

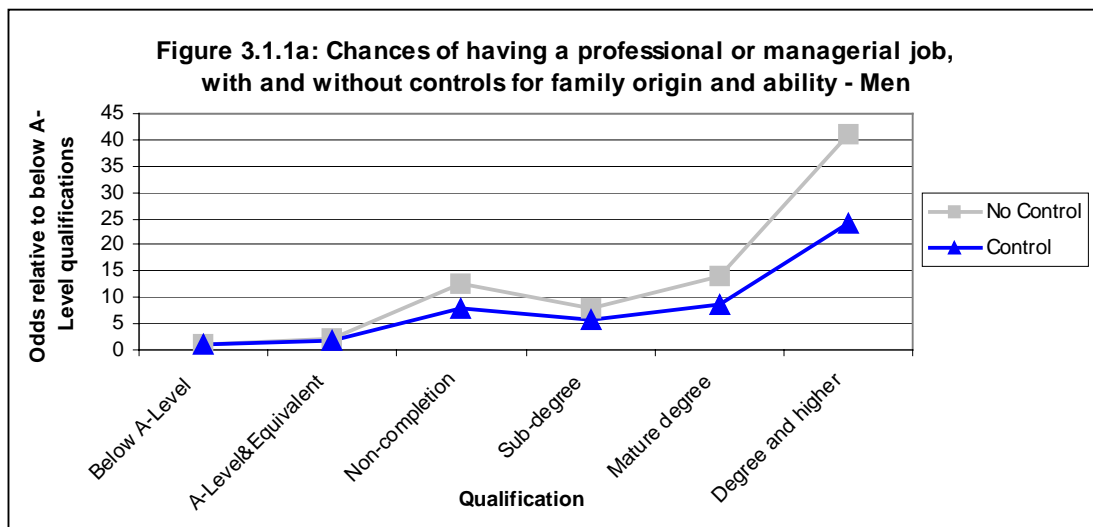
3. Results

We start with the outcomes that are most obviously related to higher education, i.e. those concerned with employment, and then move on to the wider range of social benefits.

3.1 Labour market outcomes

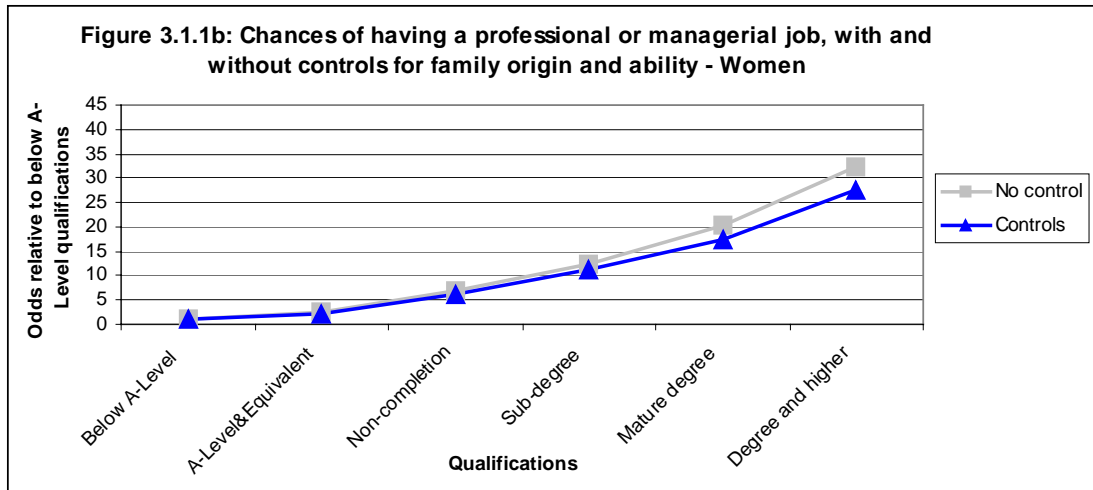
3.1.1 Social class and occupation

Professional and managerial occupations accounted for 38% of male employment in the NCDS sample (present or last job) and 33% of women's. As we might expect graduates were more likely to enter such jobs than people with lower qualifications. Figures 3.1.1a and 3.1.1b show that graduates who had obtained their degrees through the conventional route had the highest odds ratios (Appendix 2 tables 3.1.1a and 3.1.1b).



A steep gradient is seen between those with below A-level qualifications moving up by qualification level to degree level. Men graduates were about forty times more likely to attain this status than those with below A-level qualifications, and about twenty times more likely to obtain professional/managerial jobs as those with A-level or equivalent (“matriculates”). Mature men graduates were about one-third as likely to attain professional/managerial jobs as other male graduates, an effect which may be partly attributable to shorter work experience as graduates, and partly attributable to age discrimination (Purcell and Hogarth, 1999; Egerton, 2000). The addition of

controls for family characteristics and ability reduced the odds ratios considerably, nearly halving them for ordinary graduates. Nonetheless, both ordinary and mature male graduates still had much increased chances of reaching professional/managerial jobs compared to people with lower qualifications.



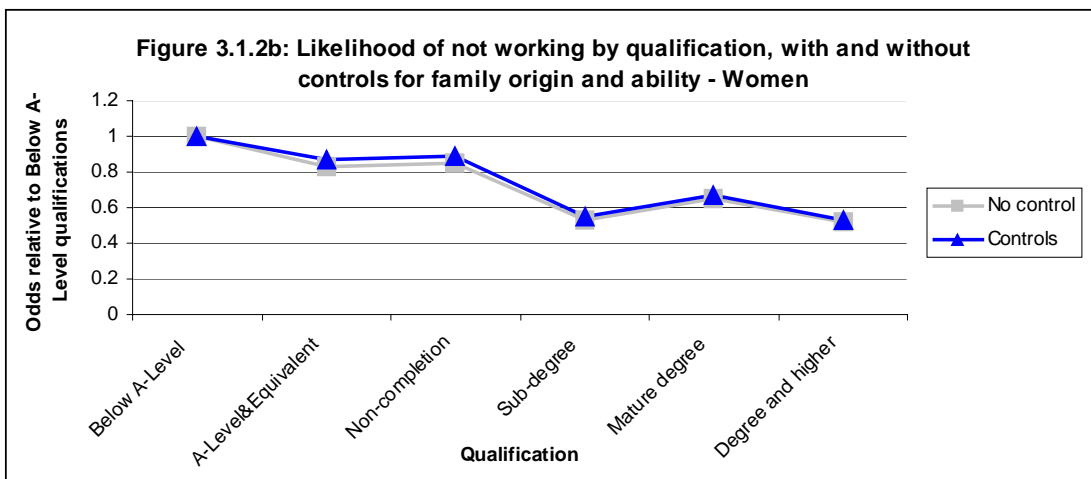
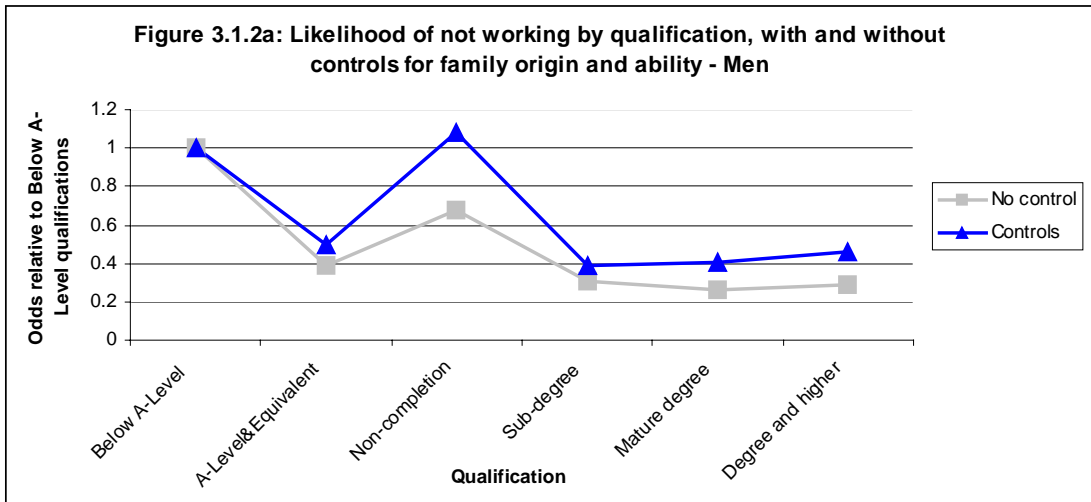
A similar gradient by qualifications is observed for women. Typical women graduates were about thirty times more likely to attain professional/managerial jobs than those with below A-level qualifications, and about fifteen times more likely to obtain them than those with A-level or equivalent matriculation. Women with sub-degree qualifications were relatively more successful than men with these qualifications, as were women mature graduates. This may be partly attributable to the 'white-collar' nature of sub-degree qualifications for women; while for men, this category includes technician jobs. It is also likely to reflect the very poor opportunities open to less qualified women (the comparison category) with disrupted work histories, usually due to child-bearing (Dex, 1987; Dale and Egerton, 1997).

Generally, the gradient for qualifications for women is smoother than for men. It is also noticeable that the controls for family characteristics made much less difference to the achievements of women than of men, suggesting that higher education has a socially equalising effect, among women. The experience of higher education, despite non-completion, seems to be beneficial to both men and women, but more markedly so for women.

3.1.2 Unemployment and economic inactivity

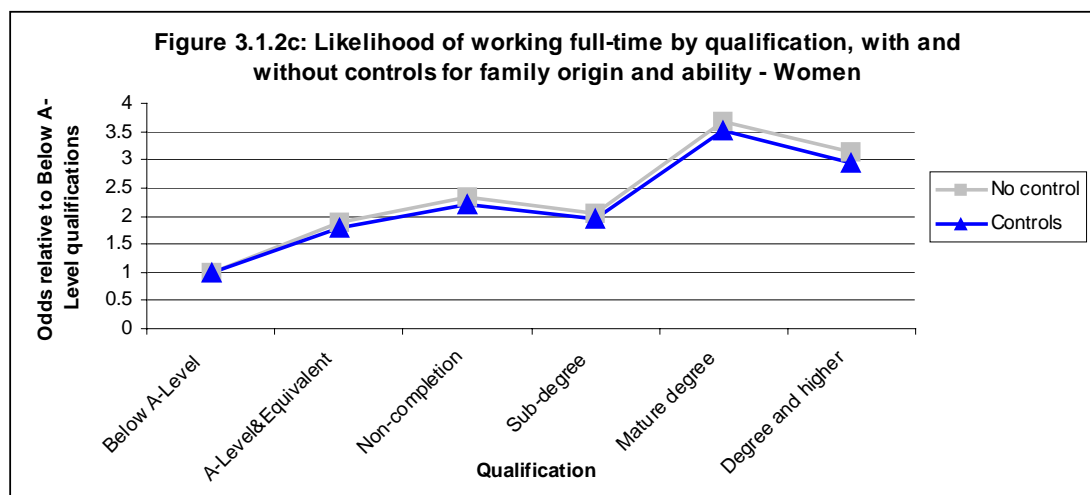
At the time of the interview, 10% of men and 32 % of women were not in employment.

The odds ratios for unemployment/inactivity show that graduate men were less likely to be unemployed than non-graduates. In this case the likelihood for unemployment for male (ordinary) graduates was about one-third of that for those with below A-level qualifications, and about three-quarters of those with A-level or equivalent qualifications (although the latter difference is not statistically significant). The gradient becomes less steep for men when controls for family origin and ability are added. Figures 3.1.2a and 3.1.2b show, however, that male and female non-completers ran a higher risk of unemployment than matriculates.



For women there seems to be little difference in unemployment/inactivity between various levels of tertiary education, *with or without controls* for family origins and ability. But this may be because many women in this age group who are not in full-time employment, are out of the labour market temporarily looking after children or combining part-time work with childcare (Bynner, Morphy and Parsons, 1997). The categorisation used also masks a difference between graduate and sub-degree women in the likelihood of working full-time. Vocational qualifications, particularly for public sector jobs, provide ports of entry to the labour market after family formation, and this is often through part-time work (Dex, 1987; Dale and Egerton, 1997).

A further analysis (Figure 3.1.2c) showed that graduate women were somewhat more likely to hold full-time jobs than sub-degree women, who, vice-versa, were more likely to hold part-time jobs.



3.1.3 Conclusions

Generally, these results, which control for family origin characteristics and for measured ability, show that higher education qualifications are important to employability; in particular they have a relatively equalising effect (in relation to social origins) for women. This may reflect the higher likelihood of employment in the public sector for graduate women (Dale and Egerton, 1997), with this sector being perceived as more meritocratic and credentialist in its recruitment procedures.

3.2 Skills improvement

Earlier research has shown that self-reported skill levels correlate highly with education, occupational success and lower depression scores (Bynner, 1994). Since it is known that highly educated adults receive more education and training after graduation than less educated people (Sargent, 1997), a ten-year period for possible improvement is needed to assess the extent to which the experience of higher education retains an identifiable effect over and above the effects of subsequent occupational experience.

Two types of analysis were carried out: first, the same types of analysis as those reported previously (with and without controls for family origins and ability), and secondly, an analysis that also controlled for specific occupations and experiences of unemployment or full-time

family care. The occupations were ordered roughly in terms of social class, but specific types of managerial and professional work were identified (corporate managers as opposed to consumption services managers, e.g. restaurant managers and owners), and science professionals as opposed to finance or to health and education professionals.

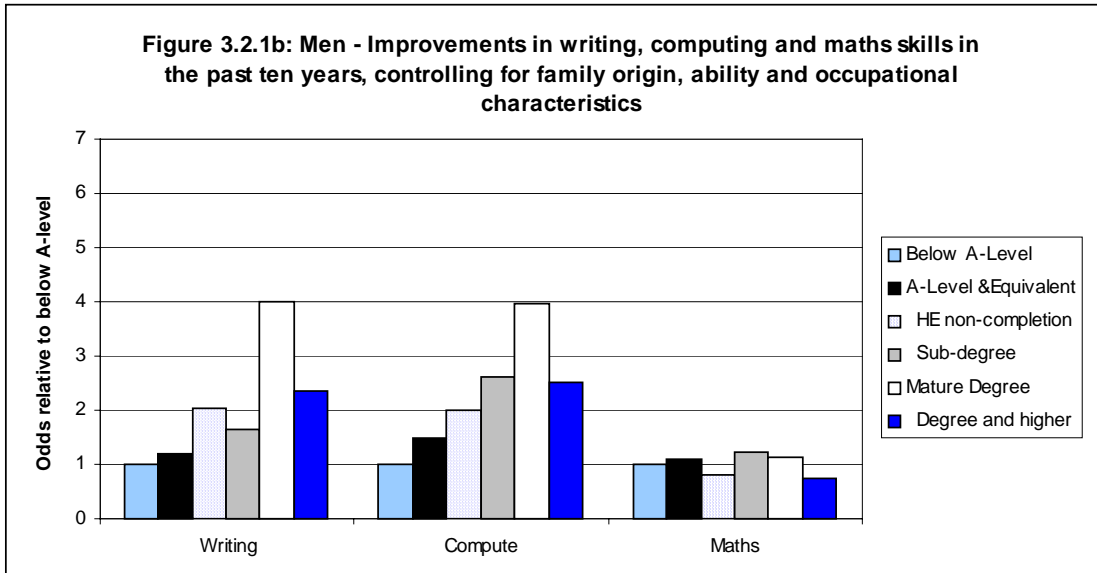
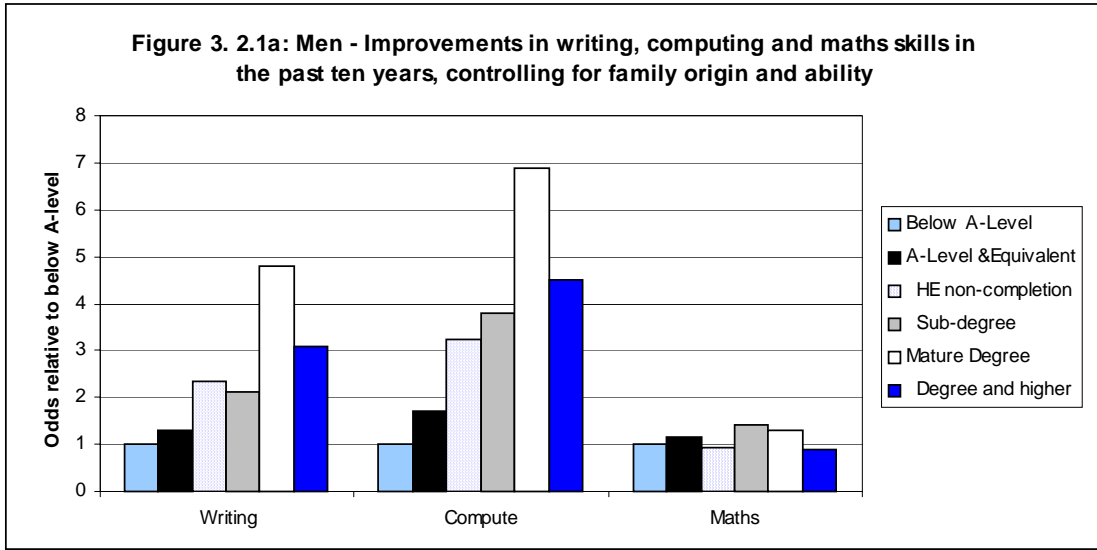
3.2.1 Improvements in writing, computing and mathematics

Men

Writing, mathematics and computing come under the heading of what are currently described as generic *key skills*, i.e. those generic, as opposed to specifically vocational, skills deemed central to employability in the modern labour market. To what extent was higher education contributing directly to the transmission of these skills to graduates?

A minority of men claimed to have improved their writing, computing and maths skills in the last ten years: 39%, writing, 43%, computing and 35%, maths. Figure 3.2.1a shows the odds ratios for improvements in writing, computing and numeracy skills over the past ten years at different qualification levels for men. These odds ratios were controlled for ability and family origins. There is a clear and steep gradient in the odds ratios for writing and computing, but not for maths. Differences between graduates and those with A-levels were statistically significant for computing and writing.

Improvements were most marked for mature graduates, many of whom would recently have undergone sustained training in these skills during their degree courses. For maths, only men with sub-degree qualifications appeared to have improved. It is likely that this reflects the technical nature of the jobs men with these qualifications enter, plus the qualification route which may involve evening study or day release, over a longish period of time.



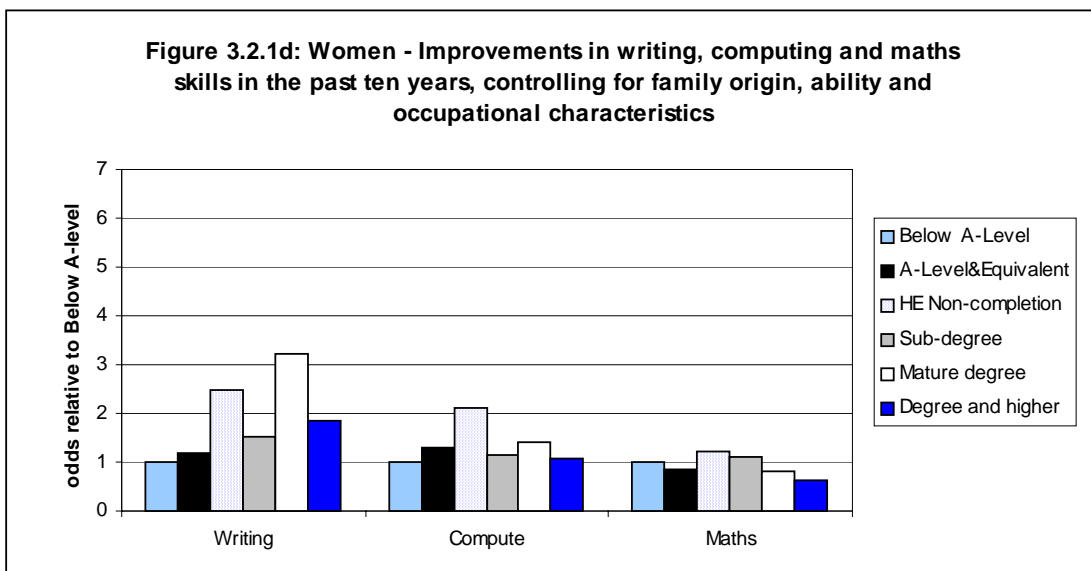
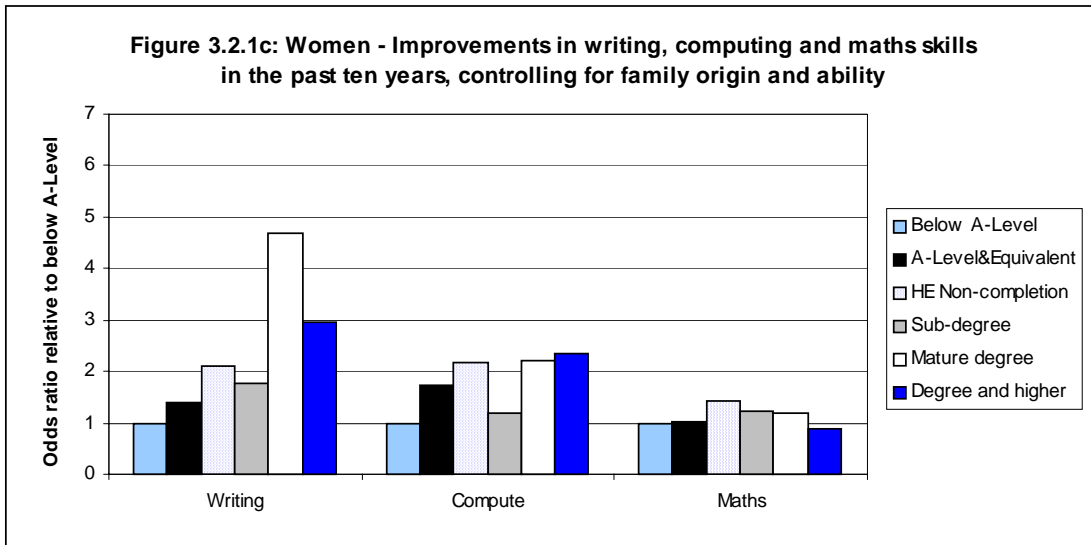
Controlling for occupational experience reduced the odds ratios markedly. In particular the odds ratio for maths for men with sub-degree qualifications was no longer statistically significant. The odds ratios for graduate men were reduced to a level that was below those of the lowest education level (below A-level). Examination of the full set of odds ratios (Appendix 2 Table 3.1.2a) suggests that sizeable proportions of most graduate jobs (both managerial and professional) are associated with improvements in numeracy. Since occupation had been controlled for, the odds ratios reported for graduates are for those graduate jobs *which were not associated with improvements in numeracy*. It is important to remember that the baseline is own achievement ten years ago, so that graduates in jobs (e.g. journalism), which do not require maths, may compare their current mathematical skills unfavourably with those possessed relatively shortly after leaving school.

Although the odds ratios for writing and computing were also sizeably reduced, it is still clear that a higher education effect on acquisition of these skills (having controlled for earlier ability) was sustained. This shows that although the improvement in computing and writing skills comes to a large extent through the employment graduates enter, higher education itself also contributes independently to improvements that continue after graduation. This applies most clearly to conventional graduates. For mature graduates, whose undergraduate studies would have typically occurred within the ten-year period assessed for skills improvement, the size of the effect of higher education as opposed to that of employment experience on the improvement is more difficult to establish unequivocally. However, the self-perceived skills enhancement of mature graduates is much greater (almost two-thirds greater, even with occupational controls) than that of conventional age graduates. This suggests that higher education must be responsible for at least some of the improvement. For the conventional graduates two effects can be more clearly posited: firstly that graduates acquire characteristics during their education, which are conducive to further learning; and secondly, that graduates enter occupations in which opportunities for further learning occur. These effects are not mutually exclusive; employers may wish to recruit easily trained, or already skilled employees, and it is often claimed that this is the case.

Generally, among graduates, computing seems most sensitive of all the skills to the occupational context. This is of particular interest, since Green et al (1999) have suggested that computing skills are particularly strongly associated with good quality jobs with strong likelihood of training and upgrading.

Women

Women reported less skill improvement than men in relation to writing (26%), computing (36%) and maths (24%), but similar higher education effects were apparent. It can be seen from Figure 3.2.1c that women graduates had the highest odds ratios for improved writing and computing skills. Again the odds ratio was highest for mature graduates. Computing was less prominent in women's skill profile, while writing was more prominent (see Appendix 1). For maths there was again no significant effect.



Occupational experience also reduced the disparity between qualifiers in self-reported skills improvement (Figure 3.2.1d). The odds ratios suggest that, with the possible exception of the mature graduates, most computing improvement can be attributed to occupational experience. However, graduate women (and non-completers) still report statistically significant improvements in writing compared with below A-level and A-level women, taking into account time out of the labour market and occupation.

Generally, so far as these *key skills* are concerned, it is clear that higher education facilitates further learning, above and beyond that specific to particular occupations and training. This is of major significance in identifying the contribution higher education makes to the employability of graduates. The experience of doing specialised “academic” courses is

accompanied by acquisition of some of the key generic skills demanded in the modern labour market.

3.2.2 Improvements in social skills

Men

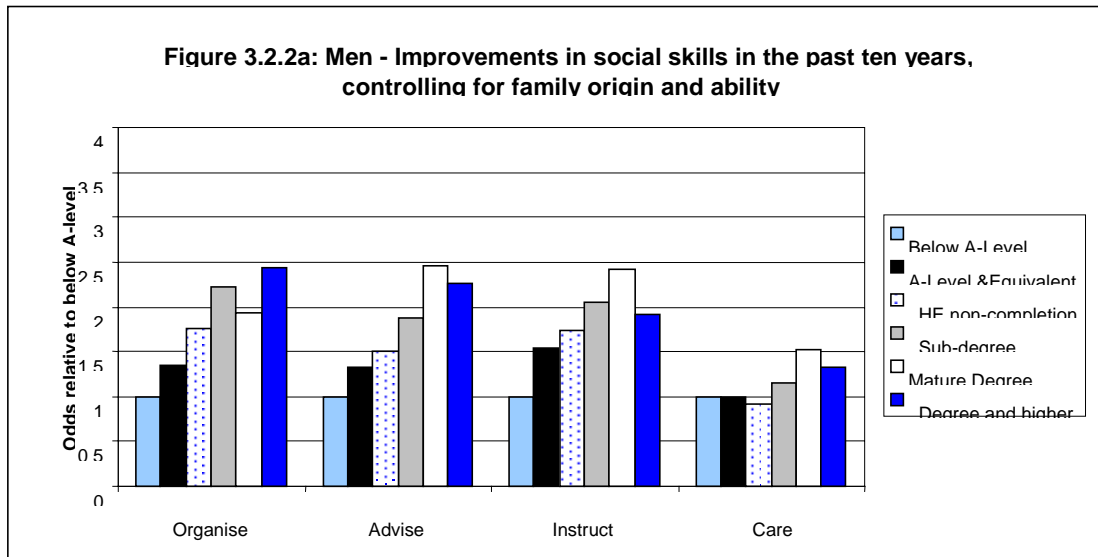
The social skills also all have employment relevance reflecting different aspect of the *key skill*, “team work”.

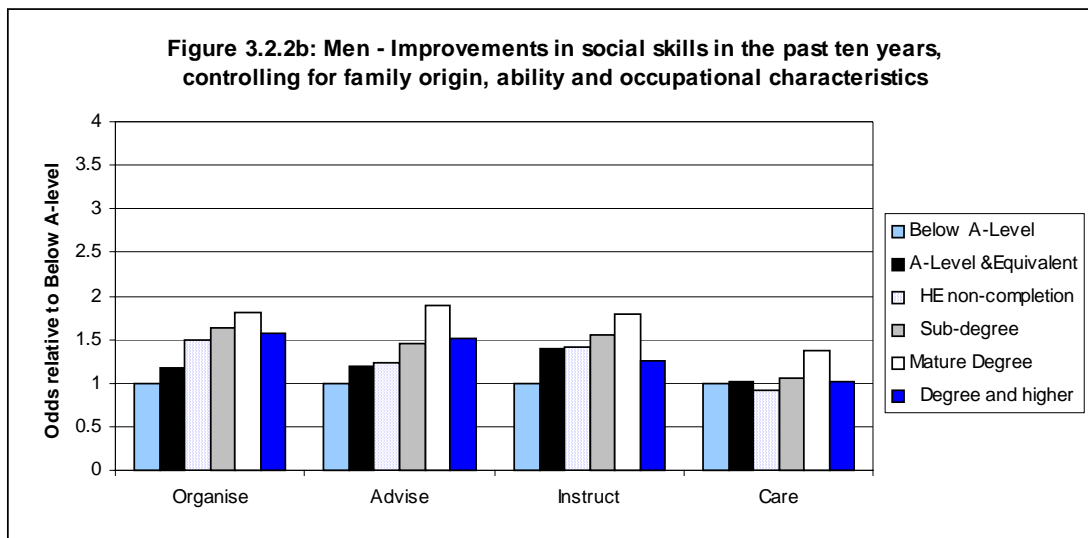
The majority of men reported an improvement: organising skills, 52%; advising and counselling skills, 67%; teaching and instructing skills, 66%. The exception was “caring” skills, for which only 30% reported an improvement.

The effect of qualification level on self-reported improvements in the skills of organising, instructing/teaching, advising/counselling and caring are shown in Figure 3.2.2a. Gradients by qualifications can be seen in the skills of organising, instructing and advising. The odds ratio for organising was highest for graduates, while that for advising/counselling was highest for mature graduates. For both of these skills the proportions of graduates reporting improvements was significantly greater than the proportions of those with A-levels. While both mature graduates and conventional graduates had higher odds ratios for reported improvements in caring skills than the others, this was only statistically significant for the conventional graduates.

Controlling for the occupational experience variables (Figure 3.2.2b) reduced this difference so that it was no longer statistically significant; the key occupations showing the skills improvement were personal and protective services, and health and education professions. The odds ratios for instructional skills also seemed to be sensitive to occupational experience; however, all occupations were associated with increased *teaching* skill and this presumably reflects work experience *per se*. The odds ratios for the skills of advising and organising remained statistically significant for graduates, although reduced. The reduction seemed less for mature graduates than other graduates. It is possible that mature graduates have not yet settled into a specific career and in any case have less occupational experience as graduates.

Generally, this suggests that higher education in itself helps develop these social skills (see e.g. Brown and Scase, 1994).

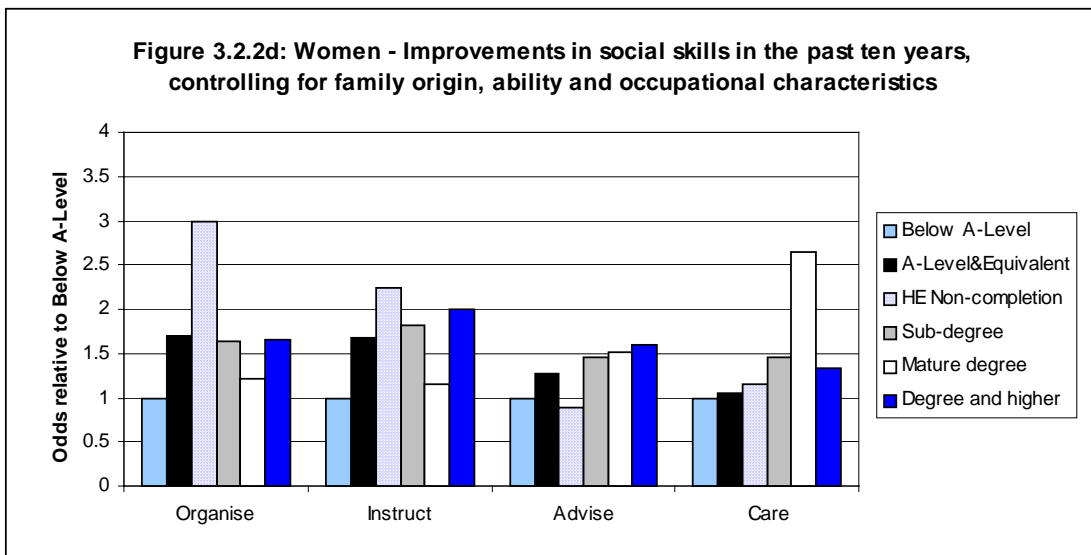
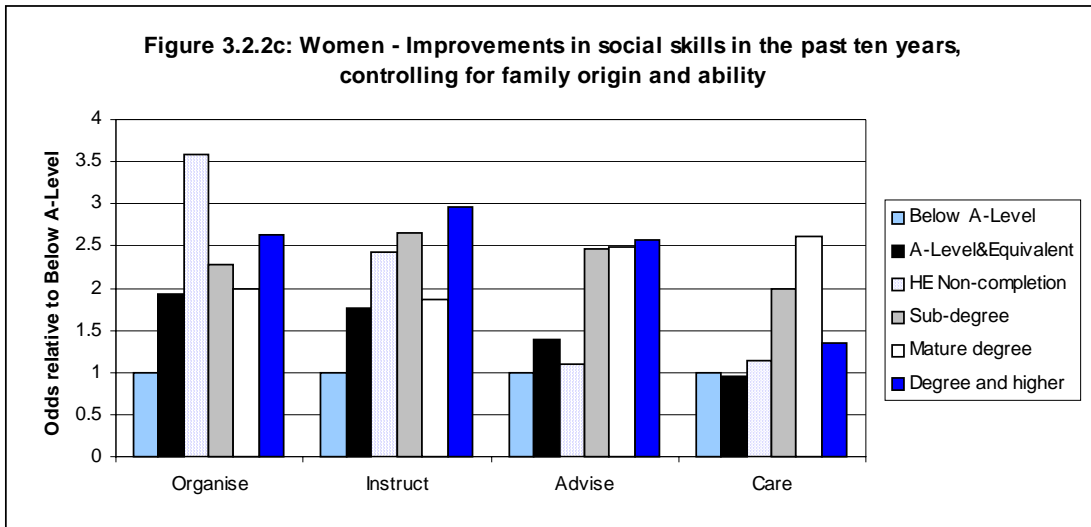




Women

A majority of women also reported improvements in the social skills of advising and counselling (68%), and teaching and instructing (68%). In contrast to men, only a minority reported improvement in organising skills (35%), whereas a majority reported improvement in caring skills (56%).

Odds ratios for self-rated improvements in social skills are shown in Figure 3.2.2c, controlling for family characteristics and ability. Again a gradient by qualifications can be seen, although higher education non-completers stand out in organising skills, an effect which remained statistically significant after occupation controls have applied. In general, higher proportions of graduates than A-level or less qualified people reported improvements in advising and teaching ($P < .05$). The effects for most skills, with the exception of caring, were much reduced by occupational controls (Figure 3.2.2d). As with men, they were reduced less for mature graduates than for other graduates, and similar factors may have been at work. Occupational experience seems to affect the self-assessment of caring skills less for mature and other graduates than for respondent with A-levels. This might suggest that there is something in the higher education experience itself that makes it possible for women to develop confidence in their caring skills independently of work experience.



3.2.3 Conclusions

Although as we might expect, employment experience accounts to a large extent for skills differences between graduates and others, there are effects that can only be attributed to the higher education experience itself. This is particularly striking in relation to male graduates' acquisition of computing and writing skills and women mature graduates' acquisition of computing skills. Generally, however, men appear to benefit more in relation to the more cognitive kinds of skills, and women in relation to the social skills of organising, teaching, instructing, advising and caring.

These effects remain after controlling for occupational experience, ability and family origin. Social skills are now considered to be of growing importance in the labour market, underpinning team-work – a *key skill*. Here again, it appears that higher education has facilitated the development of confidence in the use of such skills, all of which imply an advantage in the labour market, compared to other women and to lower qualified men. Men compared with women tend to get advantages within employment in the form of more work-based training (Bynner, Morphy and Parsons, 1997). Higher education may be helping to redress the balance.