

**Title:**           **Improving the literacy and numeracy skills of young people who offend: can it be done and what are the consequences?**

**Authors:**       **Jane Hurry, Laura Brazier and Viv Moriarty**

**Address for correspondence:**

Dr Jane Hurry

Institute of Education

Psychology and Human Development Department

25 Woburn Square

London

WC1H 0AA

United Kingdom

## **Introduction**

Young people who have been involved in the youth justice system are a target group for adult basic skills provision from two perspectives. From the adult basic skills position, their numeracy and literacy skills are under-developed and they are therefore seen as a priority group (eg. DfEE 1999, DfES, 2003). From the perspective of the criminal justice system, young people are also a priority with young men aged twenty or less committing forty two per cent of all indictable offences in Britain (ref). Uniting these two perspectives is the aim of improving basic skills. One of the key measures being explored to reduce youth offending is engagement in education and training provision.

A relationship between youth crime and disengagement from education and training has been well established in various bodies of literature from many different disciplines (eg. Andrews 1995, Hawkins, Herrenkohl, Farrington, Brewer, Catalano, Harachi and Cothorn, 2000, Rutter, Giller and Hagell, 1998, Utting and Vennard, 2000). The main body of this work relates to exclusion from statutory schooling. However, prospective studies, such as the Cambridge Study identify troublesomeness in school and poor school attainment as early as age eight to ten as important predictors of later delinquency (Farrington 1995). In Britain, the Social Exclusion Unit's report on reducing re-offending by ex-prisoners (2002) found that prisoners were much more likely than the general population to have regularly truanted or been excluded from school, to have left school at sixteen, to have attended special schools, to have no qualifications, to have problems with functional literacy and numeracy. Only half of the population in Young Offenders Institutions were assessed as being functionally literate (49% achieving Level 1 in literacy and 48% achieving Level 1 in numeracy, ECOTEC 2001).

The meaning of this relationship, particularly its causal nature, is less well-understood. Classically, there are three ways to interpret this association; 1) that problems at school and poor literacy and numeracy lead young people to become disengaged with the mainstream and to offend; 2) that behaviour problems and offending lead to non-attendance at school (both physical and psychological) and poor school attainment; 3) that the association between offending and basic skills is a by-product of some third variable, such as poverty or parenting. It is probable that a number of variables interact to produce disadvantage. Understanding these causal relationships is helpful in designing effective provision and engineering social change.

From the educational perspective, it is important to address the reasons for young people's difficulties in order to help them learn. How do educators go about improving the literacy and numeracy of this group of young people, who have previously been so hard to engage in mainstream education? The literature points to what sorts of approaches work with this group of learners, but the situation is far from clear. Lipsey (1995), who carried out a meta analysis of 400 studies exploring the effectiveness of interventions for young offenders, warns of the difficulties of identifying effective programmes with great precision from such meta analyses. However, the results suggest that certain broad types of programme are a better bet than others. Interventions that focussed on the young people's behaviour and skills (rather than for example, internal states) were the most effective, especially where these were delivered in 'multimodal packages'. Of particular relevance in the present context, the most effective programmes run within the juvenile justice system (probation, prison or parole) were those targeting employment. In addition, provision of 100 or more contact hours, delivered at two or more contacts per week over a

period of 26 weeks was associated with effectiveness. Short or poorly attended programmes are unlikely to make a difference. Consistent with this, in the UK, Nuttall, Goldblatt, and Lewis (1998) and Graham and Bennett (1995) conclude that interventions with multiple foci and integrated into a package are more effective, both in terms of costs and reduction of offending than those with a single focus. More recently, Morris, Nelson and Stoney (1999) have published a critical review of evidence published from 1988 onwards to consider strategies that have been successful for engaging disaffected young people. They also conclude that longer-term, multi-stranded programmes which are devised and delivered through a multi-agency approach are the most effective. They add that this mix of programme elements should be delivered in a logical sequence and that there should be a focus on the individual young person through action planning, with clear target setting. They recommend that programmes should aim to develop young people's confidence and self-esteem before raising education and employment issues, but this should be tempered by Lipsey's analysis (1995), which found that targeting internal states rather than behaviour rarely showed an impact on offending behaviour. Recent work suggests that an important benefit of providing basic skills training in a multi-stranded context is that it allows learners both to see the point of learning and to make it 'grounded in social relevance' (Webster, Caddick, Reed and Ford 1999, see also Adult Learning Inspectorate 2004).

From the criminal justice perspective, policy makers want to know whether education and training reduces offending but clear evidence is sparse. Educational achievement has been found to act as a protective factor against offending (Hawkins, Herrenkohl, Farrington, Brewer, Catalano, Harachi and Cothorn 2000). Also, good literacy and numeracy skills improve young people's employment prospects (Parsons

and Bynner 1999), and employment is a protective factor (Farrington, Gallagher, Morley, St. Ledger and West 1986). However intervention studies which can clarify the interpretation of causal evidence are rare. Largely on the basis of research carried out in North America, there is convergence that intervention generally can reduce offending both in adults and juveniles and that education is one type of intervention that looks promising. One of the largest studies of the impact of education on offending was carried out in Canada (Poporino and Robinson 1992). Readmissions to prison of people (n=1,736) who had participated in Adult Basic Education (ABE) were monitored for just over a year. They were classified into three groups according to their participation in ABE: those who had completed ABE; those who were released before completing ABE and; those who withdrew from ABE. Thirty per cent of completers had readmissions in the follow-up period, compared with thirty five per cent of those released before completion and forty two percent of those who withdrew. However, the group who withdrew from ABE were self-selected and were older and had more previous custodial sentences than the completers. This, rather than the ABE programme, may explain their higher readmission rate. Lipsey's (1995) meta analysis is another key study. The work was done in a context of pessimism about the existence of any treatment that could reduce offending. Overall, he reported a 10% reduction in juvenile offending as a result of treatment and this was heralded as evidence that society can make a difference. Programmes focussed on education and training were amongst the successful programmes. More recently, Lipsey and Denzin (1998) have carried out a meta-analysis of programmes delivered to serious young offenders. The four employment related programmes and two academic programmes showed moderate effects overall (equated effect sizes = .30 and .29 respectively). Such effect sizes are good for social interventions and well worth having. However,

there was a good deal of variation between the programmes within each of these categories (employment and academic), some were very effective and others were not effective. In a more recent meta-analysis of European interventions to reduce recidivism, Redondo, Sánchez-Meca and Garrido (1999) concluded that whilst cognitive-behavioural techniques were effective, education programmes were not. However, only 5 education programmes were included, all of very short duration (two weeks or one week, with only one programme lasting as much as two months).

Young adults who have been or who are currently involved in the criminal justice system have a clear basic skills deficit. Two interrelated perspectives have been outlined. From the perspective of adult basic skills educators this group of learners pose a challenge and it is not clear how, if at all, these young people can be engaged, and their basic skills improved. From a youth justice perspective, which has focussed on education and training as a strategy for reducing offending, not only is evidence needed on how to improve education, but on the criminological benefits.

### **Research Questions**

The present study examines three key research questions. Firstly, is it possible to improve the literacy and numeracy of this particular group of young adult learners? Secondly, what are the barriers to improving literacy and numeracy? Thirdly, does improving literacy and numeracy reduce re-offending?

### **The data**

From 1999 to 2002, as part of a special initiative, the Youth Justice Board (YJB) funded a wide range of projects in England and Wales with potential to reduce youth offending. Sixteen of these projects, managed by a national organisation called

INCLUDE, provided full-time education and training for sixteen to eighteen year olds. The core intention of the projects was to re-introduce young people, who were unemployed and had committed offences, into education, training or employment, through a six month intensive programme. The evaluation data gathered on the young people attending these projects is used here to address our research questions. The projects were run in locations all over the country, both urban and provincial, but closely followed an established model, supported by a well-developed central administration.

Data was collected by the projects on four hundred and seventy six young people, at least four hundred and forty six of whom had been arrested for offending. Information was available on age, gender, living situation, school history, qualifications and drug use. In the analyses below, living situation has been dichotomised into those living with both parents (23%) and not living with both parents (77%). Drug use has been dichotomised into those using illegal drugs regularly/daily (60%) and those using drugs occasionally or never (40%). The majority of the participants were men (399, 84%), reflecting the classic gender distribution found in offending statistics. Projects also recorded students' start and end dates and the number of half-day sessions they actually attended during their period of enrolment.

Students were also supposed to be assessed at the beginning and the end of their time on the project on their literacy and numeracy skills, using the Basic Skills Agency (BSA) Initial Assessment. This assessment provides information on levels of literacy and numeracy which map onto international definitions of functional literacy and numeracy (DfEE, 1999). Most young people in Britain are literate and numerate to some degree. However, it has been estimated that nearly a quarter of British adults

(23%) are not 'functionally' literate or numerate (DfEE, 1999). Functional literacy and numeracy is defined as 'the ability to read, write and speak in English and use mathematics at a level necessary to function and progress at work and in society in general' (BSA 1997). The BSA assessment provides the following classifications: below Entry level, Entry level, below Level 1, Level 1, above Level 1. Those achieving Level 1 or above are considered to be functionally literate and numerate.

### **Exit from compulsory schooling**

Most of these young people (n=476) had fairly recently reached school leaving age, (48% were 16 years old, 45% 17 years old and 7% 18 plus). However, only one third had completed compulsory schooling (n=140), about one third had dropped out and about one third had been excluded. It is therefore not surprising that very few had gained any qualifications. When tested, only a little over a third reached the adopted criterion level for functional literacy and numeracy skills (43% of the 283 students tested were Level 1 or above on literacy and 37% were Level 1 or above on numeracy).

### **Attending post school training**

In the domain of Adult Basic skills, keeping students coming to courses is a well-recognised problem and it might be anticipated that these young people's previous relationship with education would be a potential obstacle to engagement in training. The average attendance rate on the INCLUDE programme was good (72% attendance, including authorised absences). Students were expected to be in the programme for twenty-six weeks, and the average length of registration was around nineteen weeks. Overall these are impressive attendance and retention figures,



achieved through intensive support and supervision and through a weekly attendance allowance of forty five pounds. However, some did leave early. Around a third (121 out of 476) stayed for ten weeks or less. Reasons for leaving the project in the first ten weeks were various. Around eighteen percent were taken into custody. A third (35%) moved on to further training or paid employment and project managers commented that it was difficult to dissuade students from taking jobs that paid more than the forty five pounds weekly attendance allowance, even though work was often unskilled and very short term. A further third (34%) just dropped out and the remainder moved out of the area, or reasons for leaving were unclear. To some extent, poor attendance was a symptom of difficulties or disadvantage. Living with both parents, higher literacy levels on entry to the programme and fewer previous offences were all significantly related to more time spent on the programme (established through a multivariate regression analysis). Attendance rates were hard one. Some young people had problems with drugs or alcohol, some found it difficult to get up in the morning and were rounded up by project managers, accommodation crises of one kind or another were not uncommon, there were arguments between students and tutors which needed to be smoothed over, potential employers were hard to find. Young people interviewed frequently mentioned the positive relationships they had with the project staff, for example:

*'Marion was alright, tidy to talk to, a good listener.. helped me get on the schemes, build my confidence up... I didn't want to meet people or nothing, wouldn't get up in the mornings.'*

## **The training programme**

Within the registration period, young people were engaged in a range of activities, tailored as much as possible to their individual interests. Each project had a maximum of ten students on roll and one project manager. The project manager prepared an action plan with each student, organised the student's attendance at college, organised work experience, and supported both students and providers. The majority of students worked for three or four days a week, and spent the rest of the time at college or with the project manager, but the ratio of college to work experience varied according to the student's interest and local circumstances. The focus was on re-engagement with mainstream training and preparation for employment. Both the students and the project managers identified confidence building as an important dimension of this process. Basic skills training was voluntary, but the young people were strongly encouraged to work towards qualifications, both basic skills related and vocational. The accounts of project managers and students clarify the reason why effective programmes for these young people need to be 'multi-modal'. They have a number of things going on in their lives which can disrupt attendance and have diverse needs in terms of training.

## **Qualifications**

Although over ninety percent of these young people had no previous qualifications, a half gained some form of qualification on the programme (165 out of the 323 for whom data was available), in most cases, basic skills related, such as numberpower or wordpower (30%, City and Guilds) or vocational (11%). The likelihood of gaining a qualification was greatly enhanced by longer attendance ( $t=8$ ,  $p<.0001$ ). Those who achieved some accreditation attended for an average of twenty-

two weeks, compared to the average of thirteen weeks for those who left without accreditation.

### **Literacy and numeracy gains**

Pre and post assessments were available on approximately one third of the INCLUDE students on the data base (n=155). The Basic Skills Initial Assessment was used (1 = below Entry level, 2 = Entry level, 3 = below Level 1, 4 = Level 1, 5 = above Level 1) to calculate mean scores before and after the programme. Modest but highly statistically significant gains were made on both literacy and numeracy (literacy, Wilcoxon  $z=3.98$ ,  $p<.0001$ ; numeracy, Wilcoxon  $z=2.98$ ,  $p<.003$ ). The average gain was a third of a level (Table 1) and the percentage of young people reaching the criterion level for functional literacy and numeracy increased over the duration of the programme (Figure 1). Even though much of the time young people were working rather than studying, it would appear that their literacy and numeracy skills tended to improve. We must be cautious in our interpretation because of the high levels of missing data. It seemed likely that the sample of students for whom pre and post test data was available would exclude early drop outs. The tested group had indeed attended a higher number of sessions on average than those for whom no test scores were available (a mean of 147 sessions attended versus a mean of 109 sessions, a highly statistically significant result,  $t=3.5$ ,  $p<.0001$ ). Three projects with less than fifteen percent of students for whom pre and post assessments were unavailable were examined. For this group of sixty four students, significant gains in literacy and numeracy were still observed.

**Table 1 around here**

**Figure 1 around here**

For those students for whom assessments were available, factors related to literacy and numeracy scores were explored using a fixed order regression (with post scores as the dependent variable and controlling for pre scores). Whether or not they lived with both parents, or had left school before school leaving age, or had a more or less severe criminal history, was not associated with progress in their basic skills whilst on the programme. The number of sessions they attended and gender were related to both literacy and numeracy gains (explaining about three percent of the variance). More sessions were associated with greater gains (literacy,  $\beta=.14$ ,  $p<.001$ ; numeracy,  $\beta=.16$ ,  $p<.001$ ). Students attending fewer than a hundred and forty sessions, or fourteen weeks, ( $n=77$ ) did not make significant gains in either literacy or numeracy, those attending more than 140 sessions ( $n=78$ ) made significant gains in both. Girls ( $n=30$ ) made greater gains than boys ( $n=125$ ) (literacy,  $\beta=.11$ ,  $p<.01$ ; numeracy,  $\beta=.11$ ,  $p<.02$ ). Being a regular user of illegal drugs was also associated with less progress in literacy and numeracy, but this was because regular drug users tended to attend less sessions. Once this was taken into account the relationship between drug use and failure to progress disappeared.

### **Re-offending patterns**

All the students on the data base ( $n=476$ ) were submitted to the Police National Computer (PNC) for matching. The PNC records all police disposals, such as warnings and reprimands, and all convictions. Three hundred and seventy three

cases were matched (though most of the remaining 103 students had also committed offences).

Two thirds of these matched students (66%) committed an offence in the year following enrollment. Although this represents a reduction in offending, as everyone had committed an offence prior to enrolling with INCLUDE, it is not a very reassuring figure and the reductions cannot be unquestioningly explained by attendance on the INCLUDE programme. However, it was possible to explore predictors of re-offending within the INCLUDE group using logistic regression. As could be expected, previous offending was highly related to re-offending, (both total number of previous offences, Wald = 5.1,  $p < .02$  and number of offences in the last year,  $t = 6.4$ ,  $p < .01$ , independently predicted re-offending) and these two variables explained twenty two per cent of the variance. Controlling for previous offending, neither number of sessions attended nor qualifications gained were associated with lower rates of re-offending. Pre and post project literacy and numeracy scores were available on one hundred and thirty three of the PNC matched cases and the relationship between improvements in basic skills and offending could be examined for this group. Controlling for previous offending and background factors (gender, school leaving age, living situation, number of sessions attended and drug use), literacy and numeracy gains were significantly associated with lower rates of re-offending (for literacy, Wald = 8.4,  $p < .004$ ; for numeracy, Wald = 4.0,  $p < .05$ ). Lower rates of previous offending, being female and making progress in literacy explained forty two percent of the variance of re-offending (Nagelkerke R Square). It would appear that improving participants literacy and numeracy skills may be an effective way of reducing their offending behaviour.

## **Conclusions**

This study provides evidence that the literacy and numeracy skills of juvenile offenders can be improved by attending an education and training programme, if they attend the course for fourteen weeks or more. The evidence is not conclusive, in particular the lack of a comparison group is problematic. It is possible that such improvement is simply a reflection of maturation. Perhaps anyone tested after fourteen weeks would do better on an assessment. However, if this were the case it is hard to explain how the participants have relatively low scores on the assessments to begin with. Improved scores certainly do not seem to be a function of familiarity with the assessment, because those who were re-tested, but left in the first fourteen weeks, did not improve significantly. The assessments of literacy and numeracy used are fairly crude and although they involve practical questions to some degree, they are not in a context which is immediately relevant to the participants and they are all paper and pencil tasks. Though more sophisticated measures would be helpful, in some ways this make the students' gains more impressive. They spend the majority of their time on the programme gaining work experience rather than studying literacy and numeracy in the abstract. Such situated learning may not be well measured by formal assessments, yet students improved on these formal tests.

The programme itself complies well with the evidence-based guidelines for good practice. It is multi-faceted, addressing the participants pastoral needs as well as their education and training. Students' programmes are individually tailored and are practical and work related rather than formal and de-contextualised. From the education perspective, discussed in the introduction, improvement in basic skills can apparently be achieved in fairly employment-focussed programmes. Indeed one might speculate that this is a strength.

The major barrier identified both to gaining qualifications and to making gains in literacy and numeracy, was low attendance on the programme. An attendance of around fourteen weeks seems to be critical. This affirms the importance of keeping students engaged, not an easy task with people who have recent negative experiences of education and frequently a range of difficulties relating to housing, support networks, drug use and their own disturbing feelings. Intensive project management and a weekly attendance allowance contributed to the relatively good attendance record overall, according to both managers and students. However, not living with both parents (usually this meant living with their mother alone), having lower literacy and numeracy skills or more previous offences all predicted low attendance. These are probably proxy measures for social disadvantage and disengagement. However, the advantage of having better literacy and numeracy scores suggests the possibility of an incremental improvement over a number of training experiences possibly over a number of years.

Finally, what are the programme effects on reconviction? There is little convincing evidence that simply being enrolled on the project reduces offending. Two thirds of students reoffended in the year following enrolment. Again, the lack of a comparison group makes it difficult to interpret this reduction, however, in the original evaluation, a range of other types of programmes were examined and no significant differences in reconviction rates were found between project categories, despite substantial differences in the amount and type of input provided (Hurry and Moriarty, 2004). The fact that the number of sessions attended is also not significantly related to reconviction, after controlling for previous convictions, tends to confirm that attendance is not enough to produce short term effects. However, improvements in literacy and numeracy skills (albeit crudely measured) were associated with a

reduction in reconviction. It is possible that students who made basic skills gains were generally more stable and that it was the stability rather than the improvement in basic skills which explained the reduced rates of offending. To counter this we controlled for a number of background factors, including previous offending history. Literacy and numeracy gains still emerged as important predictors of lowered rates of reconviction. The answer to our third question, 'does improving literacy and numeracy reduce re-offending?' is a tentative yes.



## References

- Adult Learning Inspectorate (2004). *Basic Skills for offenders in the community*.  
Adult Learning Inspectorate: London.
- Andrews, D. (1995) 'The Psychology of Criminal Conduct and Effective Treatment'  
In J. McGuire, ed, *What Works: Reducing Re-offending*, John Wiley & Sons,  
Chichester, pp 35-62.
- Department for Education and Employment (DfEE) (1999). *A Fresh Start: Improving  
Literacy and Numeracy*. Department for Education and Employment,  
London.
- ECOTEC (2001). *Education, Training and Employment*, published by Youth Justice  
Board, London.
- Farrington, D., Gallagher, B., Morley, L., St. Ledger, R. and West, D. (1986)  
Unemployment, school leaving and crime, *British Journal of Criminology*, 26,  
pp 335-356.
- Farrington, D. P. (1995) The Development of Offending and Antisocial Behaviour  
from Childhood: Key Findings from the Cambridge Study in Delinquent  
Development, *Journal of Child Psychology and Psychiatry*, 36, pp 929-964.
- Farrington, D. (1996) *Understanding and preventing youth crime*. Joseph Rowntree,  
York.
- Graham, J. and Bennett, T. (1995) *Crime Prevention Strategies in Europe and North  
America*, Criminal Justice Press, Monsey, NY.

- Hawkins, J.D., Herrenkohl, T.I., Farrington, D.P. Brewer, D., Catalano, R.F., Harachi, T.W. and Cothorn, L. (2000) *Predictors of Youth Violence*, Department of Justice, Washington, US.
- Lipsey, M. (1995) What do we learn from 400 research studies on the effectiveness of treatments with juvenile delinquents. In J. McGuire (Ed.), *What works: reducing re-offending – guidelines from research and practice*, John Wiley & Sons., London, pp 63-78.
- Lipsey, M. W., & Derzon, J. H. (1998) Predictors of violent or serious delinquency in adolescence and early adulthood. In R. Loeber & D. P. Farrington, eds, *Serious and violent juvenile offenders: Risk factors and successful interventions*, Sage Publications, Thousand Oaks, CA, pp 86-105.
- Morris, M., Nelson, J., Stoney, S. (1999) *Disadvantaged Youth: A critical review of the literature on scope, strategies and solutions*, DfEE, Research Brief 169, London.
- Nuttall, C., Goldblatt, P., Lewis, C. (1998) *Reducing Offending: An Assessment of Research Evidence on Ways of Dealing with Offending Behaviour*, HMSO: Home Office Research and Statistics Directorate, London.
- Parsons, S. & Bynner, J. (1999) *Influences on Adult Basic Skills: Factors affecting the development of literacy and numeracy from birth to 37*, The Basic Skills Agency, London.
- Porporino, F. J., & Robinson, D. (1992) The correctional benefits of education: A follow-up of Canadian federal offenders participating in ABE. *Journal of Correctional Education*, 43, 92-98.
- Redondo, S., Sánchez-Meca, J. and Garrido, V. (1999) The Influence of treatment Programmes on the Recidivism of Juvenile and Adult Offenders: An European

Meta-Analytic Review, *Psychology, Crime & Law*, 5, pp 251-278.

Rutter M, Giller H. and Hagell A. (1998) *Antisocial behavior by young people*,  
Cambridge University Press, New York.

Social Exclusion Unit (2002) *Reducing re-offending by ex-prisoners*, Social Exclusion  
Unit, London.

Utting, D. & Vennard, J. (2000) *What Works With Young Offenders in the  
Community?* Barnardos, Ilford.

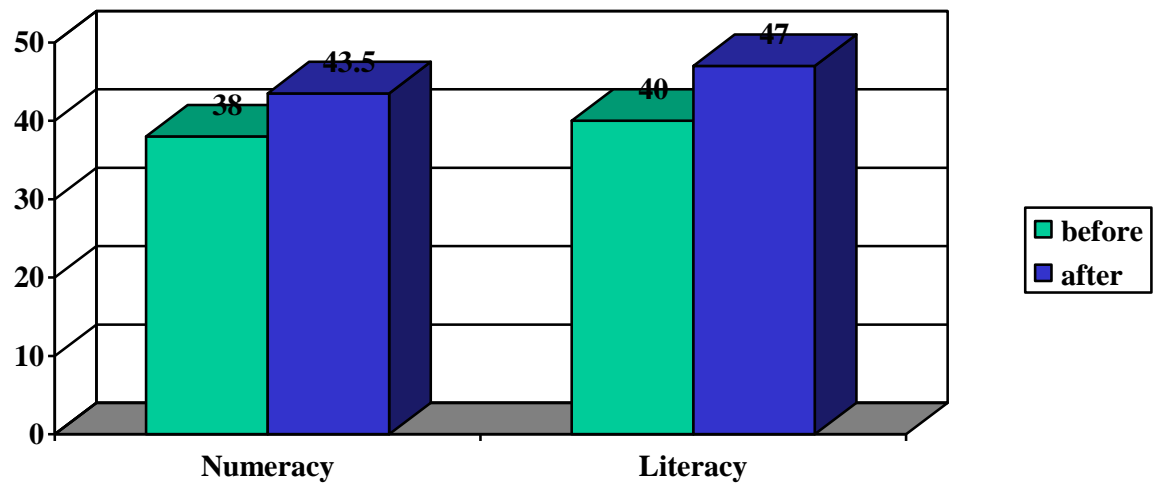
Webster, A., Caddick, B., Reed, M. and Ford, K. (1999) Functional versus critical  
literacy in the rehabilitation of offenders: a survey of probation services in  
England and Wales, *International Journal of Lifelong Education*, Vol. 18, No  
1, pp 49-60.

**Table 1**

**Change in literacy and numeracy attainment (as measured by the Basic Skills**

**Agency Initial Assessment) for INCLUDE projects**

	<b>Literacy before</b>	<b>Literacy after</b>	<b>Numeracy before</b>	<b>Numeracy after</b>
<b>N</b>	155	155	154	155
<b>Mean</b>	3.0	3.3	2.85	3.1
<b>Standard Deviation</b>	1.4	1.4	1.4	1.4



**Figure 1: Per cent of students scoring at Level 1 or above in literacy and numeracy before and after attending the programme**

## **Authors bio-note**

Jane Hurry is a senior lecturer in the school of Psychology and Human Development at the Institute of Education, London University. Her e.mail address is [j.hurry@ioe.ac.uk](mailto:j.hurry@ioe.ac.uk).

Laura Brazier is a research officer in the National Research and Development Centre for Adult Literacy and Numeracy at the Institute of Education, London University. Her e.mail address is [l.brazier@ioe.ac.uk](mailto:l.brazier@ioe.ac.uk).

Viv Moriarty is a lecturer in the school of Early Childhood and Primary Education at the Institute of Education, London University. Her e.mail address is [v.moriarty@ioe.ac.uk](mailto:v.moriarty@ioe.ac.uk).