns of

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participation across these types of learning. And thirdly, statistical models are used to investigate the explanatory factors underlying patterns of participation in learning in mid-life.

#### Literature

The lifecourse approach offers a useful way of thinking about the topic of this paper. A lifecourse perspective is a loose framework of ideas rather than a tightly-specified predictive theory (Elder & Giele, 2009; Elder et al., 2004). It conceives of individuals as being on trajectories through life which are embedded in their social contexts and cumulative in nature. Experiences at one stage of the lifecourse impact on outcomes in subsequent stages and this includes educational processes (Blossfeld et al., 2019). The mid-life phase of the lifecourse is usually considered to begin somewhere around the early 30s, lasting until about age 50, although this could vary somewhat for different cohorts and in different societies. In this phase, the great majority of people will be both making careers and raising families. It has been called the 'rush hour' phase of the lifecourse (Schuller & Watson, 2009). This may have implications both for the motivations to learn and for the barriers which people face in undertaking learning.

From a theoretical perspective, participation in adult learning is a choice of the individual, who has agency but is also embedded in the constraints and limitations of the social structure in which they are located. This idea has been developed in Bounded Agency theory (Boeren, 2016). Personal characteristics and dispositions play an important role but so does the external environment. Engagement in adult learning will depend, in part, on the barriers faced - the higher the barriers faced by an individual, the less likely they will be to participate in learning (Boeren, 2016; Keep, 2009). Two types of barriers can be distinguished. Firstly, there are situational barriers such as costs, lack of time, and the absence of relevant provision. Secondly, there are motivational and attitudinal factors, such as lack of confidence and negative feelings about education, which may prevent someone from beginning or progressing in a course of study. Attitudinal barriers to study may arise in a number of ways. A consistent theme in the adult education literature is that determinants of participation may have long-term antecedents (McGivney, 1990). A very important predictor of participation in adult learning, therefore, is previous experiences of education, with more positive experiences predicting participation later in life (Hammond & Feinstein, 2006). But over time people often gain more confidence in themselves, or have a clearer sense of what they wish to accomplish, so that their own agency could be stronger in mid-life compared to when they were young adults (Adshead & Jamieson, 2008).

Some of the literature has distinguished different types of motivation that people have for engagement in adult learning. A fundamental distinction can be made between extrinsic motivation, which is focused on reward, and intrinsic motivation, the enjoyment of studying for its own sake, as motivations for learning (Eccles et al., 1998). Extrinsic motivations may often be important among adult learners (Swain & Hammond, 2011). Changes in the demands for particular skills in the labour market may encourage workers in mid-life to undertake vocational training to enhance and update their skill set (Jenkins, 2017). Those who have been out of the labour force for some time will also engage in vocational learning as part of their strategy for obtaining paid work once more (Jenkins, 2006; Chesters et al., 2020). Recent cohorts have tended to stay in education for longer and are more likely to have higher-level qualifications as a result. Again, this may provide adults in mid-life with further incentive and motivation if they are competing against younger workers for scarce jobs and promotion opportunities. Hence, both the motivations to participate in learning and the barriers to doing so may vary at different stages of the lifecourse.

Numerous empirical studies have reported a decline in the likelihood of participation by age (Beblavy et al., 2014; Hovdhaugen & Opheim, 2018; Nilsson & Rubenson, 2014; Patterson, 2018) so that those in mid-life are less likely to participate than young people but more likely to do so than older adults, including retirees. Rather few papers focus on mid-life specifically. A notable early study for the US is Elman and O'Rand (1998). They considered people returning to study in their

40s and 50s using data from two waves of the US National Survey of Families and Households. Their research focused primarily on education as re-training to maintain occupational status or to improve occupational mobility as conditions in the labour market change. They were interested in testing the hypotheses that individuals with stable jobs may choose not to re-train, while those likely to face unemployment could be more likely to train. The survey excluded those without a high school diploma – hence confining the sample to those with relatively high levels of initial education. Elman and O'Rand could confirm in their analyses that those with the most job stability were less likely to participate in education, while disrupted work patterns made engagement with learning more likely. It was also the case that those with degrees were more likely to be participants in education than high school graduates.

For the UK, Hatch et al. (2007) applied regression modelling to quantitative data from the 1946 British birth cohort to investigate the determinants of participation in adult learning between the ages of 31 and 43. Their measures of learning included work-related training courses and gaining qualifications at lower or higher levels, and their analyses just distinguished between participation versus non-participation in learning. The odds of engaging in adult education were substantially higher, up to four times as great, for those with higher educational qualifications by age 26 compared to those who had no qualifications by that age. Those whose fathers had worked in a nonmanual occupation were also more likely to take part in adult education than those whose fathers were in manual occupations. Moreover, respondents who were themselves in a non-manual occupational social class had greater odds of participating in adult education compared to those in a manual occupational social class.

Research across a range of ages has shown that those who already have accumulated the most education are also more likely to participate further (Hovdhaugen & Opheim, 2018; Kilpi-Jakonen et al., 2015; Tuijnman, 1991). Moreover, a very important predictor of participation in adult learning is previous experiences of education, with more positive experiences predicting participation later in life (Brown & Bimrose, 2018; Hammond & Feinstein, 2006). Hence participation in learning at one stage of the lifecourse may encourage people to carry on their learning in their 20s may then be enthused to do further study in their 30s and 40s. The evidence therefore suggests that both highest education level and recent participation in learning should be included in models predicting learning in mid-life.

Work often provides the motivation to engage in learning in mid-life, and barriers to learning will also vary according to their employment situation and the nature of the job, if they are employed. Motivations will include the need to re-skill, concerns about the obsolescence of existing skills in the face of technical change, and the desire to upgrade, gain promotion and increase earnings. A study of Australian adults aged between 28 and 44 (Chesters et al., 2020) found that improved career prospects were the prime motivation for gaining new educational qualifications.

The type of employment may influence opportunities to engage in learning. Part-time workers could have more time to pursue their own skills development than those in full-time employment (McMullin & Kilpi-Jakonen, 2015) On the other hand, situational barriers will probably be reduced for people already in highly-skilled occupations able to get further training and learning opportunities via their employers compared to workers in routine and unskilled jobs. Certain types of employer are more likely to provide vocational training, some of which will also lead to qualifications. People working for larger employers (Arulampalam and Booth, 1998; Green et al., 1999; Hughes et al., 2004) and/or in workplaces that are part of a larger organisation (Almeida-Santos & Mumford, 2005; Boheim & Booth, 2004) are more likely to have access to skills development opportunities. Training opportunities may be more widely available in the public sector. Evidence has suggested that public sector employees have greater opportunities for work-related training and also, perhaps, support if they wish to obtain new qualifications (Green et al., 1999; Murphy et al., 2007).

Family life, and the responsibilities it brings, may impose further barriers to learning in mid-life. The presence of children, especially young children, in the household places limits on the time and energy that adults need in order to study (Swain & Hammond, 2011). A supportive partner, implying shared earnings and/or childcare responsibilities, could reduce barriers of this type (Arulampalam and Booth, 1998; Green et al., 1999). Some people in mid-life will have a long-term limiting illness or disability that could make studying, or combining both study and work, more challenging (Patterson, 2018). Some studies have noted differences in participation by gender (Chesters et al., 2020; Jenkins, 2017). Women are more likely to have interrupted careers, as they take time out of the labour force to bear and raise children, and they will also be more likely to be working part-time for the same reason. Hence, they may be more likely to compensate for gaps in their career by undertaking courses themselves and gaining new qualifications in adulthood (Jenkins, 2006).

# Methods

Investigating patterns of participation in several forms of learning can be difficult because of the number of possible patterns. For example, if there are four types of learning and each respondent can be a participant or a non-participant in each of them then altogether there would be 16 possible patterns. Such a large number of patterns would make arriving at conclusions about the determinants of each pattern rather complicated and some way of simplifying or grouping the patterns was considered preferable.

Latent class analysis was therefore used to identify the distinct trajectories, which underlie the observed pattern of responses. Latent class analysis (LCA) is a method for describing how the probabilities of a set of indicators vary across groups of individuals when group membership is not observed (Vermunt, 2010). In this approach, it is supposed that there are distinct groups in the population, with individuals in these groups behaving differently (here in terms of a propensity to engage in learning activities in mid-life). But we don't have an observable variable that can identify the distinct groups. LCA is a tool for identifying these unobserved groups. It lets us know who is likely to be in a group and how that group's characteristics differ from other groups. The method utilises the response profiles as the means of identifying homogeneous subtypes or 'classes' that resemble each other more than members of different classes (Hagenaars & McCutcheon, 2002). These classes differ in certain ways that are not readily observable to the naked eye. Class extraction is based on cross-classification techniques available in multi-way contingency table analysis (Goodman, 1974).

In this paper, the latent classes were estimated using the LCA routine in Stata version 15. The preferred number of classes in the model was chosen by starting with the simplest possible model – a one class model – and adding classes sequentially until arriving at the best model. The statistical criterion for best model was the one which minimised the Bayesian information criterion (BIC) of the fitted model. The BIC adds a function of the number of parameters to the usual log-likelihood model fit criterion as a penalty term to correct for over-fitting. The BIC is a widely-used model selection criterion. In addition, the classes were checked to ensure that they were coherent and made sense. Each case was then assigned to its most probable class and logistic regression analysis was undertaken to examine the impact of a set of covariates on class membership. In other words, the aim of the regression analysis was to find factors which predict which class someone is likely to belong to. A list of the explanatory variables is in Appendix 1.

Since the explanatory variables used in this study were from multiple waves of a birth cohort survey, missingness was an issue that needed to be addressed. Imputation methods adopt the approach of 'filling in' missing values with plausible predicted values. This allows the analyst to construct larger data sets, and therefore to identify statistical relationships and possible causalities with greater confidence, rather than 'losing' cases (and analytic power) as a result of partially missing data. Multiple imputation, widely regarded as a methodologically sound approach to addressing the problem of missing data (Allison, 2002; Enders, 2010) was used in this study. In multiple imputation the process of filling in missing values is carried out several times to create a multiple set of completed datasets, i.e., ones with no missing values. These completed datasets are then used for the analysis of the research question of interest with results from each dataset combined in an appropriate way – using a set of rules for combining results known as 'Rubin's rules' named after the person who developed them (Rubin, 1987). To improve the precision of the imputation several auxiliary variables, over and above those included in the substantive regression analyses, were utilised.

# Data

Data from the 1958 British birth cohort, also known as the National Child Development Study (NCDS) were utilised for this research. The NCDS began as a survey of perinatal mortality and comprised all births in a single week in Britain in 1958. Follow-up surveys were conducted at various times including when cohort members were aged 7, 11, 16, 23, 33, 42 and 50. The mid-life phase of the lifecourse for NCDS respondents can then be most conveniently defined as occurring from age 33 to age 50. For this paper, we draw on data about engagement in learning between the ages of 33 and 50, relating that to explanatory variables observed up to age 33.

The dataset has a good deal of information about engagement in learning over the course of the respondents' lives. This includes data on qualifications gained from childhood onwards. Each wave of the NCDS in adulthood (from wave 4 at age 23 onwards) has asked respondents for quite detailed information about the qualifications they have acquired, usually since the previous wave. We can summarise the highest level of qualification obtained by age 33. The qualifications obtained by cohort members were coded to six levels (Makepeace et al., 2003) where each level is defined in terms of equivalency with National Vocational Qualifications (NVQs):

- 0 = no qualifications
- 1 = NVQ level 1 or equivalent, low-grade GCSEs or O levels
- 2 = qualifications at O level or GCSE A-C grade, NVQ level 2 or equivalent
- 3 = A level(s), NVQ level 3 or equivalent
- 4 =degree, NVQ level 4 or equivalent
- 5 = higher degree, NVQ level 5 or equivalent

Interest is in mid-life learning, defined here as occurring between the ages of 33 and 50, and four different forms of learning can be identified. We distinguish gaining a low-level qualification, levels 1 and 2 in the list above, and gaining an intermediate or higher qualification, levels 3 and above. Cohort members were also asked if they had participated in vocational training in the surveys occurring at ages 42, 46 and 50 – usually since the previous survey wave, or the last time they were interviewed; and also about learning for leisure or interest. So there are four binary variables, representing participation (or not) in vocational training, learning for leisure or interest, obtaining a lower-level qualification; obtaining an intermediate/higher level qualification. The number of cases for which a qualifications profile through to age 50 and information on participation in the other forms of learning in mid-life could be constructed was 8,594, or about 88 per cent of all the cases present in the age 50 wave of the NCDS.

#### Results

We first summarise the data on participation in the various forms of learning in mid-life, then look at patterns across the different types before fitting latent class models and using regression analysis to predict class membership.

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|     | Voc train | Leis/Int | Low qual | Intermed/high qual |
|-----|-----------|----------|----------|--------------------|
| No  | 4,166     | 4,720    | 4,920    | 6,547              |
| %   | 48.5      | 54.9     | 57.3     | 76.2               |
| Yes | 4,428     | 3,874    | 3,674    | 2,047              |
| %   | 51.5      | 45.1     | 42.7     | 23.8               |
| Ν   | 8,594     | 8,594    | 8,594    | 8,594              |
| %   | 100.0     | 100.0    | 100.0    | 100.0              |

Table 1. Participation in different forms of learning, ages 33 to 50.

## Exploring the data on participation

Table 1 shows the proportions of respondents who engaged in each of the four different types of learning between the ages of 33 and 50. This is a substantial span of time and it is no great surprise therefore that these proportions are quite high. Just over half, 51.5 per cent, had participated in some vocational training, and 45.1 per cent had done at least one course for leisure or interest. Some 43 per cent had obtained a lower level qualification while almost a quarter, 24 per cent, had obtained intermediate or higher level qualifications.

In terms of how many different types of learning people undertook in mid-life, almost one in five, 19 per cent, did none of the four types of learning (Table 2). Nearly 11 per cent did only vocational training and no other type of learning, while nearly 9 per cent did just a course for leisure or interest and no other type of learning. These were the three patterns with the largest numbers in our sample. About 6 per cent did all four types of learning between the ages of 33 and 50. Some 18.4 per cent did three different types of learning.

#### Patterns of participation

As well as the number of different types of learning, we can also look at patterns of participation and non-participation between the ages of 33 and 50. Information on this is reported in Table 3. With four types of learning, there are 16 possible patterns of participation in mid-life and there were at least some respondents for each pattern. The most prevalent pattern was non-participation in all four possible types between the ages of 33 and 50 - this accounted for about 19 per cent of all respondents. Next most common was participation just in some vocational training in mid-life. There were some 936 respondents in this pattern, or about 11 per cent of the total sample.

Several patterns each accounted for around 8 or 9 per cent of the sample - including just doing courses for leisure/interest (Pattern 3 in Table 3), doing vocational training and a lower level qualification only (Pattern 11), participation in vocational training and courses for leisure/interest (Pattern 13) and doing all types in mid-life except a higher-level qualification (Pattern 15). As we observed earlier nearly 6 per cent of respondents did all four types of learning between the ages of 33 and 50 (Pattern 16 in Table 3).

With 16 potential patterns of response to the four questions measuring participation in structured learning activities in mid-life and each of these actually observed for at least some individuals in the dataset, proceeding by analysis of each pattern would be very time-consuming and unproductive. Latent class analysis was therefore used as a simplification technique, identifying the

| ing participa | tion, ages 33 to 5 | 50.    |
|---------------|--------------------|--------|
|               | N                  | %      |
| None          | 1,644              | 19.13  |
| One           | 2,453              | 28.54  |
| Two           | 2,417              | 28.12  |
| Three         | 1,584              | 18.43  |
| Four          | 496                | 5.77   |
|               | 8,594              | 100.00 |

| Table 2. Number of different types of | of learn |
|---------------------------------------|----------|
| ing participation, ages 33 to 50.     |          |

|         |     |                     |          | Intermed     |       |       |          |          |                |
|---------|-----|---------------------|----------|--------------|-------|-------|----------|----------|----------------|
| Pattern | Voc | Leisure or interest | Low Qual | or High Qual | Freq  | %     | Prob(c1) | Prob(c2) | Assigned Class |
| 1       | 0   | 0                   | 0        | 0            | 1,644 | 19.13 | 0.912    | 0.088    | 1              |
| 2       | 0   | 0                   | 1        | 0            | 626   | 7.28  | 0.675    | 0.325    | 1              |
| 3       | 0   | 1                   | 0        | 0            | 758   | 8.82  | 0.730    | 0.270    | 1              |
| 4       | 1   | 0                   | 0        | 0            | 936   | 10.89 | 0.667    | 0.333    | 1              |
| 5       | 0   | 0                   | 0        | 1            | 133   | 1.55  | 0.214    | 0.786    | 2              |
| 6       | 0   | 0                   | 1        | 1            | 166   | 1.93  | 0.052    | 0.948    | 2              |
| 7       | 0   | 1                   | 0        | 1            | 138   | 1.61  | 0.066    | 0.934    | 2              |
| 8       | 0   | 1                   | 1        | 0            | 478   | 5.56  | 0.350    | 0.650    | 2              |
| 9       | 0   | 1                   | 1        | 1            | 223   | 2.59  | 0.014    | 0.986    | 2              |
| 10      | 1   | 0                   | 0        | 1            | 241   | 2.80  | 0.050    | 0.950    | 2              |
| 11      | 1   | 0                   | 1        | 0            | 663   | 7.71  | 0.285    | 0.715    | 2              |
| 12      | 1   | 0                   | 1        | 1            | 311   | 3.62  | 0.010    | 0.990    | 2              |
| 13      | 1   | 1                   | 0        | 0            | 731   | 8.51  | 0.342    | 0.658    | 2              |
| 14      | 1   | 1                   | 0        | 1            | 339   | 3.94  | 0.013    | 0.987    | 2              |
| 15      | 1   | 1                   | 1        | 0            | 711   | 8.27  | 0.094    | 0.906    | 2              |
| 16      | 1   | 1                   | 1        | 1            | 496   | 5.77  | 0.003    | 0.997    | 2              |
| ALL     |     |                     |          |              | 8,594 | 100.0 |          |          |                |

 Table 3. Patterns of learning participation, ages 33 to 50.

Note: 0 = No, 1 = Yes

distinct groups which underlie the patterns observed in the data. It was found that a model with just two latent classes provided the best fit to the data. See Appendix 2 for LCA model fit statistics. We distinguish, then, between these two classes, which we term the low or no participation group (Class 1) and the active learners group (Class 2). Assignment to classes was based on the estimated probabilities of membership for each class, as reported in Table 3. Those assigned to Class 1, the low or no participation group, either had no participation in any of the forms of learning between the ages of 33 and 50, or at most one of either a vocational training course, a course taken for leisure or interest, or a low-level qualification. Those in the active learners group (Class 2) had either obtained a higher-level qualification between the ages of 33 and 50, or engaged in two or more forms of learning between those ages.

#### Predicting latent class membership

Table 4 reports the odds ratios from binary logistic regression modelling of the probability of being in the active learner group. If the odds ratio is greater than one that implies that the characteristic is associated with increased odds of being in the active learner group. Columns on the left of the table are for the complete case (CC) data, showing the estimated odds ratio and 95 percent confidence interval for each of the explanatory variables. Columns on the right of the table show the equivalent results after multiple imputation (MI) has been undertaken to include cases with missing data on some covariates.

Those with intermediate and higher level qualifications at age 33 were more likely to be in the active learner group. Relative to the reference category of people with no qualifications, the odds of being in this group were about 1.5 times as great for those with qualifications at Level 1; about double for those at Level 2 and around three times as high for those with qualifications at Level 3 at age 33. Beyond that the gradient levelled off – the odds were no greater for those with qualifications higher levels (Levels 4 and 5) by age 33 than for those whose highest qualification was at Level 3.

Those who had participated in learning in young adulthood (between the ages of 23 and 32) were more likely to be in the active learner group in mid-life. The point estimates suggest that the odds of being in this group were approximately doubled for those who gained a qualification between the ages of 23 and 32; while the odds were increased by around 80 per cent for those who did some vocational training or a course for interest between the ages of 23 and 32. Table 4. Regression model for the predictors of latent class membership. Odds of being in active learner class relative to the low/ non-participants class

|  | CC results            |               | MI results |               |  |
|--|-----------------------|---------------|------------|---------------|--|
|  | Odds ratio            | 95% CI        | Odds ratio | 95% CI        |  |
| Female   | 1.290***              | [1.117,1.490] | 1.349***   | [1.194,1.525] |  |
| Social Class of Origin (reference category is p                | rofessional)          |               |            |               |  |
| Managerial   | 1.007                 | [0.761,1.334] | 0.978      | [0.768,1.245] |  |
| Skilled non-manual   | 1.038                 | [0.773,1.392] | 1.108      | [0.859,1.429] |  |
| Skilled manual   | 1.054                 | [0.814,1.367] | 1.078      | [0.861,1.349] |  |
| Semi-skilled   | 1.071                 | [0.799,1.436] | 1.070      | [0.830,1.379] |  |
| Unskilled  | 1.202                 | [0.874,1.655] | 1.153      | [0.877,1.515] |  |
| Courses undertaken between 23 and 32                           |                       |               |            |               |  |
| Courses for qualifications                                     | 2.166***              | [1.913,2.452] | 2.234***   | [2.002,2.493] |  |
| Work-related training  | 1.735***              | [1.540,1.956] | 1.896***   | [1.703,2.112] |  |
| Courses for interest   | 1.846***              | [1.639,2.078] | 1.807***   | [1.626,2.008] |  |
| Highest qualification at 33 (reference categor                 | y is none)            |               |            |               |  |
| Level 1  | 1.456**               | [1.123,1.888] | 1.527***   | [1.236,1.886] |  |
| Level 2  | 2.104***              | [1.649,2.683] | 2.203***   | [1.813,2.678] |  |
| Level 3  | 2.961***              | [2.263,3.875] | 2.939***   | [2.364,3.655] |  |
| Level 4  | 3.118***              | [2.355,4.128] | 3.111***   | [2.472,3.917] |  |
| Level 5  | 2.587***              | [1.890,3.541] | 2.769***   | [2.137,3.587] |  |
| Disabled/long-term illness (at 33)                             | 1.131                 | [0.989,1.294] | 1.094      | [0.973,1.230] |  |
| Has partner (at 33)  | 0.905                 | [0.773,1.060] | 0.917      | [0.796,1.056] |  |
| Number of children at 33 (reference category                   | is none)              |               |            |               |  |
| One  | 1.108                 | [0.934,1.314] | 1.090      | [0.934,1.272] |  |
| Two  | 1.209*                | [1.033,1.414] | 1.212**    | [1.055,1.393] |  |
| Three or more  | 1.333**               | [1.094,1.625] | 1.347***   | [1.135,1.597] |  |
| Occupational status at 33 (reference category                  | ' is professional/man | agerial)      |            |               |  |
| Skilled non-manual   | 0.999                 | [0.854,1.169] | 1.015      | [0.885,1.164] |  |
| Skilled manual   | 0.980                 | [0.822,1.167] | 0.913      | [0.788,1.057] |  |
| Semi-skilled/unskilled   | 0.943                 | [0.784,1.135] | 0.974      | [0.831,1.142] |  |
| Employment status at 33 (reference category is full-time work) |                       |               |            |               |  |
| Part-time work   | 1.037                 | [0.865,1.243] | 1.131      | [0.967,1.324] |  |
| Unemployed/out of labour force                                 | 0.978                 | [0.821,1.166] | 1.025      | [0.884,1.189] |  |
| Working in public sector at 33                                 | 1.374***              | [1.202,1.571] | 1.460***   | [1.288,1.654] |  |
| Working in large organisation at 33                            | 1.132                 | [0.972,1.317] | 1.193*     | [1.029,1.383] |  |
| Observations   | 6,270                 |               | 8,594      |               |  |
| Imputed datasets   | -                     |               | 50         |               |  |

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

CC: complete case estimates; MI: multiply imputed estimates

The odds of being an active learner in mid-life were about 35 per cent higher for females than males. In mid-life women were more likely than men to participate in courses for interest/leisure, they were also more likely to obtain qualifications – at both low and intermediate/high levels – while being somewhat less likely than men to participate in vocational training (probably because fewer women were in work). Overall, this meant that their odds of being in the active learner group in mid-life were higher than those of men.

Some further regressions were run for males and females separately. For the most part, the results showed that the determinants of engagement in learning in mid-life were similar for men and women. Women were more likely to be in the active learner group in mid-life if they had two or more children, relative to the reference group of women with no children. This number of children variable was not significant in the equivalent regression for men. The result suggests that having children in their twenties or earlier was a substantial barrier to engagement in learning for women. As their children got a little older woman probably had more time and their participation in learning activities increased. These barriers did not operate in the same way for men, no doubt because it is women who take on the major burdens of child-rearing.

There was no evidence that social class of origin had any direct impact on the probability of being in the active learner group in mid-life. Of course, it may have some indirect relationship via its impact on highest qualification attained by age 33.

There was little evidence of family-based barriers to learning. The presence of a partner in the household was not significantly associated with our outcome variable. Those with children at age 33 were, in fact, more likely to be in the active learner group, particularly if they had several children. The explanation here is probably that those who had already had children by their twenties or early thirties could then participate more in learning as those children became older and more independent.

Perhaps surprisingly, the employment status variables – such as whether working part-time at age 33, or not in paid work at all then – were not statistically significant in these models. This may be because the impact of employment status on participation varies according to the type of learning. Occupational status was also not significant once the highest qualification at 33 had been controlled for. Employment in the public sector and also working in a large organisation were statistically significant, especially the former. Being a public sector employee increased the odds of belonging to the active learner in mid-life group by more than a third, after allowing for the other factors in the model.

In general, the results of the complete case analysis and the results based on multiply imputed data were very similar. Results which were statistically significant in one set of results were generally also significant in the other, and parameter size estimates were also generally similar. One exception whether working in a large organisation, which was not significant in the complete case analysis but did become just significant (p < 0.05) in the MI results.

# Discussion

Mid-life, defined here as from a person's early thirties until they reach the age of 50, can be considered a distinct phase in the lifecourse and it is therefore important to look at the nature and extent of learning during this phase. But few previous studies have focussed specifically on this stage of the lifecourse. Our analysis of patterns across several different types of learning showed that the key difference is between a group of 'active learners' (about 54 per cent of the sample) and the remainder who are either non-participants or have very low levels of participation in learning in their 30s and 40s.

Among the key predictors of being in the active learner group rather than the low/no participation group were the already well-educated, with higher qualifications making it more likely for someone to be in the active learner group; also some participation in learning during the ten years before age 33 was also an important predictor of being in the active learner group in mid-life. Of course, some who have few qualifications by age 33 do manage to gain new qualifications or participate in other forms of learning in mid-life. Sabates et al. (2007) report on the acquisition of lower academic and vocational qualifications amongst people in their 30s and early 40s who left school without credentials; other researchers have demonstrated that quite sizeable numbers of people obtain degree-level qualifications for the first time in mid-life too (Jenkins, 2018). But, on the whole, the fact that the level of mid-life participation is linked to earlier participation shows that there is a tendency for educational inequalities to widen over the lifecourse – those who already have a recent track record of participation, or higher levels of qualifications by age 33 tend to be more likely to engage in further learning in mid-life.

This pattern of cumulative advantage may occur in part because better qualifications in early adulthood often lead to more secure and higher status jobs which in turn offer more opportunities for further training. However, lifecourse theorists have also noted that these processes could be partially offset if those in lower status and less stable jobs have strong motivations to improve their economic position. This might apply to those in poorly rewarded part-time jobs who will engage in learning and training in the hope of improving their career prospects and securing better jobs (Elman & O'Rand, 1998). Others have further argued that the relationship between employment status and engagement in learning will vary according to the type of learning. Full-time workers may have better opportunities for vocational training but lack time outside of the work environment to pursue, say, courses leading to qualifications (Kilpi-Jakonen et al., 2014). Our results were consistent with this. Overall, those in part-time work were slightly more likely to be in the active learner group than those in full-time work but the difference was not statistically significant. Further inspection of the data showed that there were variations here according to the type of learning undertaken. Working full-time at age 33 was associated with a substantial increase in the likelihood of participating in vocational training in mid-life. But this was counter-balanced by the fact that part-time workers were more likely to engage in learning for leisure or interest. The probability of being an active learner in mid-life overall was therefore fairly similar by whether working full – or part-time at age 33.

As for occupational status at age 33, the associations were in the expected direction in that those in high status occupations, such as managerial or professional jobs, had the greatest likelihood of being in the active learner group while unskilled manual workers were least likely to be active learners in mid-life. Differences between these occupational groups were statistically significant in the absence of other covariates but tended to reduce in magnitude and become non-significant once other covariates were in the regression.

Barriers to learning vary not only between individuals, they can also change for specific individuals over time and access to longitudinal data enable us to observe such processes at work. A notable instance occurs for women in this cohort. Women had tended to fall behind men in terms of educational attainment in early adulthood. By age 33 there was a marked gap between men and women particularly in intermediate and vocational qualifications (Makepeace et al., 2003). Yet the results here indicate that women were more likely to be in the active learner group in mid-life. The evidence suggests that women who had already had several children in their twenties and early thirties were likely to engage in learning during the mid-life phase of the lifecourse as those children grew up. Substantial numbers of them could gain qualifications and to return to paid careers at this time in their lives (Jenkins, 2006; Jenkins, 2018).

These results have been obtained via the secondary analysis of a large-scale, quantitative longitudinal dataset. This is in contrast to the majority of recent studies of adult learning which have drawn on cross-sectional data. The availability of the OECD's PIAAC dataset has enabled and encouraged analysis of cross-country variations in adult learning. Notable examples of such work include Patterson (2018) on non-participants in the United States; the large-scale cross-country analyses of Lee and Desjardins (2019) who looked at 19 selected OECD countries. Hovdhaugen and Opheim (2018) compared adult learning in five Nordic countries with three non-Nordic European countries, while Tikkanen and Nissinen (2016) made comparisons between the Nordic countries. These studies are a very useful addition to the corpus of adult education research, as are similar quantitative cross-sectional studies which have used data other than PIAAC such as Roosmaa and Saar (2017) and Beblavy et al. (2014) who drew on data from the European Labour Force Survey.

Nevertheless, analyses of this type suffer from some limitations of the data. Notably, the observation window for learning in the PIAAC data is only twelve months. So only learning which has occurred in the previous year can be counted and forms the sole basis of whether someone is to be regarded as a participant or a non-participant. The research in this paper draws instead on longitudinal data. While the data used does not allow for cross-national comparisons it does, in other respects, have certain key advantages over cross-sectional analyses. The analysis considers participation over a 17 year period in mid-life, a much longer time span than in most cross-sectional analyses. The main point which emerges is that the key difference is not so much between participants and non-participants but between those with either no or a very low level of participation in learning and the group with generally more participation whom we term the group of active learners. Over a period of more than a decade and a half, participation only in, say, one

vocational short course lasting a few hours or perhaps a couple of days is a very low level of participation and scarcely different from reporting no participation in learning at all.

In addition, longitudinal data ensure that the researcher is clear about the order in which events occurred. This is an inherent problem with cross-sectional studies where we often do not know whether X or Y occurred first and therefore which of them might be influencing the other. In our analyses, using longitudinal data, we can consider factors which occur up to age 33 on mid-life learning which took place thereafter. Other studies, which consider the impact of learning on some outcome of interest will also benefit considerably from the availability of longitudinal data for similar reasons.

Certain limitations need also to be acknowledged. The results reported here were obtained from secondary analysis of a large-scale, general-purpose dataset. As with all data sources of this type, it is used by a range of different types of researchers: medics, epidemiologists, sociologists, economists and so on. The questions in the survey are intended to be relevant for all these different groups of researchers and while the survey contains much valuable information there is not as much detail on some aspects of learning as an educational researcher might ideally wish for.

People do drop out from longitudinal surveys over time and this attrition has substantially affected the representativeness of some studies. More complex patterns are also possible where people do not respond at certain waves of the survey and then return later on. This will result in substantial amounts of missing data even for some respondents who are still in the survey. It can have a severe impact on multivariate analyses where variables from different waves of the survey are combined and used in a piece of analysis. The dataset used in this paper, the 1958 British birth cohort study has managed to retain large numbers of respondents into adulthood and it can still be seen as quite representative of the population from which it was originally drawn (Plewis & Hawkes, 2006). The issue of missing data was addressed by using imputation techniques to fill in information for such cases. Nevertheless, here as with all longitudinal data sources the limitations arising because of attrition and missingness need to be borne in mind when considering the results.

#### Conclusion

Rapid changes in the nature of work, as well as the all-too-frequent recessions which cause many to lose their jobs, mean that vocationally-oriented learning to gain new skills and qualifications is highly relevant to adults in mid-life. The cohort considered in this paper left school with far fewer qualifications than more recent cohorts and engagement in learning in mid-life will be of particular importance for them. We have shown that antecedent factors, up to the age of 33, play a substantial role in the patterns of participation in learning which occur in the mid-life phase.

In this mid-life stage, where there is a particular need to balancing work and career with family life, both attitudinal and situational barriers could play a role in explaining whether participation in learning occurs. More broadly, this study demonstrates the utility of quantitative longitudinal research for a better understanding of the key determinants of engaging in learning in distinct phases of the lifecourse.

# Disclosure of potential conflicts of interest

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

#### Notes on contributor

Andrew Jenkins is Associate Professor in the Social Research Institute, University College London. He has researched adult learning, higher education and lifecourse transitions, often using birth cohort studies and other large-scale longitudinal data sources.

# References

Adshead, L., & Jamieson, A. (2008). Educational decision-making: rationality and the impact of time. *Studies in the Education of Adults*, 40(2), 143–159. https://doi.org/10.1080/02660830.2008.11661562

Allison, P. D. (2002). Missing Data. Sage University Papers.

- Almeida-Santos, F., & Mumford, K. (2005). Employee training and wage compression in britain. *The Manchester School*, 73(3), 321–342. https://doi.org/10.1111/j.1467-9957.2005.00449.x
- Arulampalam, W., & Booth, A. (1998). Training and labour market flexibility: is there a trade-off? British Journal of Industrial Relations, 36(4), 521–536. https://doi.org/10.1111/1467-8543.00106
- Beblavy, M., Thum, A. E., & Potjagailo, G. (2014). Learning at every age? Life cycle dynamics of adult education in Europe. *Studies in Continuing Education*, *36*(3), 358–379. https://doi.org/10.1080/0158037X.2014.918537
- Blossfeld, G. J., Blossfeld, P. N., & Blossfeld, H.-P. (2019). "A sociological perspective on education as a lifelong process." pp. 18-34. In R. Becker (Ed.), *Research handbook on the sociology of education*. Edward Elgar.
- Boeren, E. (2016). Lifelong learning participation in a changing policy context: an interdisciplinary theory. Palgrave Macmillan.
- Boheim, R., & Booth, A. (2004). Trade union presence and employer-provided training in britain. *Industrial Relations*, 43(3), 520-545. https://doi.org/10.1111/j.0019-8676.2004.00348.x
- Brown, A., & Bimrose, J. (2018). Drivers of learning for the low skilled. *International Journal of Lifelong Education*, *37* (2), 151–167. https://doi.org/10.1080/02601370.2017.1378934
- Chesters, J., Cuervo, H., & Jun, F. (2020). Re-engagement with education over the life course: motivations and barriers. *International Journal of Lifelong Education*, 39(2), 154–167. https://doi.org/10.1080/02601370.2020. 1720330
- Eccles, J., Wigfield, A., & Schiefiele, U. (1998). "Motivation to succeed.". In N. Eiseberg (Ed.), Handbook of child psychology, volume 3. social, emotional and personality development (pp. 1017–1095). Wiley.
- Elder, G. H., & Giele, J. Z. (eds). (2009). The craft of life course research. Guilford Press.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2004). "The emergence and development of life course theory." pp. 3–19. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course*. Springer.
- Elman, C., & O'Rand, A. M. (1998). Midlife work pathways and educational entry. *Research on Aging*, 20(4), 475–505. https://doi.org/10.1177/0164027598204005
- Enders, C. (2010). Applied missing data analysis. Guilford Press.
- Goodman, L. A. (1974). Exploratory latent structure analysis using both identifiable and unidentifiable models. *Biometrika*, 61(2), 215–231. https://doi.org/10.1093/biomet/61.2.215
- Green, F., Machin, S., & Wilkinson, D. (1999). Trade unions and training practices in british workplaces. Industrial & Labor Relations Review, 52(2), 179–195. https://doi.org/10.1177/001979399905200202
- Hagenaars, J., & McCutcheon, A. (eds). (2002). Applied latent class analysis. Cambridge University Press.
- Hammond, C., & Feinstein, L. (2006). Are those who flourished at school healthier adults? what role for adult education?London: Institute of Education.
- Hatch, S. L., Feinstein, L., Link, B. G., Wadsworth, M. E. J., & Richards, M. (2007). "The continuing benefits of education : adult education and midlife cognitive ability in the british 1946 birth cohort.". *Journal of Gerontology: Social Sciences*, 62B(6), S404–14. https://doi.org/10.1093/geronb/62.6.S404
- Hovdhaugen, E., & Opheim, V. (2018). Participation in adult education and training in countries with high and low participation rates: demand and barriers. *International Journal of Lifelong Education*, 37(5), 560–577. https://doi. org/10.1080/02601370.2018.1554717
- Hughes, G., O'Connell, P. J., & Willians, J. (2004). Company training and low-skill consumer-service jobs in Ireland. International Journal of Manpower, 25(1), 17–35. https://doi.org/10.1108/01437720410524974
- Jenkins, A. (2006). Women, lifelong learning and transitions into employment. *Work, Employment and Society*, 20(2), 309–328. https://doi.org/10.1177/0950017006064116
- Jenkins, A. (2017). Adult learning and qualifications in Britain. Journal of Education and Work, 30(4), 445-455. https://doi.org/10.1080/13639080.2016.1196347
- Jenkins, A. (2018). Who upgrades to higher level qualifications in midlife? *British Journal of Educational Studies*, 66 (2), 2. https://doi.org/10.1080/00071005.2017.1332335

- Jenkins, A., Vignoles, A., Wolf, A., & Galindo-Rueda, F. (2003). The determinants and labour market effects of lifelong learning. *Applied Economics*, 35(16), 1711–1721. https://doi.org/10.1080/0003684032000155445
- Keep, E. (2009). Internal and external incentives to engage in education and training a framework for analysing the forces acting on individuals? In *SKOPE monograph no. 12 (12)*. London.
- Kilpi-Jakonen, E., Buchholz, S., Dammrich, J., McMullin, P., & Blossfeld, H.-P. (2014). "Adult learning, labor market outcomes, and social inequalities in modern societies.". In H.-P. Blossfeld, E. Kilpi-Jakonen, D. Vono de Vilhena, & S. Buchholz (Eds.), Adult learning in modern societies: an international comparison from a life-course perspective (pp. 3–28). Edward Elgar.
- Kilpi-Jakonen, E., de Vilhena, D. V., & Blossfeld, H.-P. (2015). Adult learning and social inequalities: processes of equalisation or cumulative disadvantage? *International Review of Education*, 61(4), 529–546. https://doi.org/10. 1007/s11159-015-9498-5
- Lee, J., & Desjardins, R. (2019). Inequality in adult learning and education participation: the effects of social origins and social inequality. *International Journal of Lifelong Education*, 38(3), 339–359. https://doi.org/10.1080/ 02601370.2019.1618402
- Leete, R., & Fox, J. (1977). Registrar-general's social classes: origins and uses. Population Trends, 8, 1-7.
- Makepeace, G., Dolton, P., Woods, L., Joshi, H., & Galindo-Rueda, F. (2003). "From school to the labour market.". In E. Ferri, J. Bynner, & M. E. J. Wadsworth (Eds.), *Changing britain, changing lives: Three generations at the turn of the century* (pp. 29–70). Institute of Education, University of London.
- McGivney, V. (1990). Education's for other people: Access to education for non-participant adults. NIACE.
- McMullin, P., & Kilpi-Jakonen, E. (2015). "The consequences of shifting education and economic structures for gender differences at labor market entry: the british case study." pp. 122-41. In H.-P. Blossfeld, J. Skopek, M. Triventi, & S. Buchholz (Eds.), Gender, education and employment: an international comparison of school-towork transitions. Edward Elgar.
- Murphy, P., Latreille, P., Jones, M., & Blackaby, D. (2007). Assessing the size of the public sector training premium: who gets it and what's it worth? Evidence from WERS2004. British Journal of Industrial Relations 46(4):674-701. doi:10.1111/j.1467-8543.2008.00699.x
- Nilsson, S., & Rubenson, K. (2014). On the determinants of employment-related organised education and Informal Learning. *Studies in Continuing Education*, 36(3), 304–321. https://doi.org/10.1080/0158037X.2014.904785
- Patterson, M. B. (2018). The forgotten 90%: adult nonparticipation in education. Adult Education Quarterly, 68(1), 41–62. https://doi.org/10.1177/0741713617731810
- Plewis, I., & Hawkes, D. (2006). Modelling non-response in the national child development study. *Journal of the Royal Statistical Society. Series A: Statistics in Society*, 169(3), 479–491. https://doi.org/10.1111/j.1467-985X.2006.00401.x
- Roosmaa, E. L., & Saar, E. (2017). Adults who do not want to participate in learning: A cross-national European analysis of their perceived barriers. *International Journal of Lifelong Education*, 36(3), 254–277. https://doi.org/10. 1080/02601370.2016.1246485
- Rubin, D. B. (1987). Multiple imputation for nonresponse in surveys. John Wiley and Sons.
- Sabates, R., Feinstein, L., & Skaliotis, E. (2007). Who achieves level 2 qualifications during adulthood? Evidence from the NCDS. British Journal of Educational Studies, 55(4), 390–408. https://doi.org/10.1111/j.1467-8527.2007.00385. x
- Schuller, T., & Watson, D. (2009). Learning through life: inquiry into the future for lifelong learning. NIACE.
- Swain, J., & Hammond, C. (2011). The motivations and outcomes of studying for part-time mature students in higher education the motivations and outcomes of studying for part-time mature students in higher education. *International Journal of Lifelong Learning*, 30(5), 591–612. https://doi.org/10.1080/02601370.2011.579736
- Tikkanen, T., & Nissinen, K. (2016). Participation in job-related lifelong learning among well-educated employees in the nordic countries. *International Journal of Lifelong Education*, 35(3), 216–234. https://doi.org/10.1080/02601370.2016.1165749
- Tuijnman, A. (1991). Lifelong education: A test of the accumulation hypothesis. International Journal of Lifelong Education, 10(4), 275–285. https://doi.org/10.1080/0260137910100402
- Vermunt, J. K. (2010). "Latent class models.". In P. Peterson, E. Baker, & B. McGaw (Eds.), International encyclopedia of education (Vol. 7, pp. 238–244). Elsevier.

# Appendix 1 Explanatory Variables used in the analysis

The explanatory variables used in this study included social background, highest qualification level at age 33, engagement with learning in young adulthood (up to age 33), and the cohort member's family and work situation at age 33. The details are as follows:-*Origin variables* 

*Sex*: this variable was coded zero for males and one for females. *Social class of origin* 

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The measure in NCDS is for the social class of the father as measured by the Registrar-General's 6-point scale: I professional; II Managerial and technical; IIINM Skilled non-manual; IIIM Skilled manual; IV Semi skilled;

V Unskilled (Leete & Fox, 1977).

Engagement with learning in adulthood (up to age 33).

To measure courses taken in early adulthood between ages 23 and 33 we have:

Any courses leading to qualifications between the ages of 23 and 33.

Any work-related courses lasting three days or more between ages 23 and 33.

Any courses undertaken for interest between the ages of 23 and 33.

Situation at 33 and barriers to learning

Whether had a disability or long-term illness by age 33.

Whether had a partner at age 33.

Number of children at 33, with categories none, one, two, three or more.

Occupational group at age 33, with four categories: professional/managerial, skilled non-manual, skilled manual, semi- or unskilled manual occupation. This was based on current job for those who had one and most recent job for those who were not in work at 33.

Employment status at age 33: working full-time, part-time, or unemployed/out of the labour force.

Employed in the public sector at age 33.

Working for an organisation with 500 or more employees at age 33.

# Appendix 2 Model Fit Statistics for Latent Class Models

| Table AT Model Fit Statistics for Latent Class Models |       |                |    |           |           |  |
|---|-------|----------------|----|-----------|-----------|--|
| Model   | Ν     | Log-Likelihood | df | AIC       | BIC       |  |
| One Class   | 8,594 | -22,452.34     | 4  | 44,912.68 | 44,940.92 |  |
| Two Class   | 8,594 | -21,930.88     | 9  | 43,879.76 | 43,943.29 |  |
| Three Class   | 8,594 | -21,928.47     | 14 | 43,884.93 | 43,983.75 |  |

Table A1 Model Fit Statistics for Latent Class Models