The Role and Effects of Teaching Assistants in English Primary Schools (Years 4 to 6) 2000 - 2003

Results from the Class Size and Pupil Adult Ratios (CSPAR) KS2 Project

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ABSTRACT

It is widely assumed that increasing the number of Teaching Assistants (TAs) in the classroom will be beneficial to children, and this is one important aim of the recently implemented Workforce Agreement. But there are still significant gaps in knowledge about many aspects of their deployment and impact. The Class Size and Pupil-Adult Ratio (CSPAR) KS2 study built on earlier findings when the pupils were in reception and KS1 and investigated: 1. the deployment of TAs in classrooms and how key parties involved perceived this; 2. the effect of TAs on interactions involving pupils and teachers in the same classrooms, and on pupil attainments.

The study had a longitudinal, mixed method and multi-informant design. There were 202 schools, 332 classes and 8728 pupils in Y4. Methods of data collection included: for the whole sample) questionnaires completed by TAs, teachers and head teachers, assessments of pupil attainments in mathematics, English and science, data on pupil background, and (for a sub-sample) case studies and a systematic observation study.

This study found that the TA's role in KS2 is predominantly a direct one, in the sense of face-to-face interactions supporting certain pupils. There was no evidence that the presence of TAs, or any characteristic of TAs, had a measurable effect on pupil attainment. However, results were clear in showing that TAs had an indirect effect on teaching, e.g., pupils had a more active form of interaction with the teacher and there was more individualised teacher attention. This supported teachers' views that TAs are effective in supporting them in this way. We conclude that more attention needs to be paid to what we call the pedagogical role of TAs so that they can be used effectively to help teachers and pupils, particularly in the context of the enhanced roles for TAs being introduced as part of the Government's remodeling agenda.

Introduction

Results presented in this paper come from the Institute of Education Class Size and Pupil-adult Ratios (CSPAR) Project. This is a longitudinal, multi-method study that has followed pupils over KS1 and KS2 (4-11 years, 1996-2003). Results on the deployment and effects of Teaching Assistants (TAs) from the KS1 stage of the study have been reported in Blatchford (2003a) and Blatchford, Martin, Moriarty, Bassett and Goldstein (2002). We have also published our results on the effects of class size on attainment and classroom processes in a number of publications, for example, Blatchford (2003a) and Blatchford, Bassett, Goldstein and Martin (2003).

The KS2 study concentrated specifically on the deployment, role and effect of TAs in English schools in Years 4-6 (pupils aged 7-11 years). Though it is widely assumed and hoped that increasing the number of adults in the classroom will be beneficial to children there are still vigorous debates about the educational consequences, and, importantly, there are still significant gaps in knowledge about many aspects of the impact and effectiveness of TAs. Moreover, there are important changes in child development and curriculum over KS2, and little is known about the possibly changing role of support staff at this stage. The Workforce Agreement between the Department for Education and Skills (DfES), Local Education Authority (LEA) employers and some trade unions implemented since September 2003, seeks to enhance the role of TAs. Although data collection for the study reported here pre-dates the Agreement, its results have clear implications for the remodeling agenda arising from the Agreement.

The KS2 study therefore concentrated on:

1.the deployment of TAs in classrooms and how the key parties involved perceived this;

2.the effect the presence of TAs had on interactions involving pupils and teachers in the same classrooms, and on pupil attainments.

Background

Recently there has been a large investment in increasing levels of support staff. Latest information from the DfES shows that, for the period January 1997 to January 2003, there has been a dramatic 66% increase in all support staff in English schools. There has been a 99% increase in Teaching Assistants, including SEN support staff and minority ethnic support staff; a 29% increase in administration staff (despite a slight decline in school secretaries); a 41% increase in technical staff; and a 47% increase in other support staff including medical staff.

There are now a variety of different kinds of support staff. Some have roles in the classroom, such as Teaching Assistants and nursery nurses; some have specialist input to child learning, such as music and creative arts specialists; some have administrative roles that can directly affect a teacher's time in the classroom; and some have roles which have little direct bearing on classroom learning, such as caretakers. In this paper we restrict our attention to staff who would be called Teaching Assistants, and not other categories of support staff. For convenience, they will be referred to as 'TAs'.

Deployment of TAs

A number of studies have identified difficulties concerning the boundaries between teaching and non-teaching roles, and the existence of grey areas where uncertainty exists. This lies at the heart of controversy over the expansion of support staff in schools and is why some teacher organizations are concerned that TAs may take over roles and responsibilities that should be carried out by teachers. Mortimore, Mortimore, Thomas, Cairns and Taggart (1992) have addressed a specific version of this issue in terms of when it is appropriate to consider TAs 'substituting' or 'augmenting' the teachers' role. More recently, in an evaluation of the recent Scottish increase in Classroom Assistants (their preferred term), it was found that boundaries between the teacher's role and the CA's role were sometimes unclear and some CAs were judged to overstep a boundary into teaching (Schlapp, Wilson & Davidson, 2001). MENCAP (no date) has recently pointed to the lack of clarity in roles and responsibilities between teachers and LSAs working with pupils with SLD and PMLD. Other studies

have also addressed the teaching role of TAs. Schlapp et al (2001) suggest that TAs can offer possible benefits for pupil learning, including a wider range of learning experiences, more interactions with adults, increased practical activities, and reinforcement of learning.

Our aim in the KS2 study was to obtain a current description of the deployment of TAs in English schools in Years 4-6, and in particular their role in classrooms and how this is perceived by the key parties involved - TAs themselves, teachers and head teachers. We wanted to establish the extent and ways in which TAs supported pupils directly, thereby having a direct role in their learning, and the extent and ways in which they supported pupils indirectly through administrative and other support for the teacher.

Impact of support staff

There are particular gaps in knowledge about the impact of TAs in schools. Many studies paint a largely positive picture (e.g., HMI, 2002; Mortimore et al., 1992; HMI, 2001; HMI, 2002) but for the most part, evidence is based on teachers' reports. The CSPAR KS1 study also found that teachers were largely positive about the contribution of TAs in schools. This was seen in terms of: a. increased attention and support for learning (e.g., more one to one attention, support for children with SEN and support for teaching of literacy); b. increased teaching effectiveness (e.g., in terms of productive group work, productive creative and practical activities, lesson delivery and curriculum coverage); c. effective classroom management; and d. effects on children's learning outcomes (Blatchford et al, 2002). Evidence from studies that have addressed the effects of TAs on pupil outcomes in a more systematic way, e.g., by a numerical analysis of connections between support staff provision and pupil attainment test scores, are not conclusive. Schlapp et al (2001) were forced to conclude that they could not say whether a recent Scottish initiative to increase support staff in schools had led to improvement in pupil outcomes. A recent systematic review (Howes, Farrell, Kaplan and Moss, 2003) identified the CSPAR KS1 study (Blatchford et al, 2002) as one of only a very few studies of sufficiently high quality to warrant inclusion. It found no appreciable effect of the presence of TAs in classrooms on

pupils' academic progress in primary schools. Other studies report similar results; for example, Finn, Gerber, Farber and Achilles (2000), on the basis of data from the often-cited Tennessee STAR project, found that there was no compensatory effect of having extra staff in larger ('regular') classes. This negative finding is also found in other recent research (Muijs and Reynolds, 2002).

There are huge challenges for research seeking to measure effects of TAs on pupil outcomes in the context of normal school conditions. We describe our research approach below. Overall, our aim was to assess in a reliable way whether there was an effect of TAs on pupil attainment over the second half of primary education, that is, over KS2. There are many important changes to children over these years, and to the curriculum and assessment arrangements, which will have implications for pupils' learning and teaching, and little is known about the possibly changing role of support staff over this stage.

One can conceive of the impact of TAs not just in terms of pupil learning and attainment, but also in relation to pupil and teacher behaviour in the classroom. Once again, there is only relatively anecdotal evidence, and we also wanted, on the basis of systematic observations, as well as questionnaires completed by the key parties involved, and case studies, to provide a more reliable account of the effect of TAs on interactions involving pupils and teachers in the same classrooms.

Method

Research Approach

The KS2 study had the same longitudinal, mixed method and multi-informant design as the KS1 study (see Blatchford et al, 2003), with data collection organised around a common set of objectives and themes. We collected quantitative information that would enable us to address basic questions on relationships between class size and the presence of TAs, on the one hand, and teacher and pupil behaviour in class and children's school attainments, on the other hand. But we also wanted a more

qualitative assessment of the contribution of class size and Teaching Assistants, through the use of methods that captured practitioners' experiences, and through detailed case studies. In the KS2 stage of the research there were several additional methods of data collection, including a questionnaire survey of TAs, conducted when pupils were in Years 4-6, designed to get information on, for example, their deployment in classrooms and more detailed information on TAs which could be entered into statistical models designed to identify connections with pupil attainment outcomes. Another feature of the KS2 study was a systematic observation study, conducted when the pupils were in Y6, designed to assess what impact the presence of TAs had on their behaviour and that of the teachers.

Sample

The KS1 stage of the Class Size and Pupil-adult Ratio Project followed for three years a large cohort of pupils who entered reception classes during 1996/7, and a second separate cohort of pupils who entered reception classes one year later during 1997/8. Numbers of LEAs, schools, classes and pupils in each cohort can be found in Blatchford (2003a). The research design involved a random selection of schools within the participating LEAs. All children entering reception in a selected school during the year were included in the study.

The KS2 phase of the research followed for a further three years a large cohort of pupils who entered Year 4 during 2000-2001. Because of the time it took to organise the KS2 research grant, and the time required to locate samples of pupils, it was not possible to obtain data on children during Year 3. We also did not follow up the second KS1 cohort schools.

The KS2 sample was comprised of the following schools:

1. 75 Schools who were part of the Key Stage One study of Class Size and Pupil-adult Ratios Project ('Continuing Schools') and had agreed to continue with the research.

2. 17 Schools not previously part of the research, but now attended by pupils who were part of the Key Stage One study. For example, Junior schools attended by pupils who had been attending infant schools ('Destination Schools').
3. 110 Schools not previously involved with the study ('New Schools').

Table 1 gives basic information on numbers of schools, classes and pupils

Table 1 here

Data Collection

There were a number of forms of data collected in the study. As described above, the aim was to use the strengths of different approaches in a complementary way and to check for consistencies across different forms of data, thereby strengthening the validity of conclusions. Main categories of data collected were as follows:

For the whole sample:

1. *Data on class size, pupil-adult ratios and TAs*: this came from (termly) questionnaires completed by teachers which asked a number of questions concerning numbers of pupils on the register and at given times during designated times and days. Questions also covered numbers, and types, of additional adults in the classroom, i.e., in terms of whether TAs, SENCOs, parents, etc.
2. *Data on teacher activities*: information on teacher activities at given times and days were drawn from the same teacher completed questionnaires. This provided measures of time devoted to management and other non-teaching activities and time involved in a number of pre-specified teaching activities and curriculum coverage.

3. *Teacher questionnaires* that asked for information on biographical details (e.g., age, experience, posts of responsibility, qualifications and in-service courses and training) and views and experiences on a range of issues, including the effect support from TAs had on teaching and learning.
4. *Head teacher questionnaires* that asked for information on a number of issues including allocation of teachers and TAs to classrooms, and policies on training of TAs.
5. *Teaching Assistant Questionnaires* which asked for biographical details (e.g., age, experience, qualifications and in-service courses and training), the nature of their work in schools and deployment in classrooms, the extent to which they have allocated time for planning tasks and activities, and feedback and discussion with teachers, and their professional satisfaction.
6. *Assessments of pupils* in maths and literacy: these were test scores from KS1, including end of KS1 SATs results, QCA designed tests for the end of year 4 and 5 (optional but conducted in almost all the study schools), and end of year 6 KS2 SATs scores (in terms of raw scores in maths, English and science sent to us by schools, once marked and returned to them by the QCA).
7. *Pupil background details* including age, sex, free school meal entitlement, English language fluency, previous nursery education, attendance and special educational needs.

For a sub-sample of schools**:**

8. *Case Studies* of a sub-sample of classes of a different size in years 5 and 6: these aimed to provide a more detailed portrayal of individual classes, which provided the basis for a more interpretive and grounded analysis of factors related to size of class and deployment of TAs. The methodology involved definition of selected aspects of classroom learning and experience and the collection of data from:

   a) whole class and selected child observations in terms of event sampling of significant events;

   b) semi-structured interviews with teachers, TAs and pupils;

c) end of session/day comments and judgements by field workers;

d) summative judgements by field workers, all organised in terms of the main Headings.

This component made use of experienced teachers as field workers. Quite deliberately, the aim was to marry aspects of classroom observation (which emphasises the objectivity of data), with professional and interpretive judgments by experienced teachers.

9. *Systematic observations*. The observation component involved a sub sample of small and large year 6 classes. We used a systematic observation schedule that had been developed in previous research (Tizard, Blatchford, Burke, Farquhar & Plewis, 1988) and was used in the study of pupils when in the reception year (Blatchford, 2003a & b). Classes were selected on a random basis from class size information supplied by the school. There were 42 classes in all, 16 small and 26 large. There were 257 children in all, 128 girls and 129 boys, 83 low-ability, 87 medium-ability and 87 high-ability. The basic principle was to observe when classroom-based activities took place. The aim was to observe each child over two days. Time available for observation could vary somewhat from day to day. Each of the six children was observed in turn. As with the earlier study of reception classes, observations were conducted in blocks of ten-second time intervals. There were 22,312 observations in total, with an average of 87 observations per child. Observation categories described how children behaved in three 'social modes': when with their teachers, when with other children, and when not interacting. Subcategories within each of these three modes covered work, procedural, social, and off-task activities. There were four observers, all experienced researchers who were familiar with working in schools, and able to explain the research and put teachers and pupils at their ease. Reliability coefficients for the main sets of mutually exclusive categories were high (kappa greater than .80).

Response Rates

Response rates for the teacher, head teacher and TA completed questionnaires, and assessment results, across the three years of data collection were generally good (60% - 89%), especially given that

during this time there was much concern about teacher workloads and many educational research projects have struggled to maintain high teacher involvement. The return rate of the TA questionnaires appears low (23%- 35%), but it must be remembered that we did not know how many TAs there were in schools and classes involved in the research and so we estimated two per class when sending out questionnaires to schools. This was a generous estimate and the number of dispatched questionnaires was probably greater than numbers of TAs – hence deflating the percentage response rate. Full details of methods of data collection and response rates can be found in Blatchford, Russell, Bassett, Brown and Martin (2004).

Results

A report has been written which presents data from each method of data collection described above (Blatchford, Russell, Bassett, Brown and Martin, 2004). In this paper, we select data to address the two main areas of the role and deployment of TAs and their impact on classroom interaction and academic attainment. We will concentrate on 1. data from the TA questionnaires on their deployment in classrooms, 2. data from the systematic observation study, and 3. the main statistical analysis of the effect of TAs on pupil academic progress and teaching time across KS2. We also draw selectively from teacher questionnaire answers concerning their experience of the effect of TAs, and case studies of selected schools concerning the deployment and impact of TAs.

1. The role and deployment of TAs

We asked TAs a number of questions about their work in schools. One question asked them if they were employed to provide support for one or more specified individuals, for example, supporting a statemented pupil. Results are shown in Table 2.

Table 2 here

Over KS2 about half of the TAs are employed specifically to support at least one named pupil who has SEN of some kind.

We then asked them to tell us about their main area of work by ticking one of the boxes in Table 3. This table gives more detail on how they are supporting pupils. For the most part, across KS2, they are supporting specific groups, e.g., for SEN/behaviour (32%), supporting named individuals with SEN (12%), or one individual pupil with SEN (16%). When added together we can therefore estimate that for the majority of their time (60%) TAs are supporting specific, named pupils in the class. It is also interesting, however, that over a third of TAs provide general support for all pupils. These two types of support may overlap; the case studies showed that even when ostensibly providing support for named pupils, TAs can interact with and offer support to other pupils, particularly those in the same group. But the main message of the table is that for the most part TAs support the work of the teacher by supporting pupils.

Table 3 here

We then asked an open-ended question of TAs, in which they were asked to document the tasks they carried out in the classroom. This provided a detailed and fascinating account of tasks performed. The results complement those from the last table. There are two main types of activity: in line with results from the last table, TAs spend most time supporting pupils (73% responses). This is expressed either through reference to the actual pupils supported (28%), mainly groups or pairs of pupils, but more commonly through reference to the curriculum area in which they provide support for pupils (41%). The most common reference is to literacy (20% of responses), followed by maths (9%).

TAs are therefore largely engaged in a direct, interactive role in the classroom, involving face-to-face interactions with pupils in support of learning. When we turn to the second main aspect of their work – supporting the teacher directly, rather than interacting with pupils – we find this is less commonly mentioned (27% of responses). It is divisible into four main activities: handling materials (displays, photocopying, preparation – 14%), administration (4%), activities related to teaching (but not face to face teaching – 6% - marking and correcting pupil's work, preparing IEPs, recording marks and keeping records), and general activities such as playground duty (3%). Teachers are therefore mostly using TAs to work with pupils, rather than providing non-teaching support of various kinds. In other words, support given directly to pupils by far outweighs the support given to teachers.

2. The impact of TAs on teacher and pupil behaviour and pupil attainment

a. The role of TAs in classrooms: direct vs. indirect

The TA's role in relation to pupils can be seen in two ways: direct, in the sense of interacting directly with pupils and affecting pupil learning directly, and indirect, in the sense of aiding the teacher. The results presented above show that the TA's role is predominantly a direct one and in this sense their role is predominantly pedagogical. In this section we draw from the results to address the nature and extent of their impact in this direct role.

The first point is that TAs had much longer periods of interaction with individuals and groups. Evidence for this comes from the case study observations that when compared with the teachers, the TAs had much longer periods of interaction with individuals and groups, largely due to the fact that the TA was generally static in one location, with their designated pupils, whilst the teacher moved from group to group in the rest of the class. To some extent this is supported by the systematic observation results. There were far fewer interactions involving target pupils and TAs and results concerning interactions with TAs therefore need to be treated cautiously. It is interesting to note, however, that pupils were far more likely to be the focus of an adult's attention in the case of TAs rather than teachers. From a pupil's point of view the teacher tends to interact predominantly with the class or other pupils, while the TA spends most of her time interacting specifically with individuals, and in this sense gives them more individualised attention. (Details of the observation methodology are given below.)

A point to emerge from the Teacher questionnaires is that teachers are not sure about the benefits that pupils gain through working with TA support. This aspect of TAs' effectiveness was much less commonly cited than expected. Only 16% refer to effects on learning and learners. Of those, the progress of the pupils is the largest set, though still only 78 references in all, from a total of 379 teachers who recorded that they had TA support. Though the open ended nature of the question makes interpretation difficult, it is significant that the great majority of teachers do not point to a link between the deployment of TAs in their classes and the progress made by their pupils. Some express tentative faith in their effectiveness, whilst some are quite sure that pupils have gained educationally. Teachers cite other benefits to pupils - confidence may be improved, they may be on task more, and they spend more time on reinforcement of learning. However, these references only amount to 7% of the total.

Teachers' comments addressed one specific aspect of the work done by TAs which they perceive has an effect on learning and learners: through TAs reinforcing pupils' knowledge and developing their understanding. There were 58 such references. This is an expression of those

teachers' belief that reiteration, repetition and 'drilling' are an effective means to learning and are therefore suitable approaches for TAs to apply.

b. Statistical analysis of the effect of TAs and other additional staff and characteristics of teaching assistants on pupil attainment over KS2

In each year of the KS2 study (Y4-6) we collected a range of information on TAs and other adults in the classes. On the basis of this information, associations with measures of pupils' progress in the same classes were calculated, the aim being to see if there was any evidence that the presence in class of TAs or other staff and adults, or any characteristics of TAs (such as training, experience), had an influence on pupils' achievements. Measures from the teacher questionnaires included: in Years 4 and 5 the extra staff and adults in the classroom during the school year (none, average of up to one, and average of more than one); teachers' estimates of the number of hours of support that they received during the week (< 3 hrs per week), some support (3 to 17 hours per week), and a lot of support (> 17 hours per week); in Y6 numbers of extra staff and extra adults in the classroom for each school subject separately; and an overall value for each pupil created from a weighted average of the values from each subject (weighted by the length of time spent for each subject). Measures from the Teaching Assistant Questionnaires included: number of hours worked, whether working with a statemented pupil, whether working with the whole class, groups or individual pupils, whether they had planning time, feedback time (with teachers), whether satisfied or not, whether a current parent of a child in the school, whether they had been a parent, whether they were a volunteer, their qualification level (up to GCSE vs. A level or higher), whether they had a qualification relevant to being a TA, whether they had attended the DfES induction course, attended INSET, whether they had been paid to attend INSET, and amount of experience (0-5 vs. 6 plus years). Descriptive information on some of these variables was given above. Where there was more than one TA in each class, only the characteristics of the TA that provided the most hours of support were considered. The results from any additional

TAs were ignored for the purposes of analysis, as it would be extremely difficult to incorporate results from more than one TA in the analysis.

Having created these measures of TAs and other adults in classrooms, the next step was to examine associations with pupils' attainments in the classes. The literacy, mathematics (and science) scores were converted into 'normal' scores to allow the same units of analysis to be used for all years. All analyses were performed using multilevel regression models. A multilevel approach is needed because each pupil cannot be regarded as being independent of every other pupil. Pupils in the same class and school are likely to be more alike than those from different classes and different schools. In addition, the natural hierarchy in the data is taken into account. Three levels of hierarchy were used, with pupils nested within classes, which were contained within schools. Separate analyses were done for each year, i.e., Y4, 5 and 6. The statistical models included adjustments for previous attainment scores, so that the results will more accurately reflect the effects upon pupil progress in attainment made during the school year.

There is not space here to describe results in full. The general trend can be easily expressed: there was no evidence that either the presence of TAs or any of their characteristics affected pupils' progress.

c. The indirect effect of TAs: The Systematic observation study of year 6 classes: the effect of the presence of TAs and other adults on pupil and teacher behaviour

We now turn to indirect effects, in other words, effects not on pupils directly but on teachers – which may then have an indirect effect on pupils. We look here at results from the systematic observation study. In order to examine the effect of class size and TA presence, selected categories were chosen on conceptual grounds and on the basis of relatively high frequency of occurrence. Brief definitions of these categories are given in Appendix 1.

Statistical methods and analysis:

A feature of the analysis of the observation data was the way that it was conducted with the 10-second observation interval as the unit of analysis. This allows a greater accuracy and flexibility than simple, but more commonly used, total frequencies of behaviours for each pupil. In particular it provides the basis for powerful and useful analyses of the co-occurrence of behaviours – for example, whether certain behaviours occurred more when a TA was present or not. This kind of analysis is not possible when simple totals for each pupil are used. The observation variables took the form of binary variables, in the sense of each either being performed, or not being performed, during one time interval. A further feature of this observation study, in contrast to previous research, is that it used multilevel logistic regression. Multilevel models were required, as it is likely that observations from pupils in the same class will be more similar than two observations from pupils in different classes. Similarly, two observations from the same pupil are more likely to be similar than two observations from differing pupils. If this clustering of observation is not taken into account then estimates of relationships between variables can be affected. The basic structure involved three level models with repeat observations contained with pupils, which were nested within classes. However, the observations were made in groups, and it is likely that two observations from a pupil within the same group will be more similar than observations from different groups. This adds a fourth level to the model, and so these were used for the majority of the analysis.

The effect of Teaching Assistants on pupil behaviour

The results were first analysed to see if the presence of teaching assistants affected pupil and teacher behaviour. The presence of a TA could change over the course of the day and even from moment to moment during a lesson, and so was recorded for each 10-second time interval. Our results are therefore very sensitive to the effect of a TA's presence. The results showed that TAs were present in the classroom for 18% of the observations recorded. Although it is possible that the adult involved in

interactions with pupils could be a TA, the numbers of interactions involving teachers were far more numerous (more than 100 times as frequent), and so the results can be taken as indicating the effects of TAs on interactions between pupils and teachers.

We present graphs for each observation category showing significant differences between when a TA was and was not present in Figures 1- 6.

Figures 1 – 6 about here

The results were consistent in showing effects of TAs on teacher-pupil interactions. There was more active interaction with the teacher when a TA was present (Fig. 1), which means more times when the pupil initiated contact, responded to the teacher or was involved in sustained interaction with the teacher that extended beyond the 10-second time interval. There was also evidence that when a TA was present, pupils were more likely to be the focus of the teacher's attention, that is, there was more individualised teacher attention when the TA was present (Fig. 3). Conversely, there were more times when the child was in an 'audience' role, that is, when the teacher was attending to another child in the class or group, or all children equally, when the TA was not present (Fig. 2). This further confirms the greater likelihood of a passive role for the pupil when the TA is not present.

We also find more 'adult on task' behaviour when the TA is present (Fig. 4). This can be taken as indicating more interactions between teacher and pupils involving the task or work at hand. There is also more pupil on task behaviour when working on their own (Fig. 5) and less off task behaviour (Fig. 6). Another way of expressing these findings is to say that TAs help maximise pupils' and teachers' attention to work.

The results indicated that apart from adult focus (long), there were not found to be any significant interactions between the number of pupils and whether there was a TA in the classroom. This implies that the effect of the number of pupils in the classroom upon the observation variables

does not vary by whether there was a TA in the classroom or not, or alternatively that the effect of a TA does not vary by the number of pupils.

Discussion

So, to summarise the key findings from the research:

- The main way that the direct role of TAs is exercised is through the support of certain children, in particular, those with SEN, low ability or difficult behaviour. Only rarely were support staff used to work with children of all abilities, or high ability children.
- The Teaching Assistant's (TA) role in relation to pupils can be seen in two ways: direct, in the sense of interacting directly with pupils, and indirect, in the sense of aiding the teacher. This study found that the TA's role is predominantly a direct one and in this sense their role is predominantly pedagogical.
- This study found little evidence that the presence of TAs, or any characteristic of TAs, such as training or experience, had a measurable effect on pupil attainment in the school class where they were deployed. This is in line with results from the KS1 stage of the project.
- However, results were clear in showing that TAs have an indirect effect on teaching. The presence of a TA in the classroom helped maximise pupils' and teachers' attention to work. Pupils had a more active form of interaction with the teacher and there was more individualised teacher attention. This supported teachers' views that TAs are effective in supporting them in this indirect way.

The results in this study point to a clear conclusion about the TA's role in schools. The TA's role is predominantly a direct one in relation to pupils; that is, they are mainly being used to interact directly with pupils in classrooms and in this sense their role is predominantly pedagogical. It is difficult to

know whether the prevalence of a direct vs. an indirect role has become more pronounced in recent years, but it is now clearly dominant. It seems that there is a lack of clarity concerning the exact specification of the work of TAs when interacting with pupils. Some Head teachers and teachers acknowledged that TAs are 'teaching' pupils and that is certainly the view of many TAs themselves. Some spoke in terms of 'supporting' pupils' learning, but in essence this seems difficult to distinguish from the teacher's role.

The results also show that the main way that the direct role of TAs is exercised is through the support of certain children, in particular, those with SEN, low ability or difficult behaviour. We pick up on the benefits this might bring to the teacher below, but here we concentrate on the direct interactions between pupils and TAs. Only rarely were support staff used to work with children of all abilities, or high ability children. The fact that it is mostly the neediest pupils who spend time interacting with TAs raises serious questions. There is something paradoxical about the least qualified staff in schools being left to teach the most educationally needy pupils, and there is concern over whether this provides the most effective support for the children in most need. Teachers, however, raised very few objections about delegating teaching of particular groups or individuals to their TAs. Rather, they welcome the opportunity that it gives them to deal with the remainder of the class.

The Effects of Teaching Assistants on pupil learning and attainment

Given that the main role of TAs is a direct one in relation to pupil learning, how effective are they? The results from this study allow only a partial answer to this question. It appeared from the case study and systematic observations that when compared with the teachers, the TAs had much longer periods of interaction with individuals and groups, largely due to the fact that the TA was generally static in one location, with their designated pupils, whilst the teacher moved from group to group in the rest of the class. There appears to be an assumption built into the approach to special educational needs, that longer periods of interaction with an adult will succeed in meeting the needs of those pupils. To this extent the results suggest that the most needy are receiving more attention. However, it

is not teachers who are providing the bulk of the interaction with SEN pupils and others with particular needs.

This study was not set up to examine the content or quality of TA / pupil interactions and so it is not possible to say whether or not the longer periods of interaction were different educationally to those between teachers and pupils. Observations conducted as part of the case studies indicated that some TAs were certainly effective in their support for pupils, and worked effectively with teachers, while some were less effective and ill-prepared. It seems to us that a thorough investigation of the pedagogical role and effectiveness of TAs, involving close study of the moment-by-moment interactions between TAs and pupils, is long overdue, particularly now that the DfES has introduced their policy of the developing the TA's role, as one element of their remodeling agenda.

It might be noted that despite the generally positive view of teachers about their TAs, they are not so sure about the academic benefits which pupils gain through working with them and there is generally no mention of any objective measures providing the basis for these assertions. However, teachers' comments indicate that reiteration, repetition and 'drilling' are an effective means to learning and that this might be a suitable contribution for TAs. This raises interesting questions about the extent to which TAs may be conceived to have a somewhat restricted but possibly complementary role in regard to pupil learning. As we concluded on the basis of the KS1 study, it would be helpful to conceive more formally the pedagogical roles of teachers and TAs, perhaps by drawing on existing models of teaching and pedagogy.

In terms of effects on pupil attainment, the analyses conducted for this study showed few effects of TAs, and other pupil staff ratio measures, on pupil attainments. There is no evidence that the presence of TAs, or any characteristic of TAs, such as training or experience, had a measureable impact on pupil attainment. This is in line with results from the KS1 stage of the project (Blatchford et al, 2002). Moreover, we found no differences in pupil attainment between classes where the TA works with individual pupils, groups of pupils or the whole class. One explanation offered in the KS1 report, suggested by the case studies conducted during that stage of the research, was that TAs varied greatly in their deployment and effectiveness, and this is again a possible explanation for the KS2 results.

Despite the lack of clear associations between the presence of TAs and pupil academic attainment, we should be wary of concluding that TAs have no influence on pupils. One limitation of the analyses conducted for this report is that they examined relationships between TAs and the academic outcomes for the whole class. Future research in this area will need to target more precisely the connections between TAs and the specific pupils they support, though this will not be an easy task; TAs might be assigned to a particular pupil but sometimes work with other pupils who happen to be in the same group or nearby. Another limitation is that the tests of academic achievement used in this study (and many others) may not easily detect the possibly subtle effects on learning and attitudes to learning that might result from a TA working with an individual pupil. The tests were also necessarily designed (by the QCA) to be most relevant to pupils covering the national curriculum, and may not have been so applicable to some of the pupils assisted by TAs. This research has provided perhaps one of the most thorough and large scale analyses of direct relationships between TA presence and pupil attainment, but it is clear that there are still enormous challenges for research in this area, and results to date cannot be seen as conclusive.

The indirect effect of TAs: benefits to teachers

We now turn to indirect effects, in other words, effects not on pupils directly but on teachers – which may then have an indirect effect on pupils. The systematic observation results were clear in showing an effect of TAs in this indirect way, in terms of showing a beneficial effect on the teacher's interactions with pupils, and the pupils' interactions with teachers. With a TA present in the classroom, pupils had a more active form of interaction with the teacher, initiating contact, responding, or being involved in sustained interaction. When a TA was present, pupils were more likely to be the focus of the teacher's attention, that is, there was more individualised teacher attention. Furthermore, we also find more interactions between teacher and pupils involving the task or work at hand. There is also more pupil on task behaviour when working on their own. The presence of TAs therefore helped maximise pupils' and teachers' attention to work. We are not able to fully

account for this effect. There are two main possibilities. One is that the presence of the TA provides stimulation for pupils to contribute more – the pupils may, for example, be encouraged to respond to the teacher and get involved by the TA. They may also encourage pupils to attend to their work. The second possibility is that by taking over responsibility for some pupils, the interactions between the teacher and the rest of the class benefit, for example, by allowing more time teaching and opportunities for the rest of the class to be involved in interactions with the teacher. Again further research, based on close attention to interactions between teachers, TAs and individual pupils is needed in order to better understand the classroom dynamics involved.

These results provide, perhaps for the first time, hard evidence to support the teachers' own views on the deployment of TAs (as seen in this report, and also in the recent Scottish study by Schlapp et al, 2002). The overwhelming opinion of teachers is that TAs are very effective in supporting them in this indirect way. Teachers, therefore, benefit from delegating the 'neediest' pupils to the TAs because they are able to focus more of their attention on the rest of the class. This allows them to satisfy the ideal of meeting the needs of all pupils, which was clearly revealed in their answers to separate questions in the questionnaires about class size and teaching. If some needs are perceived as not met, the pressure and guilt that this generates can be reduced through the deployment of TAs in interactive roles. Pupils with SEN of various kinds and those whose attainment and behaviour is of concern, can be disproportionately demanding of a teacher's time, so having TAs in the class can make a significant contribution to meeting the needs of all pupils. This is how teachers characterise the impact of their TAs on their own work and they rate it in positive terms, almost without exception.

Another way in which the indirect role of TAs on pupils might be manifest is through assistance to teachers in other ways. However, in the study we found that references to non-teaching support, such as the preparation of materials, administration and classroom organization, are relatively few, again indicating that teachers see the effectiveness of their TAs much more in terms of what they do in pedagogical interactions with pupils. But it must be emphasised again that this is *from their point of view:* they see themselves as the beneficiaries of TA support.

It is important to say that the field work for this study was completed in the summer of 2003, just prior to he implementation of the Workforce Agreement, and does not therefore reflect all recent Government initiatives to increase the levels and training of support staff in schools. However, the results are still highly relevant to the current situation and it seems fair to conclude that if the present deployment of TAs in an interactive, pedagogical role, is to continue, then it needs to be given a lot more consideration.

Conclusion

We conclude that we need to work through and reconcile two main conclusions from this study, when it comes to effects on pupil learning: that is, on the one hand, concerns over the direct role of TAs and, on the other hand, the beneficial, indirect effects of TAs on teachers. We feel that more attention needs to be paid to what we call the pedagogical role of TAs. This is important in order that TAs can be used effectively to help teachers and pupils, and to help inform remodelling of the workforce. It will be important to monitor in practice the 'professional standards' set out for teaching assistants. To do this will require a clearer monitoring and understanding of the moment by moment teaching interactions between TAs and pupils, that can only come from more detailed observational analyses. It would be valuable to get more insight into effective interactions between TAs and pupils and ways in which TAs can successfully augment the teacher's contribution. The research team are currently engaged in a study that is seeking to assess the impact of TAs on pupil learning and attainment by making use of more sensitive measures of TA activities and interactions, and a more precise analysis in relation to pupil outcomes, that takes account of the pupils who have most contact with TAs.

The need for further research revealed by this study is made more urgent when set in the present context of the Government's workforce remodeling agenda. Though the results reported here pre-date

the implementation of the new policy, they raise questions that policy must address if it is to achieve the intended impact on pupil outcomes.

Appendix 1

Work Setting

Individual setting: the child is working on his/her own; the work is not group based (though the child could be seated in a group) or teacher led.

Group setting: the child is in a group working together, but not led by the teacher

Whole class setting: teacher-led whole class settings where the target child is involved.

Teacher/pupil interaction

Child 'audience' vs. 'focus'

Child is focus: target child is the focus of the teacher's attention, and this could be in the context of one-to-one, group or whole class sessions, e.g., the target is asked a question about addition in the course of a session in which the teacher is addressing the whole class. These were coded separately as 'short', i.e., not for the whole ten second interval, and 'long', i.e., contact continued through the whole ten second period – for example, a question from the teacher was followed by an answer from the child and a further probe or comment from the teacher. This therefore gives some measure of extended or sustained interactions between child and teacher.

Child is audience: another child is the focus of the teacher's attention in the group or class involving target child, or teacher interacts to same extent with all children.

Child to teacher – attend/listen: the child simply listens to the teacher during the interval and does not interact by responding or initiating.

Child on task to teacher: all child behaviours in contact with teacher that are concerned with work.

Child off task to teacher: child behaviour when in contact with the teacher obviously inappropriate or unrelated to situation (e.g. not attending).

Waiting for interaction with the teacher: the target waits for the teacher.

Adult Teach: adult behaviour directly concerned with the substantive content of subject knowledge, i.e. communicating concepts, facts or ideas by explaining, informing, demonstrating, questioning, suggesting.

Adult on Task: as *adult teach* plus contacts concerning the organization and preparation of children's task activities and not their substantive content. This is therefore the most generic category denoting teacher to pupil work related behaviour.

Individual behaviour/ not interacting

Individual on task: target child is involved in own work activity

Individual Off task (active): target child focuses on something other than task in hand.

Individual Off task (passive): target child is disengaged during task activity, for example, wandering around or daydreaming.

Child-Child Interactions

Target and Child on task: all contacts with other children that are concerned with work and allocated tasks.

Target to child off task: behaviour with other children that is deliberately off task; it would include mucking about and times when the target child is aggressive (verbally or physically) towards other child(ren). It would not include times when children spoke about non-work activities, if this was not deemed unacceptable by the teacher (this would have been coded 'social').

Computed categories

Child on task: total on task behaviours, i.e., behaviours related to the substantive nature of allocated work or preparation for the work across the three social modes, i.e., child to teacher on task, target and child on task, and individual on task.

Child off task: total off task behaviours, i.e., all off task behaviours in the three social modes, i.e., child to teacher off task, target to child off task, and individual off task (active and passive)

Child procedure: total child procedure behaviours, i.e., all target behaviours related to classroom management and organisation of classroom routine, in the three social modes, i.e., child to adult procedure/routine, target to child procedure/routine, and individual procedure/routine.

Active interaction with teacher: the sum of the three child to teacher categories where the child's role was an active and not a passive (i.e., attends/listens) one, i.e., the child initiates, responds or sustains interactions with the teacher.

Any target and child interaction: the sum of all the child-child categories, i.e., all task, social, procedure, and off task behaviours in contact with other children.

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Table 1: Characteristics of the KS2 Sample, in terms of numbers of schools, classes and pupils

Year	Number of Schools	Number of Classes	Number of Pupils
Year 4	202	332	8728
Year 5	173	261	6607
Year 6	153	224	5755

Table 2: Extent to which TA employed to support named individuals

		Year 4		Year 5		Year 6		Key Stage 2	
		Yes	No	Yes	No	Yes	No	Yes	No
TA employed to work with at least 1 statemented child	Number	73	76	53	49	41	48	167	173
	%	49%	51%	52%	48%	46%	54%	49%	51%

Table 3: Main areas of TA work in classrooms

Main areas of work	Year 4		Year 5		Year 6		Key Stage 2	
	Number	%	Number	%	Number	%	Number	%
General support for all pupils	28	25%	48	49%	47	41%	123	37
Support for specific groups e.g. SEN/behaviour	48	43%	26	26%	30	26%	104	32
Support for named individuals (SEN)	13	12%	6	6%	19	17%	38	12
Support for one individual only (SEN)	18	16%	17	17%	16	14%	51	16
Other	5	4%	6	6%	2	2%	13	4
Totals	112		103		114		329	

Fig. 1: Active Interaction With Teacher with and without a TA present

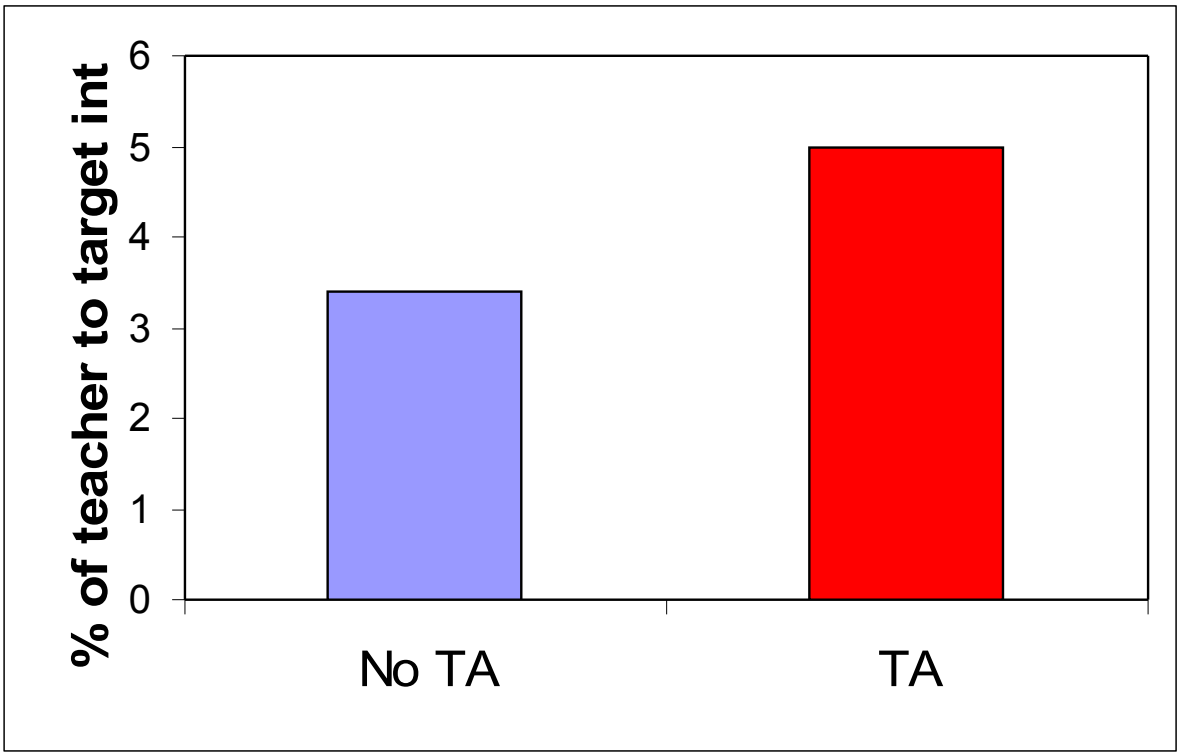

Fig. 2: Child is Audience with and without a TA present

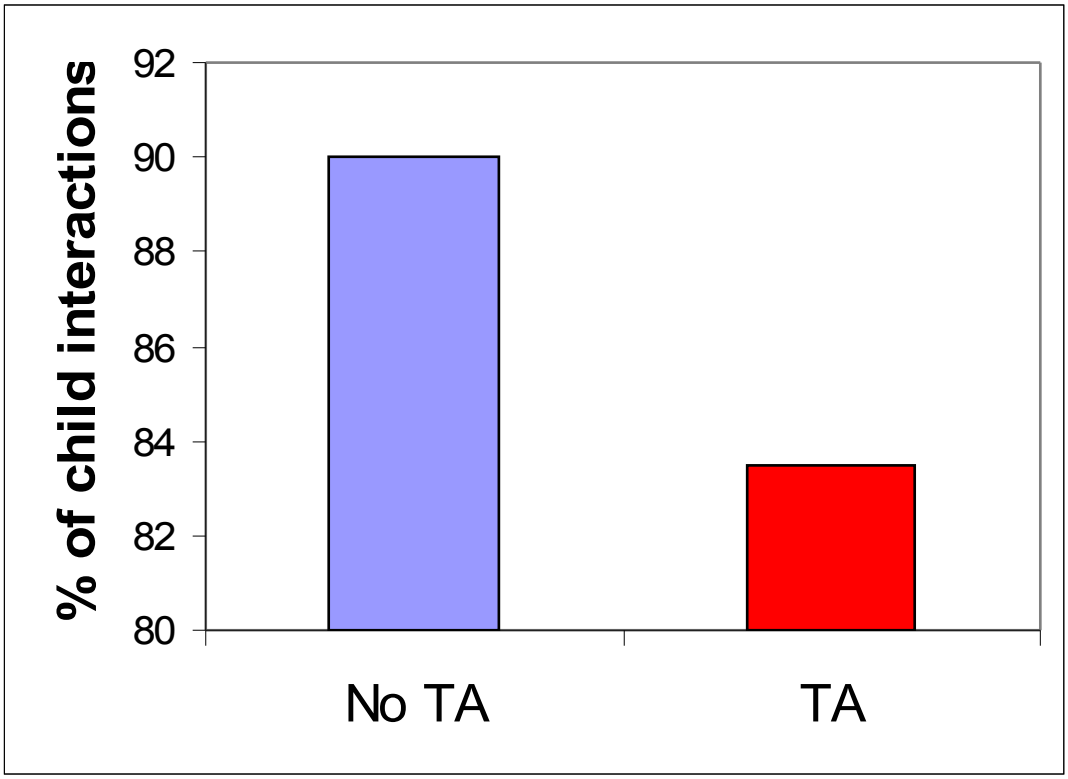

Fig. 3: Child is Focus (long and short) with and without a TA present

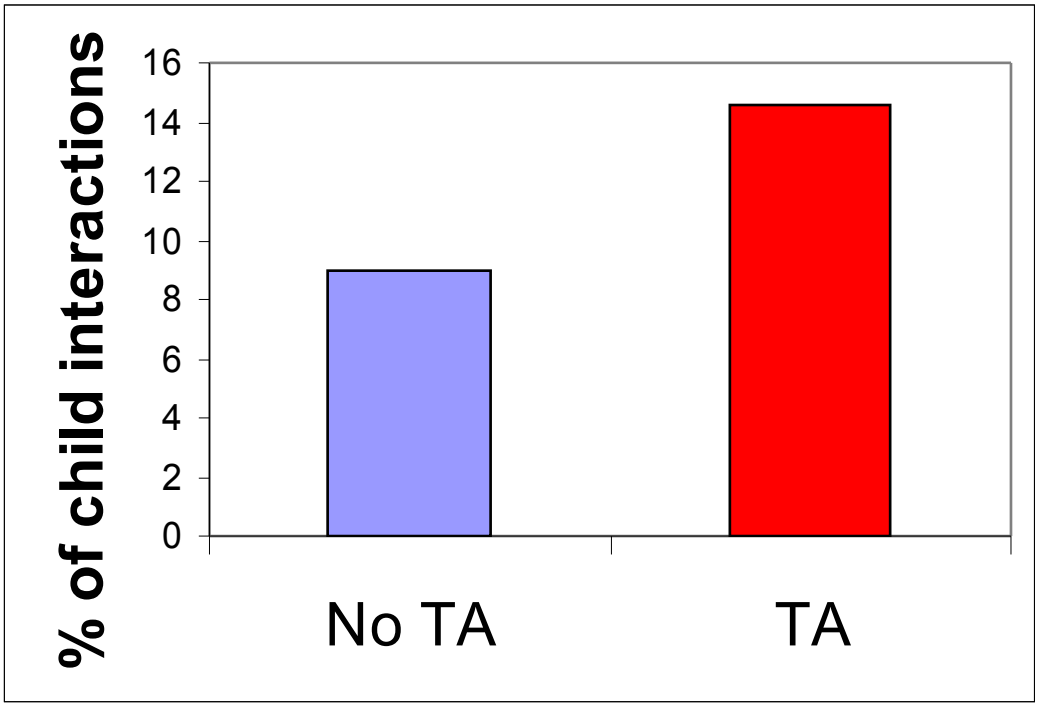

Fig. 4: Adult On Task with and without a TA present

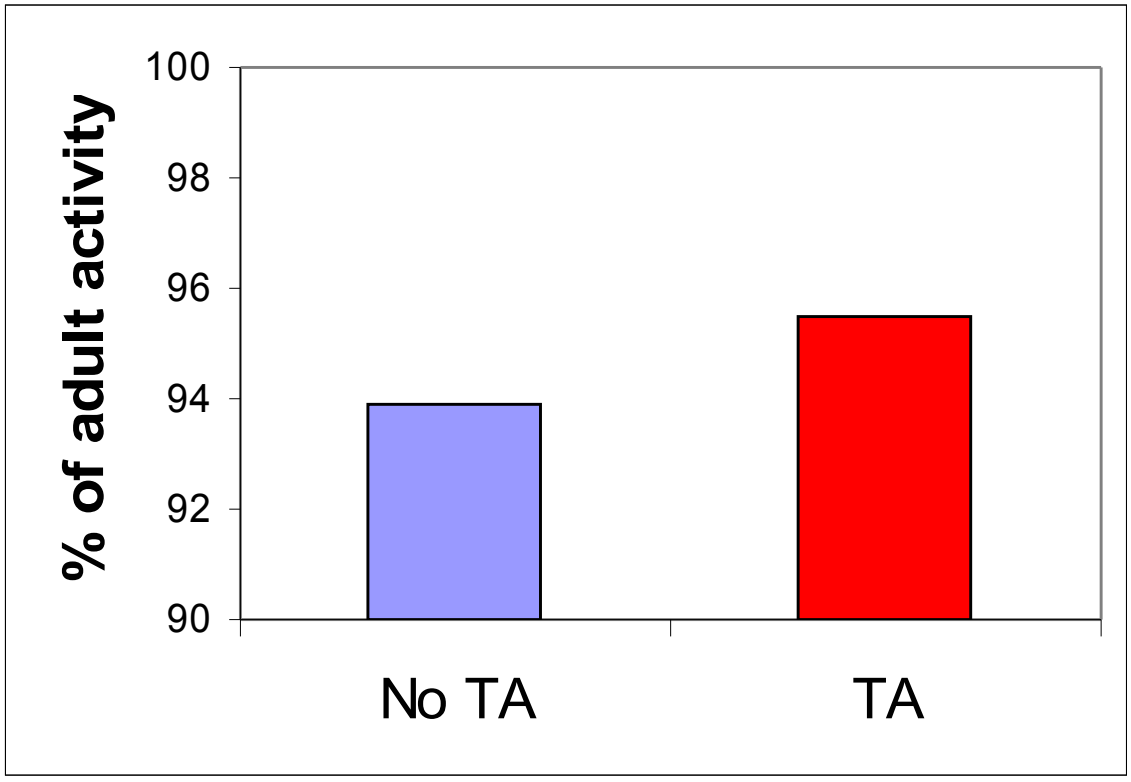

Fig. 5: Individual On Task with and without a TA present

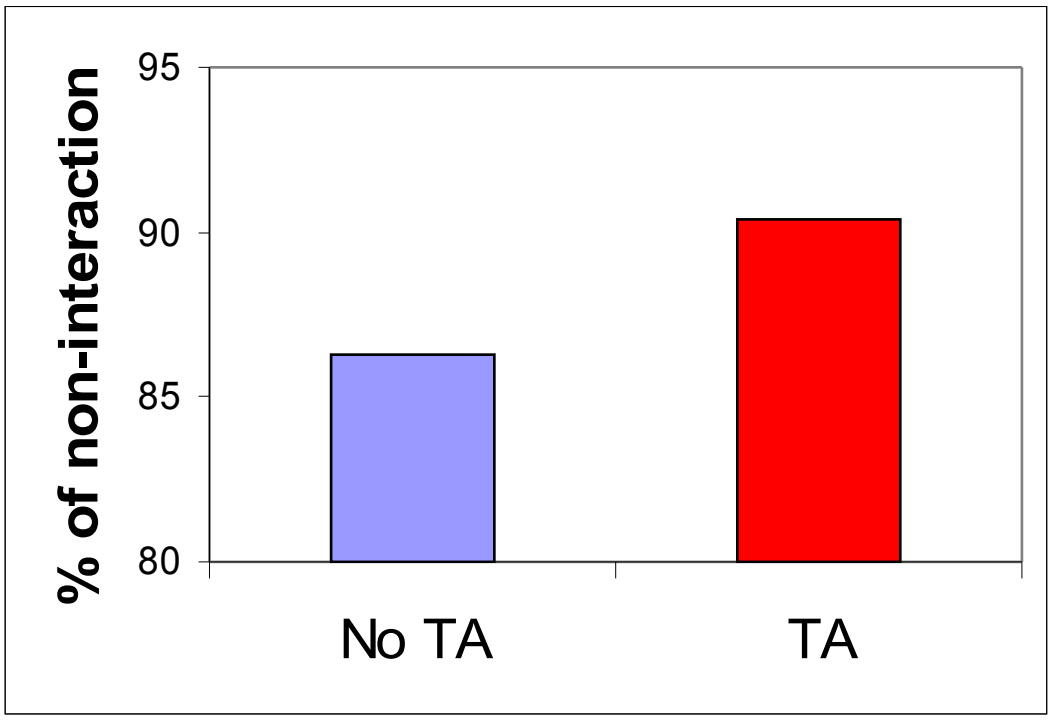

Fig. 6: Individual Off Task with and without a TA present