



Teaching assistants and pupils' academic and social engagement in mainstream schools: insights from systematic literature reviews

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The last twenty years have seen a huge expansion in the additional adults³ working in classrooms in the UK, USA, and other countries. This paper presents the findings of a series of systematic literature reviews about teaching assistants (TAs). The first two reviews focused on stakeholder perceptions of TAs' contributions to academic and social engagement, namely the perceptions of pupils, teachers, TAs, headteachers and parents on four principal contributions that teaching assistants contribute to: pupils' academic and socio-academic engagement; inclusion; maintenance of stakeholder relations; and support for the teacher. The third review explored training of TAs. Against a background of patchy training provision both in the UK and the USA, strong claims are made for the benefits to TAs of training provided, particularly in building confidence and skills. The conclusions include implications for further training and the need for further research to gain an in-depth understanding of the way TAs engage with children.

Keywords: responding diversity social and emotional learning policies practices

Introduction

Recent policy initiatives in the UK have led to growing numbers of TAs in schools. In January 2007 there were 162,900 full time equivalent (FTE) teaching assistants in schools in England, with 431,700 FTE teachers, giving a ratio of 1 TA for every 2.9 teachers. The situation is similar in the USA (National Center for Education Statistics 2003) where there are now over 550,000 teaching assistants in state schools. This significant increase in the number of TAs working in mainstream schools has led to

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discussions about training. The Training and Development Agency for Schools (TDA) stated in their plans for support staff training 2005-06 that ‘Our aim is that all support staff have access to high quality training and development’ (TDA 2005: 4). Mandatory requirements are not in place in the UK though expectations about training are changing. Many Local Education Authorities have introduced requirements and levels for teaching assistants, with pay sometimes related to the level of training. However, there are concerns to address about the take up of training (Russell et al. 2005) which may be due to its voluntary and locally organised nature. Bach, Kessler and Heron’s (2006: 13) research in ten primary schools found that few of the schools had ‘formal induction programmes and training. The emphasis was on individual TAs highlighting their training requirements informally and lobbying the head to support them, rather than the school identifying the training needs of their TAs in a systematic manner.’

In the US, the vast majority of paraprofessionals receive no pre-service training nor any formal in-service training when they move into a different school:

During focus group discussions, paraprofessionals reported feeling “thrown into” their jobs highly unprepared, and, although they do learn many skills on the job, they still stressed the need for pre-service training, on-going in-service training, and other professional development activities’ (Moshoyannis, Pickett and Granick 1999: 5).

In the 1990s, training programmes for TAs seemed to occur as some kind of afterthought (Pickett 1996). French (2001) reviewed on the job training experiences of 321 teachers responsible for paraprofessionals. Teachers on the job often addressed teaching techniques and behaviour management strategies with their support staff in attempts to improve practice, and the most frequently used approaches to training the support staff were ‘telling’ or ‘providing feedback’ (ibid: 48). Learning from the teacher has been reported in UK studies, for example Hughes and Westgate (1997). Training has been patchy (Russell et al. 2005) although TAs are now offered more training than other support staff such as administrative and technical staff (UNISON 2004).

It was in this context that we sought to synthesise existing research about TAs’ contributions to pupils’ engagement and their training for the jobs they do. This paper reports the outcomes of a three year research projects to conduct literature reviews into the work of TAs in mainstream schools.

What is a systematic literature review?

A systematic review is a piece of research following standard methods, in this case prescribed by the EPPI-centre at the Institute of Education, University of London (see www.eppi.ioe.ac.uk). A review explores the findings of primary research to answer a specific question, taking steps to reduce hidden bias and ‘error’ at all stages. It is carried out by a review team and EPPI-Centre staff provides training, support and quality assurance to the review team.

In brief, the steps are:

- identify a principal review question;
- formulate search terms to interrogate electronic databases, and journals;
- formulate ‘exclusion criteria’ to exclude papers which do not address the review question;
- compile a list of papers which address the review question, to create the ‘map’;
- create a database of key information about the studies in the map, called ‘keywording’;
- refine the review question and formulate revised exclusion criteria to identify a small number of papers for in-depth review (see Appendix 1);
- complete a detailed ‘in-depth’ analysis of each paper, a process called ‘in-depth data extraction’;
- write a systematic report on the literature based on the quantitative and qualitative research processes listed above.

The focus of the three reviews

Technical information on the reviews can be found in Appendix 2, but in brief, the first review, “*What is the impact (both measured and perceived) of training on primary and secondary TAs and their ability to support pupils’ learning and engagement?*” (Cajkler et al. 2006) focused on stakeholder perceptions about the contributions of primary school TAs (1988-2003). This led to a map of 145 studies. A reduction to 17 studies was achieved by focusing on studies from the UK/EU, looking at parents’, teachers’, pupils’ and TAs’ perceptions of TAs’ contributions to academic and social engagement in mainstream primary classrooms.

The second review, “*What are the perceptions and experience of the principal educational stakeholders (pupils, parents, teachers and teaching assistants) of what TAs do in relation to pupils’ academic and social engagement in secondary schools?*” (Cajkler et al. 2007a) updated the first, leading to a systematic map of 168 studies that investigated the contribution and roles of TAs (1988-2005). An in-depth analysis of 17 studies was conducted about secondary school TAs in the UK and EU.

For the third review, “*What is the impact (both measured and perceived) of training on primary and secondary TAs and their ability to support pupils’ learning and engagement?*” (Cajkler et al. 2007b), we mapped 81 studies that reported on the training of TAs in three countries (USA, UK and Australia). Sixteen studies were analysed in depth, to identify measured and perceived impacts of award-bearing training programmes on TAs.

Summary of reviews 1 and 2: TA contributions

The first two reviews (Cajkler et al. 2006; Cajkler et al. 2007a) confirmed that the TA’s role is multifaceted, including providing direct instructional support to pupils and acting as an inclusion aide, with four salient contributions:

1. Instruction: Direct academic and socio-academic contributions to pupils: TAs supported pupils directly e.g. mediating teacher inputs and peer interactions.
2. Inclusion: TAs supported the inclusion of pupils by maximising opportunities for pupils to participate constructively in the social and academic experience of schooling.
3. ‘Glue’ function: TAs acted as a link between different stakeholders, gluing the parts together, acting as a go-between, communicator or mediator.
4. Teacher support: TAs performed routine tasks that enabled teachers to focus on securing academic engagement.

In reviews 1 and 2, TA and teacher voices were well represented, in about 70% of the studies. Pupils’ and parents’ opinions about TA work were heard far less often.

Table 1: Stakeholder perceptions in reviews 1 and 2 (N=168)

Stakeholder perceptions	Map for Reviews 1 and 2
TAs	122 (72%)*
Teachers	117 (69%)*
Senior management	57 (34%)*
Pupils	31 (18%)*
Parents	29 (17%)*

** Percentages do not add up to 100% because codes are not mutually exclusive*

TAs saw themselves as key figures in the education of children. Some were aware they could interfere with the integration of pupils both socially and academically but in general TAs claimed to be promoting independence and to be supporting the academic development of pupils. **Teachers** welcomed the support and flexibility that the presence of an additional adult gave them, to bring about inclusive practices. **Headteachers** valued the contributions of TAs in contributing to inclusion but also recognised that TAs could create a culture of dependence and some took steps to brief TAs explicitly on their duties (e.g. Abbott and Moran 2002), the boundaries for which were also discussed in McGarvey et al. (1996).

Pupil perceptions centred around the teaching assistant being someone to listen to them and someone who helped the teacher to cope. However, some pupils could see interventions by TAs as intrusive and unhelpful (Bowers 1997; Jarvis 2003). **Parents** thought TAs were often vital to the education of their children and even to their inclusion (Ebersold 2003). According to parents, trained support workers are significant in securing attendance in lessons and in maintaining relations between pupils and teachers (the 'glueing' function), even accompanying disaffected students to lessons (Vulliamy and Webb 2003).

Summary of review 3: TA training

TAs' training opportunities exist in the UK, USA and elsewhere, but these have grown in relatively haphazard ways despite initiatives such as the Specialist Teaching Assistant (STA) programme in the UK and *No Child Left Behind* (NCLB) criteria in the USA. Where available, training programmes (such as the STA programme in the UK) were believed to be effective in raising awareness, in raising TAs' confidence and subject knowledge, as well as improving their instructional skills. Training led to improvements in confidence and usually to greater self-esteem and sometimes more job satisfaction. Exactly how such impacts are achieved is not clear. In addition, some of the studies reviewed reported a sense of frustration as TAs became more critically aware and ready to challenge teacher knowledge and practice.

UK studies reported on very much the same issues as those in the USA, but in the USA there was more explicit focus on inclusion, especially supporting learners without impeding their inclusion. There are no longitudinal studies of impact, although one study (Hutchings 1997) did ask for feedback one year after training, and others, notably Swann and Loxley (1998) sought to identify how training had changed TAs' involvement in teaching and learning. The latter were not optimistic about the ability of

training to transform the engagement of TAs in the teaching and learning process, as this depended on a range of other factors including teacher readiness. It is worth noting that this paper was the most impressive in terms of quality. Others were flawed in a number of ways e.g. lacking a clear description of the research methodology.

Training programmes focused on instructional skills or inclusion, but few focused on the communication skills needed to work with parents (cf. Lewis 2003). In addition, little attention was given to non-verbal communication, including gesture, gaze or posture. Finally, we learned little from the studies about impacts on pupils.

Findings on behaviour management

The papers within the three systematic reviews were re-analysed to assess the extent to which the role of the teaching assistant was bound up with behaviour management. The re-analysis of the papers suggested that behaviour management is not frequently perceived as an explicit part of the role of the TA.

Table 2: Perceptions of TAs' role in behaviour management

<i>Review</i>	<i>Total studies in map</i>	<i>Studies in map about behaviour</i>	<i>Total studies in in-depth review</i>	<i>Studies in in-depth review about behaviour</i>
1: Perceptions of role in primary sector	145	12	17	2
2: Perceptions of role in secondary sector	168	8	19	1
3: Perceptions of impact of training	81	18	16	4

On the face of it, this relative lack of mention of behaviour management is surprising. One explanation, inferred from papers that touched on behaviour, is that many of the contributions made by TAs feed indirectly into behaviour management. If a TA works on a task with a child who otherwise would not have had individual help, then there is perhaps less scope for the child to be causing

behaviour problems. With a better understanding of the task and a higher motivation to be engaging with it, the child has less reason to be misbehaving thereafter.

Interestingly, the one group of stakeholders most likely to mention behaviour management as part of the role of the TA appeared to be pupils. Bowers (1997: 23) reported that when pupils were asked why TAs were in their classrooms, behaviour management was the second biggest issue, after the need for general help for the teacher who might otherwise “get in a muddle” (quotation from pupil). Very little detail comes through the paper as to what TAs might actually do to manage behaviour, although the following quotation from a 13 year old boy may give some clues: "I think there should be just one teacher in a class. Where there's two that is two of them to nag you instead of one" (p. 230).

Many studies work at a very high level of generality. Even when behaviour management is discussed in studies, it is frequently still not clear precisely what TAs actually do in the name of behaviour management. The implication from studies looking at training is that effectively ‘knowledge leads to greater power’. This conclusion would be consistent with the vague comment reported by Terrell et al. (2004: 12): “Research work has improved pupil behaviour.” Hutchings (1997) also implies, in general terms, that TAs knowing more about behaviour management had positive impacts on children. Swann and Loxley (1998) reported that there was a small increase in TAs’ participation in behaviour management following the course (30% reporting an increase), but since the report was based only on questionnaire evidence, there is no means of making an independent judgement about any activities that took place in this regard. Observations of TAs managing behaviour are therefore needed.

What comes across strongly from numerous studies is the beneficial impact of keeping interventions low-key and / or outside the classroom itself. Two such studies are by Vulliamy and Webb (2003) and Roaf (2003). The former paper was concerned with support workers operating in schools but usually outside the classroom. It is particularly interesting to note that the benefits identified by pupils (p. 279) included preventing confrontational situations in lessons from escalating; prior knowledge that there would be an opportunity to speak to the support worker shortly made a clear positive difference to the behaviour of the pupil in the classroom, with the support often happening outside the room. Roaf (2003), reporting perceptions of TAs working in mainstream secondary contexts, cites an occasion in which a student working away from the classroom for a while gave both the teacher and the student space so that the latter could then re-enter the classroom.

As to low-key interventions, Gittman and Berger (1997) asked TAs to write a brief essay about the beneficial effects of a training course they had attended. A number of effective practices emerged,

including taking a low-key role, ignoring or downplaying poor behaviour, setting clear rules at the beginning, allowing pupils to settle their own disputes. This complements other studies, such as Giangreco et al. (1997) which expresses concern about the extent to which TAs ‘hovered’ over children, decreasing children’s autonomy rather than increasing it, and also limiting their access to the class teacher. Similarly, Skär and Tamm (2001) spoke to young adults with limited mobility about their experiences of assistants whilst children. Many of them spoke about the need for the assistant to know when to stand back to facilitate their own peer group interventions.

Discussion

‘Helping or hovering’: TAs in the frontline

The underlying assumption in deploying TAs is that having additional adults in the classroom is a ‘good thing’ – and, indeed, evidence can be found of excellent work being done. This includes Blatchford et al.’s (2004) long-term study of TAs in English primary schools, which suggests that TAs reinforce learning and engage in processes that involve ‘repetition, practice, reiteration and consolidation’ (p. 37), with more active interaction between pupils and teachers when a TA was present (p. 51). What also emerges from our reviews is that the principal contributions of classroom-based TAs are in support for pupils, particularly direct interactions, rather than in support for teachers. But there are a number of reasons for being cautious in automatically assuming that this is effective.

Tennant (2001) argued that it is the classroom assistant, usually less well qualified than the teacher and almost certainly less well-paid, who does the most difficult teaching in mediating new concepts to children who have learning difficulties and have not understood the teacher’s input. Thomas (1992) noted that in non-educational workplaces a great deal of time and effort goes into building and maintaining effective teams, whereas at the time when classroom support was becoming much more of a reality, it was deployed with little particular thought as to how the team might function.

Other studies in Europe and the USA have referred to the danger of cocooning pupils in over-protective or exclusive webs (Skär and Tamm 2001; Jarvis 2003; Broer et al. 2005). One paper, aptly titled, ‘Helping or hovering?’ (Giangreco et al. 1997) looked at work done by classroom assistants with physically disabled youngsters in mainstream classrooms, including accounts of boys being taken to girls’ toilets because the teaching assistant was female. The paper concluded that often the support provided separated children from the rest of the class and gave them very little autonomy. Jarvis (2003), reporting perceptions of children with hearing loss, found that a number of these pupils complained

about being over-supported: “Sometimes when I stop writing, realising that I have made a mistake, she would leap to the rescue, asking if I wanted any help. Often I said no but she would push me aside and take my work to check. I wish I could conjure something that would freeze her at least for a few minutes” (p. 167). Other studies outside our review, for example Broer et al. (2005)’s study with young adults with intellectual disability, argued for paraprofessionals to consider the social validity of the support they are providing.

Given that promoting inclusion and fostering independence are identified as key components of the TA’s role, there is a clear implication for future research in establishing how TAs might achieve this given the possibility of the opposite actually occurring. This has implications for the training of TAs as to how to work with pupils in a manner which genuinely accomplishes interaction and inclusion.

Conclusion

We believe that further research is required on:

- the quality of the educational experience of children whose main contact is with TAs;
- in what way TAs decide how to provide support and how to avoid hovering;
- how is TAs’ support constructed;
- TA-pupil interaction and discourse patterns;
- views of pupils about TAs;
- the relative merits, within existing budgets, of supporting pupils through the deployment of TAs rather than employing a smaller number of fully qualified teachers acting in a support role, or reducing class sizes.

As regards the training of TAs, well-designed studies are few in number so more evidence is required on how training prepares TAs to:

- support learning and engagement,
- take up their communication roles in managing relationships,
- act as a bridge between teachers and pupils,
- support recent legislation such as No Child Left Behind (USA)/Every Child Matters (UK).

There is every indication, in the UK, USA and many other countries, that the number of TAs is set to increase further, with a corresponding expansion in their responsibilities. This examination of the current literature suggests that we need to review both contributions and training, to arrive at a clearer

understanding of how TAs improve learning and behaviour, how they converse with pupils and how they support teachers. Given the increase in resources devoted both to employing and training TAs, there is the need to ensure that this money is spent most effectively in supporting pupils in need of help for whatever reason.

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References

- Achilles, C. M., Finn J.D., Gerber S., and Zaharias J.B. (2000) It's time to drop the other shoe: the evidence on teacher aides. Paper presented at the Annual Meeting of the Mid-South Educational Research Association. Bowling Green, New York: November 15-17.
- Audit Commission (1992). *Getting the act together: provision for pupils with special educational needs: a management handbook for schools and local education authorities*. London: HMSO.
- Bach, S., Kessler, I., and Heron, P. (2006). Changing job boundaries and workforce reform: the case of teaching assistants. *Industrial Relations Journal*, 37(1): 2-21.
- Bennett, J., Lubben, F., Hogarth, S., and Campbell, B. (2005). Systematic reviews of research in science education: rigour or rigidity? *International Journal of Science Education*, 27(4): 387-406.
- Blatchford, P., Russell, A., Bassett, P., Brown, P., and Martin, C. (2004), The role and effects of teaching assistants in English primary schools (years 4 to 6) 2000-2003: results from the Class Size and Pupil Ratios (CSPAR) KS2 project, Institute of Education, University of London.

- Bowers, T. (1997). Supporting special needs in the mainstream classroom: children's perceptions of the adult role. *Child Care Health and Development*, 23(3): 217-232.
- Broer, S. M., Doyle, M. B., and Giangreco, M. F. (2005). Perspectives of students with intellectual disabilities about their experiences with paraprofessional support. *Exceptional Children*, 71(4): 415-430.
- Cajkler, W., Tennant, G., Cooper, P. W., Sage, R., Tansey, R., Taylor, C., Tucker, S., and Tiknaz, Y. (2006). *A systematic literature review on the perceptions of ways in which support staff work to support pupils' social and academic engagement in primary classrooms (1988-2003)*. London: EPPI Centre, Institute of Education.
- Cajkler, W., Tennant, G., Tiknaz, Y., Sage, R., Taylor, C., Tucker, S., Tansey, R., and Cooper, P. W. (2007a). *A systematic literature review on the perceptions of ways in which teaching assistants work to support pupils' social and academic engagement in secondary classrooms (1988-2005)*. London: EPPI Centre, Institute of Education.
- Cajkler, W., Tennant, G., Tiknaz, Y., Sage, R., Tucker, S., and Taylor, C. (2007b). *A systematic literature review on how training and professional development activities impact on teaching assistants' classroom practice (1988-2006)*. London: EPPI Centre, Institute of Education.
- DES (1978). *Report of the Committee of Inquiry into the education of handicapped children and young people, chaired by Baroness Mary Warnock*. London: HMSO.
- DFEE (1999). *Additional literacy support*. London: DfEE.
- DFES (2000). *Working with teaching assistants: a good practice guide*. London: DfES.
- DFES (2002). *Schools achieving success*. London: HMSO.
- DFES (2003). *Raising standards and tackling workload: a national agreement*. London: HMSO.
- DFES (2004). *Removing barriers to achievement: the Government's strategy for SEN. Executive summary*. London: HMSO.
- DFES (2007). *National statistics first release: school workforce in England*. London: Department for Education and Skills.
- Ebersold, S. (2003). Inclusion and mainstream education: an equal cooperation system. *European Journal of Special Needs Education*, 18(1): 89-107.
- Equal Opportunities Commission (2007). *Valuable assets: a general formal investigation into the role and status of classroom assistants in Scottish schools, summary report*. Glasgow: EOC.

- Farrell, P., Balshaw, M. H., and Polat, F. (1999). *The management, role and training of learning support assistants*. London: DfEE.
- Fox, G. (1998). *A handbook for learning support assistants: teachers and assistants working together*. London: David Fulton Publishers.
- French, N. K. (2001). Supervising paraprofessionals: a survey of teacher practices. *Journal of Special Education*, 35(1): 41-53.
- Giangreco, M. F., Edelman, S. W., Luiselli, T. E., and Macfarland, S. Z. C. (1997). Helping or hovering? Effects of instructional assistant proximity on students with disabilities. *Exceptional Children*, 65(1): 7-18.
- Gittman, E., and Berger, R. (1997). Impact of teacher education courses on paraprofessionals' job performance, knowledge and goals. Conference paper at *Annual Meeting of the Northeastern Educational Research Association* 22nd October 1997.
- Hancock, R., Swann, W., Marr, A., and Turner, J. (2001). *Classroom Assistants in the Primary School: Employment and Deployment* (pp. 1-23): The Open University Faculty of Education and Language Studies.
- HMI (1992). *Non-teaching staff in schools*. London: HMSO.
- Howes, A., Farrell, P., Kaplan, I., and Moss, S. (2003). *The impact of paid adult support on the participation and learning of pupils in mainstream schools*. London: EPPI-Centre, Institute of Education.
- Hughes, M., and Westgate, D. (1997). Assistants as talk-partners in early-years classrooms: some issues of support and development. *Educational Review*, 49(1): 5-12.
- Hutchings, M. (1997). The impact of a specialist teacher assistant training programme on the development of classroom assistants *Early Years*, 18(1): 35-39.
- Jarvis, J. (2003). 'It's more peaceful without any support': what do deaf pupils think about the support they receive in mainstream schools? *Support for Learning*, 18(4): 162-169.
- Kerry, T. (2001). *Working with support staff: their roles and effective management in schools* Harlow: Pearsons Education.
- Lacey, P. (2001). The role of learning support assistants in the inclusive learning of pupils with severe and profound learning difficulties. *Educational Review*, 53(2): 157-167.
- Lewis, K. (2003). Colleagues or cultural brokers? Instructional aides' relationships with teachers and parents. Conference paper at *Annual Meeting of the American Educational Research*

Association Chicago.

- Mcgarvey, B., Marriott, S., Morgan, V., and Abbott, L. (1996). A study of auxiliary support in some primary classrooms: Extra hands and extra eyes. *Educational Research*, 38(3): 293-305.
- Moshoyannis, T., Pickett, A. L., and Granick, L. (1999). *The evolving roles and education/training needs of teacher and paraprofessional teams in New York City public schools: results of survey and focus group research*. New York: New York City Board of Education.
- National Center for Educational Statistics (2003). *Digest of education statistics*. Washington DC: US Department of Education.
- Pickett, A. L. (1996). Factors that influence the performance, development and supervision of paraeducators in inclusive classrooms. *TASH Newsletter*, 22(9): 7-8.
- Roaf, C. (2003). Learning support assistants talk about inclusion. In M. Nind, J. Rix, K. Sheehy and K. Simmons (eds.) *Inclusive education: diverse perspectives*. (pp. 221-240). London: David Fulton Publishers.
- Romano, J. L. (1999). Prevention training of paraprofessionals in the schools: an examination of relevancy and effectiveness. *Journal of Drug Education*, 29(4): 373-386.
- Russell, A., Blatchford, P., Bassett, P., Brown, P., and Martin, C. (2005). The views of teaching assistants in English Key Stage 2 classes on their role, training and job satisfaction. *Educational Research*, 47(2): 175-189.
- Savage, R., and Carless, S. (2005). Learning support assistants can deliver effective reading interventions for 'at-risk' children. *Educational Research*, 47(1): 45-61.
- Schmidt, K., and Greenough, R. (2002). *Designing state and local policies for the professional development of instructional paraeducators*. Portland, Oregon: Northwest Regional Educational Laboratory.
- Skar, L., and Tamm, M. (2001). My assistant and I: disabled children's and adolescents' roles and relationships to their assistants. *Disability and Society*, 16(7): 917-931.
- Swann, W., and Loxley, A. (1998). The impact of school-based training on classroom assistants in primary schools. *Research Papers in Education*, 13(2): 141-160.
- Tennant, G. D. (2001). The rhetoric and reality of learning support in the classroom: towards a synthesis. *Support for Learning*, 16(4): 178-182.

- Terrell, I. R., Gina, and Down, J. (2004). Developing the role and effectiveness of teacher support staff through an innovative online graduate programme. Conference paper at *British Educational Research Association Annual Conference* University of Manchester. 16th-18th September 2004.
- Thomas, G. (1992). *Effective classroom teamwork: support or intrusion?* London: Routledge.
- Torgerson, C. (2003). *Systematic reviews*. London: Continuum.
- Training And Development Agency (2005). *Building the school team: our plans for support staff training and development 2005-06*. London: TDA.
- Unison (2004). *School support staff survey 2004: commissioned from the Labour Research Department*. London: UNISON.
- Vulliamy, G., and Webb, R. (2003). Supporting disaffected pupils: perspectives from the pupils, their parents and their teachers. *Educational Research*, 45(3): 275–286.
- Wall, S., Davis, K. L., Winkler Crowley, A. L., and White, L. L. (2005). The urban paraeducator goes to college. *Remedial and Special Education*, 26(3): 183-190.
- Wilson, V., Schlapp, U., and Davidson, J. (2002). *More than an extra pair of hands? SCRE research report*. Edinburgh: Scottish Council for Research in Education.

Appendix 1: Papers included in the in-depth reviews.

The three maps consisted of 260 papers. Here we present the indepth studies for Reviews 1 and 2 (Perceptions about TA contributions to academic and social engagement) and Review 3 (training). A full list can be supplied on request to the authors.

Review 1 (primary schools) (N = 17)

- Baskind, S., and Monkman, H. (1998). Are assistants effectively supporting hearing-impaired children in mainstream schools? *Deafness and Education*, 22(1): 15-22.
- Bowers, T. (1997). Supporting special seeds in the mainstream classroom: Children's perceptions of the adult role. *Child Care Health and Development*, 23(3): 217-232.
- Cable, C. (2003) *Bilingual teaching assistants: their contribution to learning*. Paper presented at the British Educational Research Association Annual Conference. Herriot-Watt University, Edinburgh: September: 11-13.
- Cable, C. (2004) 'I'm going to bring my sense of identity to this': the role and contribution of bilingual teaching assistants, *Westminster Studies in Education*, 27 (2)::207-222
- Clayton, T. (1993) From domestic helper to assistant teacher: the changing role of the British classroom assistant, *European Journal of Special Needs Education*, 8: 32-44.
- Ebersold, S. (2003). Inclusion and mainstream education: An equal cooperation system. *European Journal of Special Needs Education*, 18(1): 89-107.
- Farrell, P., Balshaw, M. and Polat, F. (1999) *The Management, Role and Training of Learning Support Assistants*. London: Department of Education and Employment.
- Hancock, R., Swann, W., Marr, A., & Turner, J. (2001). *Classroom Assistants in the Primary School: Employment and Deployment* (pp. 1-23): The Open University Faculty of Education and Language Studies.
- Hancock, R., Swann, W., Marr, A., Turner, J., and Cable, C. (2002). *Classroom assistants in primary schools: employment and deployment* (pp. 1-41): The Open University Faculty of Education and Language Studies Centre for Curriculum and Teaching Studies.
- Hemmingsson, H., Borell, L., and Gustavsson, A. (2003). Participation in School: School Assistants Creating Opportunities and Obstacles for Pupils with Disabilities. *OTJR: Occupation, Participation and Health*, 23(3): 88-98.

- Lacey, P. (2001). The role of learning support assistants in the inclusive learning of pupils with severe and profound learning difficulties. *Educational Review*, 53(2): 157-167.
- McGarvey, B., Marriott, S., Morgan, V., and Abbott, L. (1996). A study of auxiliary support in some primary classrooms: Extra hands and extra eyes. *Educational Research*, 38(3): 293-305.
- Moran, A., and Abbott, L. (2002). Developing inclusive schools: The pivotal role of teaching assistants in promoting inclusion in special and mainstream schools in Northern Ireland. *European Journal of Special Needs Education*, 17(2): 161-173.
- Mortimore, P., Mortimore, J., and Hywel, T. (1994a). Primary School Case Studies. In P. Mortimore, J. Mortimore and H. Thomas (eds.), *Managing Associate Staff: New Roles in Primary and Secondary Schools*. (pp. 26-59). London: Paul Chapman Publishing Ltd.
- Moyles, J., and Suschitzky, W. (1997). *Jills of all trades: Classroom assistants in KS1 classes*. London: ATL (Association of Teachers and Lecturers).
- Neill, S. R. S. J. (2002a). Teaching assistants: a survey analysed for the National Union of Teachers by the Teacher Research and Development Unit, Institute of Education, University of Warwick (pp. 85).
- O'Brien, T., and Garner, P. (2001). *Untold Stories: Learning Support Assistants and Their Work*. Stoke-on-Trent: Trentham Books.
- Shaw, L. (2001) *Learning Supporters and Inclusion: Roles, Rewards, Concerns, Challenges*. Bristol: Centre for Studies on Inclusive Education.
- Wilson, V., Schlapp, U., and Davidson, J. (2002a). *More Than an Extra Pair of Hands? Evaluation of the Classroom Assistants Initiative* (pp. 120). Edinburgh: SCRE.

Review 2 (secondary schools) (N=17)

- Bowers, T. (1997) Supporting special needs in the mainstream classroom: children's perceptions of the adult role. *Child Care Health and Development* 23: 217-232.
- Chambers, G. N. and Pearson, S (2004) Supported access to modern foreign language lessons. *Language Learning Journal*, 29: 32-41.
- Ebersold, S. (2003) Inclusion and mainstream education: an equal cooperation system. *European Journal of Special Needs Education*, 18: 89-107.
- Farrell, P. , Balshaw, M. and Polat, F. (1999) *The Management, Role and Training of Learning Support Assistants*. London: Department of Education and Employment.

- Golze, S. (2002) Perceptions of support staff: how they see themselves and how others see them. *Education Today*, 52: 39-44.
- Hemmingsson, H., Borell, L. and Gustavsson, A. (2003) Participation in school: school assistants creating opportunities and obstacles for pupils with disabilities. *OTJR: Occupation, Participation and Health*, 23: 88-98.
- Jarvis, J. (2003) 'It's more peaceful without any support': what do deaf pupils think about the support they receive in mainstream schools? *Support for Learning*, 18: 162-169.
- Jerwood, L. (1999) Using special needs assistants effectively. *British Journal of Special Education*, 26: 127-129.
- Kerry, C.A. (2002) Support staff as mentors: a case study of innovation. *Education Today*, 52: 3-12
- Mencap (1999). *On a wing and a prayer: inclusion and children with severe learning difficulties*. London: MENCAP.
- Moran, A., and Abbott, L. (2002) Developing inclusive schools: The pivotal role of teaching assistants in promoting inclusion in special and mainstream schools in Northern Ireland. *European Journal of Special Needs Education*, 17: 161-173.
- Mortimore, P., Mortimore, J., and Thomas, H. (1994b). Secondary School Case Studies. In P. Mortimore and J. M. a. H. Thomas(eds.), *Managing Associate Staff: New Roles in Primary and Secondary Schools*. (pp. 86-141). London: Paul Chapman Publishing Ltd.
- Neill, S. R. S. J. (2002a). *Teaching assistants: a survey analysed for the National Union of Teachers by the Teacher Research and Development Unit*, Institute of Education, University of Warwick (pp. 85).
- O'Brien, T. and Garner, P. (2001) *Untold Stories: Learning Support Assistants and their Work*. Stoke-on-Trent: Trentham Books.
- Roaf, C. (2003). Learning support assistants talk about inclusion. In Nind M., Rix J., Sheehy K., Simmons K., *Inclusive Education: Diverse Perspectives*. London: David Fulton Publishers in association with The Open University, pp. 221-240.
- Shaw, L. (2001) *Learning Supporters and Inclusion: Roles, Rewards, Concerns, Challenges*. Bristol: Centre for Studies on Inclusive Education.
- Vulliamy, G. and Webb, R. (2003) Supporting disaffected pupils: perspectives from the pupils, their parents and their teachers. *Educational Research*, 45: 275-286.

Review 3 (training-related)

- Blalock, G., Rivera, D., Anderson, K., and Kottler, B. (1992). A school district/university partnership in paraprofessional training. *LD Forum*, 17(3): 29-36.
- Broadbent, C., and Burgess, J. (2003). Building effective inclusive classrooms through supporting the professional learning of special needs teacher assistants. Adult Learning Australia (ALA). Conference (43rd: 2003 : Sydney)
- Edmond, N. (2003). School-based learning: constraints and limitations in learning from school experience for teaching assistants. *Journal of Education for Teaching*, 29(2): 113-123.
- Edwards, E., and Clemson, D. (1997). Reflections on the Comparative Roles of the NNEB Diploma in Nursery Nursing and the Specialist Teacher Assistant Certificate. Paper presented at the British Educational Research Association Annual Conference (September 11-14 1997: University of York)
- Forbush, D. E., and Morgan, R. L. (2004). Instructional Team Training: Delivering Live Internet Courses to Teachers and Paraprofessionals in Utah. *Rural Special Education Quarterly*. 23(2): 9-17.
- Giangreco, M. F., Backus, L., Cichoskikelly, E., Sherman, P., and Mavropoulos, Y. (2003a). Paraeducator Training Materials to Facilitate Inclusive Education: Initial Field-Test Data. *Rural Special Education Quarterly*, 22 Part 1: 17-27.
- Gittman, E., and Berger, R. (1997). *Impact of Teacher Education Courses on Paraprofessionals' Job Performance, Knowledge, and Goals*. (pp. 15). USA; New-York. Paper presented at the Annual Meeting of the Northeastern Educational Research Association (October 22, 1997).
- Hutchings, M. (1997). The impact of a specialist teacher assistant training programme on the development of classroom assistants. *Early Years*, 18(1): 35-39.
- O'Keefe, J., and Tait, K. (2004). An examination of the UK Early Years Foundation Degree and the evolution of Senior Practitioners - enhancing work-based practice by engaging in reflective and critical thinking. *International Journal of Early Years Education*, 12(1): 25-41.
- Pye Tait For Training And Development Agency (TDA) (2006). *Evaluation of the Higher Level Teaching Assistant Training and Assessment Programme*. Harrogate: Pye Tait for the Training and Development Agency (TDA)
- Romano, J. L. (1999). Prevention Training of Paraprofessionals in the Schools: An Examination of Relevancy and Effectiveness. *Journal of Drug Education*, 29(4): 373-386.

- Ryall, A., and Goddard, G. (2003). Support staff in primary school: reflections upon the benefits of training and implications for schools. *Education 3-13*, 31(1): 72-78.
- Sack, S., H., and McLean, L., K. (1997). Training Communication Partners: The New Challenge for Communication Disorders Professionals Supporting Persons with Severe Disabilities. *Focus on Autism and Other Developmental Disabilities*, 12(3): 151-58.
- Swann, W., and Loxley, A. (1998). The impact of school-based training on classroom assistants in primary schools. *Research Papers in Education*, 13(2): 141-160.
- Terrell, I., Revill, G., and Down, J. (2004). Developing the role and effectiveness of teacher support staff through an innovative online graduate programme, Paper presented at the British Educational Research Association Annual Conference, University of Manchester, 16-18 September 2004.
- Wilkins, R. (2004). Developing School Support Staff through practice development groups. *Education Today: Journal of the College of Preceptors*, 54(4): 24-28.

Appendix 2: Technical information on the literature reviews

Review 1 (Cajkler et al. 2006)

Original review question: What are the perceptions and experience of the principal educational stakeholders (pupils, parents, teachers and pupil support staff) of what support staff do in relation to pupils' academic and social engagement?

Publication dates covered: 1988-2003

Total papers screened: 9 966

Total papers acquired: 440 (full screening)

Total papers in map: 145 studies (162 papers)

Refined focus: primary schools in the UK / EU

Papers in in-depth review: 17 studies (27 papers): see Appendix 1

Review 2 (Cajkler et al. 2007a)

Original review question: What are the perceptions and experience of the principal educational stakeholders (pupils, parents, teachers and teaching assistants) of what TAs do in relation to pupils' academic and social engagement in secondary schools?

Publication dates covered: 1988-2005

Total papers screened: 10 545

Total papers acquired: 511 (full screening)

Total papers in map: 168 studies (186 reporting)

Refined focus: secondary schools in the UK / EU

Papers in in-depth review: 17: see Appendix 1

Review 3 (Cajkler et al. 2007b)

Original review question: What is the impact (both measured and perceived) of training on primary and secondary TAs and their ability to support pupils' learning and engagement?

Publication dates covered: 1988-2006

Total papers screened: 9 604

Total papers acquired: 581 (full screening)

Total papers in map: 81 studies (82 papers)

Refined focus: award bearing training programmes (UK/USA/AUS)

Papers in in-depth review: 16: see Appendix 1