**Data Appendix**

**Training and life satisfaction: a disrupted pathway to better work**

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**Additional Statistical Details**

As the data we use is longitudinal, that is, the same set of people are interviewed repeatedly and asked the same questions about training and life satisfaction one option is to use fixed effects method to identify the causal effect. This method assumes that any unobserved factor determining life satisfaction that may be correlated with training propensity is individual specific and time-invariant. The life satisfaction model can be specified as:

LSit = α + β TRit + γ Xit + δWi + θi + εit  (1)

where LSit, TRit and Xit are the life satisfaction, training, and other observed factors (control variables) of person i measured in time t. Wi represents individual specific observed factors that are time-invariant such as sex and ethnic group. The unobserved factors or error terms are represented by a time-invariant individual specific θi and a time-varying part εit. If θi is correlated with TR then β may reflect the marginal effect (ME) of TRas well as the effect of θ. In linear models the ME is the same for all individuals and so the ME is also the average marginal effect AME.

Let,

ΔLSit = LSit - average LSit for person i across all time periods

(Similarly for the other variables)

Then,

ΔLSit = β ΔTRit + γ ΔXit + Δεit (2)

If we assume that εit is not correlated with TRit (although θi may be) then we can estimate (2) using OLS and the estimated β will represent the causal effect of training on life satisfaction. Also note, the precision with which this is estimated depends on the degree of within person variation in training and life satisfaction. An extreme case is where there is no within person change over time, such as Wi. In this case, the coefficient δ cannot be estimated using FE.

We estimated a series life satisfaction models using FE method to identify the effect of different types of training on life satisfaction. We estimated this effect for different groups characterised by employment status, gender, age, educational qualification, ethnicity & migration status, and the level of deprivation of the area they live in by interacting the Training variable with the group indicator, Z (in each specification Z represents employment status, age group, educational qualification, and area level deprivation).

LSit = α + bTRit + cTRit \* Zit + dZit + γ Xit + δWi + θi + εit  (3)

So, after the above transformation,

ΔLSit = bΔTRit + cΔTRit \* ΔZit + dΔZit + γ ΔXit + Δεit (4)

The marginal effect of training on life satisfaction for the reference group of Z (Z=0) is b and for Z=1 is b +c.

In case of gender and ethnicity we estimated the models separately for each sub-group. Say W reflects two subgroups identified by W=1 & W=2,

ΔLSit = β1 ΔTRit + γ ΔXit + Δεit Wi = 1(4a)

ΔLSit = β2 ΔTRit + γ ΔXit + Δεit Wi = 2(4b)

So, the marginal effect of training on life satisfaction for group W=1 is β1 and for group W=2 is β2.

**Description of data analysis**

We begin by examining the descriptive results for a) the descriptive analysis of who is undertaking which type of training (Table 1) and b) the training provider by training type (Table 2).

INSERT TABLE 1 ABOUT HERE

Table 1 illustrates the employment status of those who had experienced at least 1 training spell that’s purpose was job-related, hobbies & leisure and/or health and safety. We have used weighted data to extrapolate to the UK population. Overall, it is noteworthy that participation in training is low. Individuals are more likely to be undertaking job-related training, i.e., 19% of the 16+ (not in full-time education) population, and it is not surprising that training participation is highest amongst the employed, i.e., 29% which contrasts with 4% among the not employed. Those participating in hobbies and leisure training were much lower at 2.4%, a pattern that was similar for both the employed and not employed group. As Health & Safety training is often part of the other two forms of training, we can see participation levels are around 5% and predominately occurred amongst those employed, suggesting it was tied to job training.

INSERT TABLE 2 ABOUT HERE

Table 2 shows the training provider by type of training. Employers are a primary source of job-related and, as expected, health & safety training, 76% and 87% respectively. They also provide 18.3% of hobbies and leisure training. However, 74% of hobbies & leisure training is not provided by employers or government training schemes or as part of college or university courses, but some other sources. We speculate these other sources are schemes which are likely to include public leisure centres and private enterprises and therefore are likely to be paid for by the individual.

INSERT TABLE 3 HERE

Table 3 shows the average life satisfaction score for each group. These group level differences are in the expected directions. Life satisfaction is highest for those who are retired or in employment and lowest for those who are unemployed and on long term sick or disabled. There are no statistically significant differences in life satisfaction for men and women. Life satisfaction seems to be lower for 25- to 64-year-olds, but higher for younger (16- to 24-year-olds) and older adults (65+ years). Those with the highest qualification tend to report greater life satisfaction than those with lower (intermediate and vocational qualification) or no qualification. Those from ethnic minority backgrounds born in the UK have lower life satisfaction than the White majority group and those from ethnic minority groups born outside of the UK. And finally for residents of England, the average level of life satisfaction decreases with increasing levels of area deprivation.

Fixed Effects Results

Here we report the fixed effects (FE) results concentrating on the interactions between the groups of interest and types of learning on life satisfaction. In FE models, coefficients are estimated using the variation in within person changes in the variables. So, the coefficient of any variable that does not change over time cannot be estimated and the coefficient of any variable that changes very little over time cannot be estimated very precisely (i.e., will have large standard errors). So, we were not able to estimate the coefficient for gender or ethnicity. To estimate the difference in the effect of training by these variables, the life satisfaction model was estimated by FE separately for men, women and the three ethnic & generation-based groups (results are reported in Tables 6 & 8 and discussed in sub-sections below).

In Table 4, we report the estimated coefficients from FE estimation of the base model of life satisfaction with all controls but no interactions for moderators. We find, as expected, the estimated level of life satisfaction is statistically significantly higher for those with higher income, in partnership, i.e., cohabiting or married/civil partnership (as compared to single never married), having better health. Also, in line with existing evidence, we find a u-shaped age profile, with the younger and older age groups reporting higher levels of life satisfaction. As expected, compared to the employed, the retired have higher levels of life satisfaction while those who are unemployed, long-term sick or disabled or taking care of family, have lower levels of life satisfaction. We also find that compared to individuals living in London there is no statistically significant difference in the levels of life satisfaction with residents of other parts of UK with the exception of Northern Ireland, where it is higher. We do not find any statistically significant difference by levels of education or whether the individual lives in the household with at least one of their own children.

In Tables 5-9, we report the AME of job-related, hobbies & leisure and health & safety type of training on life satisfaction for each group based on different characteristics (age, sex, educational qualification, employment status, ethnicity-generation, and area level deprivation).

In the discussion of results below we only report the AME of training on life satisfaction that are statistically significant at least 10% level of significance. All AMEs are reported in Tables 5-9. To aid translation or meaningfulness of the results we also convert the AME of training on life satisfaction into a percentage reflecting the change in life satisfaction upon receiving training for the “average” person in each specific group. This percentage is calculated by dividing the AME of training on life satisfaction for a specific group by the average satisfaction score for that group.

Employment status

Table 5 shows the results for the effect of the type of training on life satisfaction by employment status.

INSERT TABLE 5 HERE

High intensity job-related training increases life satisfaction (AME 0.03) for the employed. This increase would equate to a 0.6% rise in life satisfaction for an employed person with average life satisfaction levels for that group (5.19, see Table 3). This means comparing across the employment status group, job related training would push upward life satisfaction for the employed closer to the most satisfied in this group, namely the retired. For all other groups job-related training has no significant impact on life satisfaction, although the direction of impact on life satisfaction for the unemployed and those taking care of family appears negative. It may be that for these latter groups the job training experienced is not meeting their needs or personal goals. In contrast, for those in employment the match between the type of training and personal goals is somewhat greater thus creating the positive motivational outcome.

In contrast to the results for job training, the effect of hobbies and leisure training shows a significant impact on the life satisfaction the unemployed and those taking care of family. For the unemployed high intensity hobbies & leisure training significantly boost life satisfaction (AME 0.20) which would equate to approximately a 4.5% increase in the life satisfaction of an unemployed person with the average life satisfaction score of that group (4.44, see Table3). For those taking care of family, low intensity hobbies and leisure training has a positive impact on life satisfaction (AME 0.14) which translates into a 2.83% increase in the life satisfaction of a typical person taking care of the family). For both these groups hobbies & leisure training creates a considerable boost to life satisfaction. It may be that the structure or purpose that high intensity hobbies & leisure training can provide operates as a substitute for the structure that work provides to those in employment. Equally, high intensity hobbies & leisure training may operate as a resource for self-esteem, confidence, and social contact which we know work can aid employability. For those taking care of family, low intensity hobbies and leisure training may equally provide those emotional resources from social contact and self-esteem that can be depleted through isolation.

Gender

Table 6 shows the results for the effect of training on life satisfaction by gender.

INSERT TABLE 6 HERE

The results show a statistically significant effect of high intensity job related training among men (AME 0.04) and of low intensity health & safety training on life satisfaction among women (AME 0.05). As average life satisfaction among men and women are 5.14 & 5.15, these translate into a 0.8% and 0.10% increase in life satisfaction, respectively. The contrast between the different types of training that impact positively on men and women raises questions as to the extent to which different types of training are sufficiently fulfilling the needs of the sexes. High intensity job-related training can reflect training that is qualification based and as such provides the learner with a transferrable recognised qualification, which can aid career progression, meaningful work, or job security. Health & Safety training is largely concerned with legislative compliance in the workplace, it meets employer obligations, it needs to be repeated annually rather than being transferrable and/or repeated at the start of each new work contract. For example, agency workers in the social care sector must undertake Health & Safety training as part of induction prior to beginning each new work contract. Thus, the positive effect the results show for women may in part reflect the benefits that come from employment security rather than meaningful work goals.

Age

Table 7 shows the effect of training on life satisfaction by age.

INSERT TABLE 7 HERE

Life satisfaction of younger adults, i.e., those aged 16 to 24 years is not affected from any type of training. That is not the case for 25–49-year-olds, whose life satisfaction increases from high intensity job related training and low intensity health & safety training (AME 0.03 & 0.04). As the average life satisfaction for 25–49-year-olds is 5.04, these translate into life satisfaction increases of 0.06% and 0.08%, respectively. As life satisfaction declines as we grow older, the results here suggest that job related training can create a life satisfaction boost to older workers. Among 65+ year olds, high intensity health& safety training reduces life satisfaction (AME 0.21) which means a decrease of 0.4% (mean life satisfaction for this age group is 5.46). This result may reflect health issues and therefore explain the reduction in life satisfaction.

Ethnicity & migration status

Table 8 shows the effects of training on life satisfaction by ethnicity and migration status.

INSERT TABLE 8 HERE

We find that job-related training has a positive effect of 0.02 on life satisfaction only for the White majority group which translates into an increase of 0.4%. Health & Safety training has a positive effect on the life satisfaction of White majority (AME of low intensity training is 0.03) and UK born ethnic minorities (AME of high intensity training is 0.16); these translate into life satisfaction increases of 0.6% and 3.3%, respectively. It is unclear what exactly this high intensity Health & Safety training is capturing for UK born ethnic minorities, it may be that many ethnic minorities are in jobs related to Health & Safety e.g., the Health Sector. But differential effect of training type warrants closer scrutiny.

Qualification

Table 9 shows the effect of training on life satisfaction by qualification.

INSERT TABLE 9 HERE

Overall, qualification level does not appear to markedly differentiate the life satisfaction gains individuals can acquire through participation in learning, therefore prior qualification attainment does not disadvantage or advantage individuals. Although, the results do suggest that job-related training and hobbies & leisure training may offer alternative pathways to life satisfaction gains depending on qualification history. For job-related training those holding intermediate qualification as their highest award experience an increase in life satisfaction from high intensity job-related training (AME 0.02) which equates to an increase of around 0.4% in life satisfaction for those with average life satisfaction of that group. This group also experiences an increase of 0.04 in life satisfaction from low levels of health & safety training (0.8%).

Hobbies & leisure training for those with no qualification experience an increase to life satisfaction from low intensity hobbies and leisure training (AME 0.37) which equates to around 7% increase in life satisfaction, while those with vocational qualifications as their highest award experience a decrease in life satisfaction from low intensity hobbies and leisure training (AME 0.15) which equates to around a 3% decrease in life satisfaction. This suggests hobbies & leisure training is an important life satisfaction booster for those who have not followed a traditional qualification pathway in life.

Area Level deprivation

Table 10 shows the effects of training on life satisfaction by area level deprivation.

INSERT TABLE 10 HERE

Training has an important impact on the life satisfaction of those living in areas of medium and high levels of deprivation in England. For job-related training we find high intensity training yields a life satisfaction gain for those in medium deprived areas (AME 0.04) and high deprived areas (AME 0.05). These effects equate to a 0.8% and 1% increase in life satisfaction, respectively.

The impact of health & safety training follows a similar pattern. Here we see low intensity training provides an increase in life satisfaction for those in all areas except for the least deprived areas: some deprivation (AME 0.04), medium deprive areas (AME 0.05) and high deprived areas (AME 0.06) which equates to approximately a 0.08%, 1% and 1.2% increase in life satisfaction, respectively.

Summary

In sum, looking across the analyses the size of the impact of training on life satisfaction illustrated in Table 11, reflected by the AME figure, is significantly different depending on type of training and for whom the training benefits. We consider the implications in the discussion section.

INSERT TABLE 11 HERE

**Tables**

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| **Table 1: Proportion receiving different types of training in the last one year** |
|  | All | Employed | Not employed |
| Job-related  |  |  |  |
| None | 80.9% | 70.7% | 95.6% |
| Low intensity  | 9.9% | 15.6% | 1.7% |
| High intensity  | 9.2% | 13.7% | 2.7% |
| Hobbies & Leisure |  |  |  |
| None | 97.6% | 97.7% | 97.3% |
| Low intensity  | 1.2% | 1.2% | 1.3% |
| High intensity  | 1.2% | 1.1% | 1.4% |
| Health & Safety |  |  |  |
| None  | 94.8% | 91.9% | 99.0% |
| Low intensity  | 2.7% | 4.3% | 0.5% |
| High intensity  | 2.5% | 3.9% | 0.5% |
| Notes: These are weighted estimates produced using data from Waves 2-10 (2010-2020 March) of Understanding Society. The sample comprises of 16+ year old respondents excluding full-time students (Number of person-year observations is 328,231). Low intensity training: Hours of training ≤ median; High intensity training: Hours of training > median |

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| **Table 2: Training provider by type of training** |
| Training type | Provided by employer | Government training scheme | College/university degree/diploma | Other type of training scheme or course | Estimates based on sample of size |
| Any training | 70.1% | 5.7% | 8.1% | 21.9% | 69,938 |
| Job-related | 75.5% | 6.0% | 8.1% | 17.1% | 61,917 |
| Hobbies & leisure | 18.3% | 5.0% | 17.3% | 73.8% | 8,059 |
| Health & safety | 86.9% | 3.7% | 2.6% | 13.8% | 16,262 |
| Notes: These are weighted estimates produced using data from Waves 2-10 (2010-2020 March) of Understanding Society. The sample comprises of 16+ year old respondents excluding full-time students (Number of person-year observations is 328,231). The sample sizes in the last column represent the number of person-year observations who had received that type of training. |

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| **Table 3: Average life satisfaction reported by different sub-groups** |  |
|  | Average Life Satisfaction (1-7) | p-value of difference from REF | Estimates based on sample of size |
| Employment status |  |  | 313,046 |
| Employed | 5.19 | REF |  |
| Unemployed | 4.44 | 0.00 |  |
| Retired | 5.45 | 0.00 |  |
| Taking care of family | 4.94 | 0.00 |  |
| Long term sick or disabled | 3.46 | 0.00 |  |
| Other | 4.86 | 0.00 |  |
| Gender |  |  | 313,116 |
| Men | 5.14 | REF |  |
| Women | 5.15 | 0.19 |  |
| Age group |  |  | 313,127 |
| 16-24 years | 5.11 | REF |  |
| 25-49 years | 5.04 | 0.00 |  |
| 50-64 years | 5.03 | 0.00 |  |
| 65+ years | 5.46 | 0.00 |  |
| Educational qualification |  |  | 310,128 |
| Degree | 5.30 | REF |  |
| Intermediate | 5.10 | 0.00 |  |
| Vocational etc. | 5.03 | 0.00 |  |
| No qualifications | 5.09 | 0.00 |  |
| Ethnicity-Country of birth |  |  | 312,341 |
| white UK | 5.17 | REF |  |
| Ethnic minority born in UK | 4.84 | 0.00 |  |
| Ethnic minority born outside UK | 5.04 | 0.00 |  |
| Area level deprivation |  |  | 241,970 |
| Very low levels of deprivation (<25th percentile) | 5.34 | REF |  |
| Some deprivation (25th to 50th percentile) | 5.23 | 0.00 |  |
| Medium level of deprivation (50th to 75th percentile) | 5.07 | 0.00 |  |
| High level of deprivation (75th percentile or higher) | 4.84 | 0.00 |  |
| Notes: These are weighted estimates produced using data from Waves 2-10 (2010-2020 March) of Understanding Society. The sample comprises of 16+ year old respondents excluding full-time students (Number of person-year observations is 328,231). Life satisfaction ranges from 1 (very dissatisfied with life overall) and 7 (very satisfied with life overall). Area level deprivation sample is restricted to residents of England. Estimation of group differences of life satisfaction is based on weighted least squares.  |

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| **Table 4: Fixed Effects estimation of life satisfaction models among 16+ year olds living in the UK, 2010- March 2020 (base model with no interactions)** |
|   | Coefficient  | p-values |
| Low intensity job-related training  | 0.01 | 0.37 |
| High intensity job-related  |  0.02\*  | 0.03 |
| Low intensity Hobbies & Leisure  | 0.01 | 0.52 |
| High intensity Hobbies & Leisure  | 0.01 | 0.63 |
| Low intensity Health & Safety  |  0.03\*  | 0.04 |
| High intensity Health & Safety  | 0.01 | 0.45 |
| *Employment status (Ref: Employed)* |  |  |
| unemployed  |  -0.26\*\* | 0 |
| retired  |  0.13\*\* | 0 |
| taking care of family  |  -0.05\*\* | 0 |
| long term sick or disabled  |  -0.43\*\* | 0 |
| Other  | -0.04 | 0.21 |
| *Age group (Ref: 16-24 years)*  |  |  |
| 25-49 years  |  -0.06\*\* | 0 |
| 50-64 years  | -0.03 | 0.18 |
| 65+ years  |  0.05+  | 0.09 |
| *Region of residence (Ref: London)* |  |  |
| North  | 0.04 | 0.54 |
| Midlands  | -0.04 | 0.56 |
| East South  | 0.02 | 0.65 |
| Wales  | 0.12 | 0.17 |
| Scotland  | 0.1 | 0.35 |
| Northern Ireland  |  0.69\*\* | 0 |
| *Marital status (Ref: single never married)* |  |  |
| cohabiting as a couple  |  0.13\*\* | 0 |
| married & civil partnership  |  0.10\*\* | 0 |
| separated or divorced  |  -0.07\*\* | 0 |
| widowed  | -0.03 | 0.38 |
| *Any own children in the household (Ref None)* |  |  |
| At least one own child in the household | 0.01 | 0.39 |
| *Whether living in urban area (Ref: Rural)* |  |  |
| Urban  |  -0.07\*\* | 0 |
| *General health (Ref: poor)* |  |  |
| Good or fair  |  0.55\*\* | 0 |
| Excellent or very good  |  0.78\*\* | 0 |
| *Highest educational qualifications (Ref: first degree or higher)* |  |  |
| Intermediate  | 0.01 | 0.85 |
| Vocational etc  | -0.11 | 0.11 |
| No qualifications  | -0.1 | 0.17 |
| Log equivalised gross monthly household income |  0.03\*\* | 0 |
| Constant  |  4.22\*\* | 0 |
| No. of Observations  | 292,517  |
| Robust standard errors; + p<0.10 \* p<0.05 \*\* p<.01 |

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| **Table 5: Fixed Effects estimation of life satisfaction models among 16+ year olds living in the UK, 2010- March 2020, by employment status** |
|  | Employed | Unemployed | Retired | Taking care of family | Long term sick or disabled |
|   | AME | p-value | AME | p-value | AME | p-value | AME | p-value | AME | p-value |
| Job-related  |  |  |  |  |  |  |  |  |  |  |
| Low intensity  | -0.01 | 0.17 | -0.07 | 0.19 | 0 | 0.97 | -0.01 | 0.88 | -0.01 | 0.93 |
| High intensity  | 0.03\* | 0.01 | -0.03 | 0.52 | -0.05 | 0.53 | -0.04 | 0.46 | 0.01 | 0.89 |
| Hobbies & Leisure |  |  |  |  |  |  |  |  |  |  |
| Low intensity  | -0.00 | 0.94 | 0.01 | 0.96 | 0.01 | 0.81 | 0.14+ | 0.09 | -0.19 | 0.17 |
| High intensity  | -0.01 | 0.83 | 0.20+ | 0.06 | 0.01 | 0.81 | -0.00 | 0.99 | 0.07 | 0.57 |
| Health & Safety |  |  |  |  |  |  |  |  |  |  |
| Low intensity  | 0.02 | 0.15 | 0.24\* | 0.04 | 0.09 | 0.19 | 0.13 | 0.38 | 0.04 | 0.88 |
| High intensity  | 0.01 | 0.68 | 0.08 | 0.39 | -0.03 | 0.81 | 0.07 | 0.62 | -0.22 | 0.38 |
| No. person-year observations | 292,517 |
| Notes: Low intensity training: Hours of training ≤ median; High intensity training: Hours of training > medianBased on models estimated using Fixed Effects and interacted with employment status (AME for each status is presented here); Sample: 16+ year olds, excluding full-time students; These models also control for age, sex, ethnic group-country of birth, marital status, number of children in household, general health, education, log of equivalized gross income. \*\* p-value <0.01, \* p-value<0.05, + p-value <0.10; Average Marginal Effect (AME) for “other” status are not shownThe number of person-year observations for employed, unemployed, retired, taking care of family, long term sick or disabled and other are: 174829, 12991, 76768, 15488, 10276, 2165.  |

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| **Table 6: Fixed Effects estimation of life satisfaction models among 16+ year olds living in the UK, 2010 to March 2020, by gender** |
|  | Men | Women |
|  | AME | p-value | AME | p-value |
| Job-related  |  |  |  |  |
| Low intensity  | 0.02 | 0.26 | 0.00 | 0.77 |
| High intensity  | 0.04\* | 0.01 | 0.01 | 0.53 |
| Hobbies & Leisure |  |  |  |  |
| Low intensity  | 0.02 | 0.63 | 0.01 | 0.67 |
| High intensity  | 0.02 | 0.57 | 0.01 | 0.85 |
| Health & Safety |  |  |  |  |
| Low intensity  | 0.01 | 0.81 | 0.05\* | 0.01 |
| High intensity  | -0.01 | 0.76 | 0.03 | 0.20 |
| No. person-year observations | 128,455 | 164,062 |
| Notes: Low intensity training: Hours of training ≤ median; High intensity training: Hours of training > medianBased on models estimated using Fixed Effects and interacted with gender (AME for each gender is presented here), estimated separately for men and women.Sample: 16+ year olds, excluding full-time students; These models also control for age, sex, ethnic group-country of birth, marital status, number of children in household, general health, education, log of equivalized gross income. \*\* p-value <0.01, \* p-value<0.05, + p-value <0.10. The number of person-year observations for men and women are 128455 and 164062. |

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| **Table 7: Fixed Effects estimation of life satisfaction models among 16+ year olds living in the UK, 2010 to March 2020, by age groups** |
|  | 16-24 years | 25-49 years | 50-64 years | 65+ years |
|  | AME | p-value | AME | p-value | AME | p-value | AME | p-value |
| Job-related  |  |  |  |  |  |  |  |  |
| Low intensity  | -0.04 | 0.33 | 0.02 | 0.10 | -0.01  | 0.72 | 0.03 | 0.52 |
| High intensity  | 0.04 | 0.18 | 0.03\*\* | 0.01 | -0.01 | 0.69 | -0.10 | 0.15 |
| Hobbies & Leisure |  |  |  |  |  |  |  |  |
| Low intensity  | -0.02 | 0.85 | -0.02 | 0.64 | 0.05 | 0.21 | 0.03 | 0.55 |
| High intensity  | 0.02 | 0.81 | -0.01 | 0.70 | 0.02 | 0.57 | 0.04 | 0.42 |
| Health & Safety |  |  |  |  |  |  |  |  |
| Low intensity  | 0.02 | 0.81 | 0.04+ | 0.06 | 0.01 | 0.60 | 0.09 | 0.17 |
| High intensity  | -0.03 | 0.66 | 0.02 | 0.33 | 0.03 | 0.38 | -0.21\* | 0.05 |
| No. person-year observations | 292,517 |
| Notes: Low intensity training: Hours of training ≤ median; High intensity training: Hours of training > medianBased on models estimated using Fixed Effects and interacted with age group (AME for each group is presented here), Sample: 16+ year olds, excluding full-time students; These models also control for age, sex, ethnic group-country of birth, marital status, number of children in household, general health, education, log of equivalized gross income. \*\* p-value <0.01, \* p-value<0.05, + p-value <0.10. The number of person-year observations for 16-24 year olds, 25-49 year olds, 50-64 year olds and 65+ year olds are 17928, 123788, 80357, 70444. |

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| **Table 8: Fixed Effects estimation of life satisfaction models among 16+ year olds living in the UK, 2010 to March 2020, by ethnicity and generation** |
|  | white majority (or white British) | Ethnic minorityBorn in UK(second+ generation) | Ethnic minorityBorn outside UK(first generation) |
|  | AME | p-value | AME | p-value | AME | p-value |
| Job-related  |  |  |  |  |  |  |
| Low intensity  | 0.01 | 0.17 | -0.02 | 0.67 | -0.03 | 0.41 |
| High intensity  | 0.02\* | 0.04 | 0.04 | 0.31 | 0.00 | 0.89 |
| Hobbies & Leisure |  |  |  |  |  |  |
| Low intensity  | 0.00 | 0.91 | 0.14 | 0.15 | 0.13  | 0.13 |
| High intensity  | 0.02 | 0.49 | 0 | 0.99 | -0.05 | 0.55 |
| Health & Safety |  |  |  |  |  |  |
| Low intensity  | 0.03+ | 0.08 | 0.06 | 0.41 | 0.04 | 0.46 |
| High intensity  |  0.01 | 0.43 |  0.16\*  | 0.03 | -0.08 | 0.13 |
| No. person-year observations | 246,655 | 16,893 | 28,969 |
| Notes: Low intensity training: Hours of training ≤ median; High intensity training: Hours of training > medianBased on models estimated using Fixed Effects, estimated separately for White majority, UK born ethnic minority and non-UK born ethnic minority; Sample: 16+ year olds, excluding full-time students; These models also control for age, sex, ethnic group-country of birth, marital status, number of children in household, general health, education, log of equivalized gross income. \*\* p-value <0.01, \* p-value<0.05, + p-value <0.10.   |

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| **Table 9: Fixed Effects estimation of life satisfaction models among 16+ year olds living in the UK, 2010 to March 2020, by educational qualifications** |
|  | Degree or higher | Intermediate1 | Vocational  | No qualifications |
|  | AME | p-value | AME | p-value | AME | p-value | AME | p-value |
| Job-related  |  |  |  |  |  |  |  |  |
| Low intensity  | 0.01 | 0.64 | 0.01 | 0.36 | -0.04 | 0.33 | 0.10 | 0.13 |
| High intensity  | 0.02 | 0.18 | 0.02+  | 0.07 | -0.00 | 0.99 | -0.03 | 0.70 |
| Hobbies & Leisure |  |  |  |  |  |  |  |  |
| Low intensity  | -0.00 | 0.95 | 0.03 | 0.37 | -0.15+ | 0.07 | 0.37\*\*  | 0.00 |
| High intensity  | 0.02 | 0.56 | 0.01 | 0.87 | 0.07 | 0.47 | -0.19 | 0.16 |
| Health & Safety |  |  |  |  |  |  |  |  |
| Low intensity  | 0.01 | 0.63 | 0.04+ | 0.08 | 0.06 | 0.26 | 0.06 | 0.59 |
| High intensity  | 0.04 | 0.21 | -0.01 | 0.73 | 0.09 | 0.16 | 0.01 | 0.96 |
| No. person-year observations | 292,517 |
| Notes: Low intensity training: Hours of training ≤ median; High intensity training: Hours of training > median1Intermediate represents those who reported acquiring A-level, GCSE or other degreesBased on models estimated using Fixed Effects and interacted with sub-groups based on educational achievement (AME for each group is presented here), Sample: 16+ year olds, excluding full-time students; These models also control for age, sex, ethnic group-country of birth, marital status, number of children in household, general health, education, log of equivalized gross income, \*\* p-value <0.01, \* p-value<0.05, + p-value <0.10. The number of person-year observations for those with educational qualifications that were degree or higher, intermediate, vocational or no qualifications are 77071, 151838, 28519, 35089. |

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| **Table 10: Fixed Effects estimation of life satisfaction models among 16+ year olds living in England 2010 to March 2020, by level of area deprivation** |
|  | Very low levels of deprivation | Some deprivation | Medium level of deprivation | High level of deprivation |
|  | AME | p-value | AME | p-value | AME | p-value | AME | p-value |
| Job-related  |  |  |  |  |  |  |  |  |
| Low intensity  | 0.02 | 0.24 | 0.01 | 0.35 | 0.00 | 0.90 | -0.01  | 0.70 |
| High intensity  | 0.00 | 0.96 | 0.02 | 0.11 | 0.04\*\* | 0.004 | 0.05\*\* | 0.005 |
| Hobbies & Leisure |  |  |  |  |  |  |  |  |
| Low intensity  | 0.04 | 0.28 | 0.04 | 0.15 | 0.03  | 0.30 | 0.03 | 0.56 |
| High intensity  | 0.01 | 0.87 | 0.02 | 0.34 | 0.04 | 0.17 | 0.06  | 0.21 |
| Health & Safety |  |  |  |  |  |  |  |  |
| Low intensity  | 0.03 | 0.24 | 0.04\* | 0.02 | 0.05\* | 0.01 | 0.06\*  | 0.05 |
| High intensity  | 0.02 | 0.48 | 0.02 | 0.44 | 0.01 | 0.68 | 0.00 | 0.94 |
| No. person-year observations | 227,203 |
| Notes: Low intensity training: Hours of training ≤ median; High intensity training: Hours of training > medianVery low levels of deprivation refer to areas where the level of deprivation is less than the 25th percentileSome deprivation refers to areas where the level of deprivation is between the 25th percentile and the medianMedium levels of deprivation refer to areas with levels of deprivation between the median and the 75th percentileHigh levels of deprivation refer to areas with levels of deprivation higher than the 75th percentileBased on models estimated using Fixed Effects and interacted with sub-groups based on area level deprivation (AME for each group was computed and is presented here), Sample: 16+ year olds, excluding full-time students; These models also control for age, sex, ethnic group-country of birth, marital status, number of children in household, general health, education, log of equivalized gross income. \*\* p-value <0.01, \* p-value<0.05, + p-value <0.10. The number of person-year observations living in areas with very low levels of deprivation, some deprivation, medium levels of deprivation and high levels of deprivation are: 61601, 60328, 56314, 48960. |

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| **Table 11: Changes (increase and decrease) to life satisfaction upon taking up different types of training by group, as a percentage of group level average values: only estimates that are statistically significant at least 10% level of significance are shown here.** |
|  |  | High Intensity TrainingHours of training > median | Low Intensity TrainingHours of training ≤ median |
|  |  | % change in life satisfaction, from sub-group mean levels | AME | p-value | % change in life satisfaction, from sub-group mean levels | AME | p-value |
| **Job-related**  |  |  |  |  |  |  |  |
| employed  | 5.19 | +0.6% | 0.03\* | 0.01 |  |  |  |
| men | 5.14 | +0.8% | 0.04\* | 0.01 |  |  |  |
| 25-49 years | 5.04 | +0.06% | 0.03\*\* | 0.01 |  |  |  |
| White majority | 5.17 | +0.4% | 0.02\* | 0.04 |  |  |  |
| Intermediate quals | 5.10 | +0.4% | 0.02+  | 0.07 |  |  |  |
| Medium deprivation | 5.07 | +0.8% | 0.04\*\* | 0.004 |  |  |  |
| High deprivation | 4.84 | +1.0% | 0.05\*\* | 0.005 |  |  |  |
|  |  |  |  |  |  |  |  |
| **Hobbies & Leisure** |  |  |  |  |  |  |  |
| Taking care of family | 4.94 |  |  |  | +2.8% | 0.14+ | 0.09 |
| No qualifications | 5.09 |  |  |  | +7.0% | 0.37\*\*  | 0.00 |
| Vocational qualifications | 5.03 |  |  |  | -3.0% | -0.15+ | 0.07 |
|  |  |  |  |  |  |  |  |
| **Health & Safety** |  |  |  |  |  |  |  |
| unemployed  | 4.44 |  |  |  | +4.5% | 0.24\* | 0.04 |
| Women | 5.15 |  |  |  | +0.1% | 0.05\* | 0.01 |
|  25-49 years | 5.04 |  |  |  | 0.8% | 0.04+ | 0.06 |
| 65-year-olds  | 5.46 | –3.8% | -0.21\* | 0.05 |  |  |  |
| White majority | 5.17 |  |  |  | 0.6% | 0.03+ | 0.08 |
| UK born ethnic minority | 4.84 | +3.3% |  0.16\*  | 0.03 |  |  |  |
| Intermediate qualification | 5.10 |  |  |  | +0.8% | 0.04+ | 0.08 |
| Some deprivation | 5.23 |  |  |  | +0.08% | 0.04\* | 0.02 |
| Medium deprivation | 5.07 |  |  |  | +1.0% | 0.05\* | 0.01 |
| High deprivation | 4.84 |  |  |  | +1.2% | 0.06\*  | 0.05 |
| Notes: These statistics are based on 6 separate models of life satisfaction (measured on a 7-point scale), each model estimated using Fixed Effects with the training variables (by intensity and type) interacted with one moderator. The moderators were employment status, gender, age group, educational qualification, ethnicity and area level deprivation. The sample comprises of 16+ year olds, excluding full-time students. The sample sizes of the model with the area level deprivation as moderator was 227,203 observations (as this sample was restricted to England), for all other models it was 292,517 person year observations.The controls included in these models were marital status, number of children in household, general health, region of residence and log of equivalized gross income.\*\* p-value <0.01, \* p-value<0.05, + p-value <0.10. All estimates from all 6 models are available from the authors upon request. |