Teaching assistants' support and interactions: Measuring the impact of an intervention that provides teaching assistants with the relevant skills to foster independent learning in the children they support.

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Declaration

I, Natoya Ivey confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Abstract

There has been a significant increase in the number of teaching assistants (TA) in mainstream classrooms across the world. This was due to changes in education policies both locally and internationally. A substantial amount of TA time is spent supporting children with special educational needs and disabilities (SEND) where they are largely responsible for planning and delivering tasks and interventions. Subsequently, TAs have become the primary educator for children with SEND and they often lack the knowledge and training to adequately fulfil such a role. Research has suggested that TAs are well placed to provide a scaffolding role where through their interactions with the child, they are able to support them at their current level or slightly higher to enable the child to complete learning tasks and problem solve. Little research has explored whether TAs are able to acquire scaffolding strategies through training and apply it to their practice. In the present study, 5 TAs received 3-hour training about scaffolding and talk strategies that could be used in their interactions with pupils, and their practice was observed and audio-recorded. The interactions between the TAs and children were analysed using conversation analysis (CA), and semi-structured interviews were used to explore the TAs' views about their role, classroom practice and the impact of the training. The delivery of the training and the use of CA to analyse the TAs' interactions represents a unique contribution to the field regarding the design of the study and the tools of data collection and analysis. The findings indicated that the TAs were successful in applying the scaffolding strategies to their practice as a result of the training. There was evidence to suggest that in using such strategies, the TAs felt more structure was given to the way they supported children and they were able to confidently describe and demonstrate through their practice, how they were working towards fostering learner independence. Strategies on how schools can define and develop the TA role are explored and the implications for the EP role are discussed.

1. Introduction and Context

1.1. Clarification of Terms

Teaching Assistants (TAs) are known by various names in the UK and around the world. In the research and literature, they are referred to as 'learning support assistants' (LSA), 'classroom assistants', 'teacher aides', 'teacher assistants' or 'paraprofessionals' (Gerber, Finn, Achilles & Boyd-Zaharias, 2001; Giangreco & Broer, 2005; Mujis & Reynolds, 2010;Takala, 2007). Throughout this paper, the term TA will be used to refer to all staff who undertake the role of supporting children in the classroom.

In relation to the topic of inclusive education, there has been a significant amount of focus on the presence and impact of TAs in school. This is due to the growth in the TA population, which has occurred in a number of countries around the world (e.g. USA, Germany, Hong Kong, Malta and South Africa) (Giangreco & Doyle, 2007). This has also been the case in the UK where in England, the TA population accounts for 34% of the school workforce; a three-fold increase since 2000 (DfE 2016). The majority of these TAs support children with Special Educational Needs and Disabilities (SEND). The increase in TAs is due to the introduction of the SEN Code of Practice in 1994 which promoted the idea of TAs being employed to support children who had an individual education plan or a statement of Special Educational Need. Also, the international drive to promote the inclusion of children with SEND in education (i.e. Salamanca Declaration and Framework for Action, 1994 and The UN Convention on the Rights of Persons with Disabilities, 2006) contributed to the need for TAs to provide the role of supporting children with SEND in mainstream schools. In addition to the growing population of children with SEND in mainstream schools, the introduction of literacy and numeracy strategies and the implementation of ‘The National Agreement’ saw the creation and expansion of support roles like TAs; this was to achieve its aim of tackling teacher workload and raising pupil standards (DfES, 2002). The presence of TAs in schools has impacted positively on the teachers' work load,

job satisfaction and stress levels (Blatchford, Russell & Webster, 2012). Also, an additional adult in the classroom reduced the occurrence of negative behaviour from pupils (Blatchford et al., 2012). TAs are also recognised for contributing to the inclusion of children with SEND in mainstream schools (Rose, 2000).

Research has shown that TAs have become the primary adult who supports children with SEND and they have subsequently acquired a role where they interact the most and provide majority of the teaching for children with SEND (Giangreco, Suter & Hurley, 2011; Webster & Blatchford 2013). With regards to the impact TAs have on the children they support, some studies have found that when trained and prepared to deliver specific interventions, TAs have a positive impact on pupils' progress. This is particularly the case with primary aged children with literacy and language needs (Savage & Carless, 2005; Alborz, Pearson, Farrell & Howes, 2009).

However, there is a significant amount of evidence that suggests that TA presence correlates negatively with the academic progress of the children they support (Finn, Gerber, Farber & Achilles, 2000; Giangreco and Broer, 2005; Klassen, 2001; Reynolds and Mujis, 2003). The Deployment and Impact of Support staff (DISS) project is the largest study to date that showed that TAs had a negative effect on students' progress (Webster, Blatchford, Bassett, Brown, Martin & Russell, 2012). The DISS project was conducted in the UK over a five-year period, and its aims were to provide information about the characteristics and deployment of support staff and to assess the impact of support staff on teachers, pupil learning and behaviour (Blatchford et al., 2012). Data was collected through interviewing teachers, support staff and pupils, conducting observations of TAs supporting children and reviewing work logs completed by TAs. Unlike previous research, the DISS project observed the impact of TA support during normal everyday lessons in the classroom rather than during specific tasks that only account for 30-40 minutes of the school day (Webster & Blatchford, 2012). Blatchford et al. (2012), reported that the presence of a TA positively correlated with pupil engagement in the classroom and pupils had a more active role in interacting with adults. The

findings also showed that, TA presence had no significant effect on the various approaches to learning explored (e.g. confidence, motivation and relationships with other pupils) and in some cases, TA presence was negatively correlated with promoting independence and children's ability to complete assigned work. This lack of progress was attributed to the fact that TAs had become the primary educator of the children they supported rather than the additional support they intended to be (Webster et al., 2010). Furthermore, the role of the TA has generally been identified as a nurturing role whereas the teacher has a more instructional role (Dunne, Goddard & Woodhouse, 2008). Therefore, they may not possess the skills to undertake an instructional role similar to teachers.

The outcome of the DISS project resulted in media reports suggesting that the Treasury and the Department for Education were considering phasing out TAs in schools across the country (Stevens, 2013). Also, a large-scale survey conducted by Ofsted about how schools use pupil premium, concluded that schools should carefully consider spending pupil premium on support staff and an automatic assumption that it would be spent on an individual TA would not be acceptable (Ofsted, 2012).

Blatchford et al. (2012) argued that the effectiveness of TA support is not attributed to the individual factors of the TA but is more to do with the decisions made by SENCOs and senior management in schools about how TAs are used. Further research from the data gathered in the DISS project found that the type of interactions TAs engage in with the children also impacted the child's capacity to make progress. A positive relationship between TA interaction and children's outcomes was found when TAs were trained to deliver a specific programme.

The DISS project used a systematic observation schedule which was valuable in quantifying the behaviours observed from a large data set (Blatchford et al., 2012). However, the categories created for this research seemed somewhat broad. The description of behaviours in the category for prompts varied from 'offering prompts' to 'providing an answer'. As well as there being a distinct

difference between prompting and providing and answer, little detail is offered about which strategy/approach is used the most by the TAs. Also, the authors report that the majority of the categories remained the same when observing Teachers and TAs (Blatchford, Bassett, Brown & Webster, 2009) which could question the validity of the observation for TAs as they do not have the same role as teachers nor do they possess the same skills and so it would not be expected that they interact with or support pupils in the same way.

Research based on the data from the DISS project has also identified differences in how teachers and TAs communicate with children (Radford, Blatchford and Webster, 2011). As a result, researchers have suggested a number of practices TAs can adopt that would enhance the quality of their interactions between them and the child (Radford, Bosanquet, Webster and Blatchford, 2015). Approaches in scaffolding and dialogic talk have been found to add value to the learning experience of children in the classroom when used effectively (Ankrum, Genest & Belcastro, 2014; Gilles & Khan, 2009) and Bosanquet, Radford and Webster (2016) have written a comprehensive guide on how these practices can be applied to TA practice. This current study aims to explore whether delivering a training programme tailored for TAs and focuses on effective interaction and support will have an impact on TA practice and qualitative approach will be adopted to analyse their interactions. The present study addresses a gap in research because it examines TA practice during typical classroom lessons rather than just focused interventions.

2. Literature Review

2.1. Introduction

The following literature review will begin by discussing the role of TA with regards to the level of responsibility they have in supporting children with SEND. Using Webster and colleagues (2012) Wider Pedagogical Role model, the way TAs are currently deployed and the aspects that contribute to why their support is negatively correlated with pupil progress will be discussed. The research around TA-to-pupil interactions will be reviewed and the literature on theories relating to classroom discourse will be considered. It will be argued that training TAs with skills and knowledge based on classroom interactions and scaffolding will enable them to better support the children they work with and foster learner independence.

2.2. The role of TAs

Research states that 50-75% of TA time is spent working with children with SEND (McVittie 2005) which would typically be with individual pupils or small groups. This is different to teachers who predominantly interact with pupils in a whole class context (Webster, Blatchford, Bassett, Brown, Martin & Russell, 2010). Also, authors in the UK and internationally, have reported that TAs spend more time with SEND children than teachers (Giangreco & Broer, 2005; Webster et al., 2010). TAs are often responsible for planning and delivering tasks and interventions for the children they work with and in some circumstances, they asses these tasks and interventions (Webster et al., 2010). They, therefore, become the primary educator for that child rather than the additional support they are intended to be and research has found that they perform such a role with no oversight from teachers or special educators (Giangreco & Broer, 2005). Pupils who are supported by TAs are often taken away from their mainstream class and the TA becomes the constant adult presence for the child during their school day, resulting in the child having limited interactions with the teacher and their peers (Webster & Blatchford, 2013).

2.3. The Wider Pedagogical Role

In an attempt to explain the DISS project results, Webster et al. (2011), developed the Wider Pedagogical Role (WPR) model which identifies five interlinked components to explain the use of TAs in schools, these are:

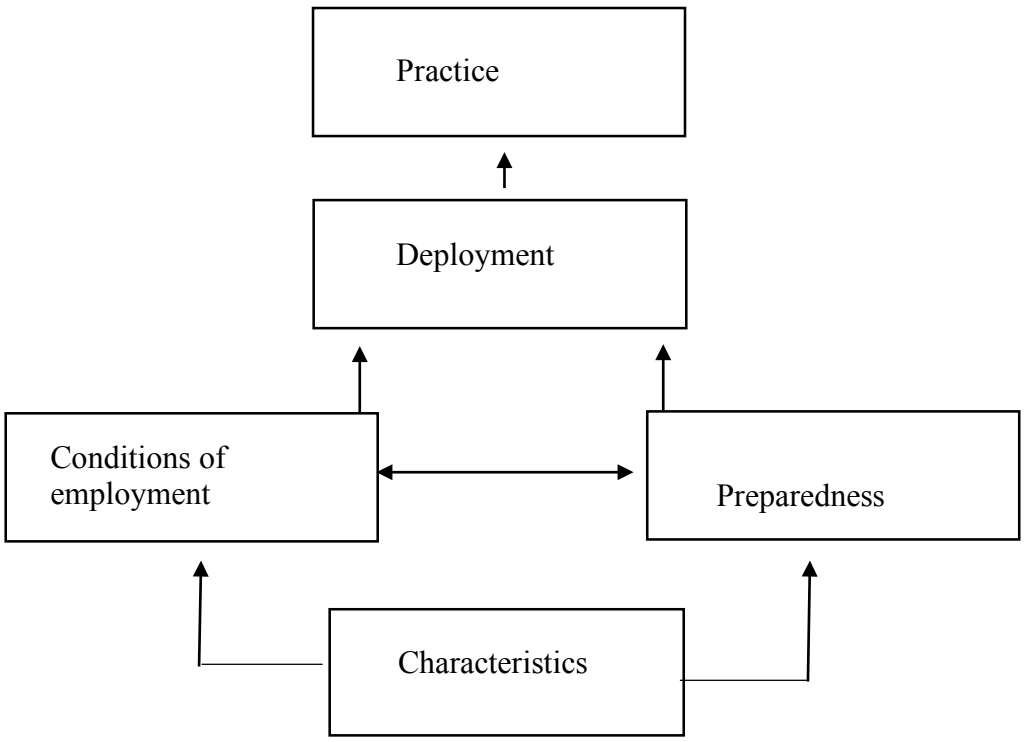


Figure 1 – Wider Pedagogical Role (WPR) model (Webster et al., 2011)

The *Characteristics* component is concerned with the recruitment of TAs. Webster et al. (2011) found that TAs are normally employed based on their work experience rather than their training and qualifications. *Conditions of employment* relates to TAs' pay and conditions. It is often a low paid role compared to other professional colleagues, with unpaid overtime. The *Preparedness* component is regarding training, professional development and day-to-day preparation. The *Deployment* component relates to the type work TAs undertake; TAs mainly work in a pedagogical role Blatchford et al. (2009), typically supporting children with learning and behaviour needs (Webster, Blatchford, Bassett, Brown, Martin & Russell, 2010). *Practice* is regarding the nature and the quality of TAs' interactions with children.

The authors argue that the three main components that attribute to the findings from the DISS project are *preparedness, deployment* and *practice*.

2.3.1.1. Preparedness

Results from the DISS project and other research (Butt & Lance, 2005; Lee, 2002) demonstrated that teachers lacked pre-service and in school training to effectively manage and organise the tasks that TAs undertake. Also with regards to day-to-day preparation, the paucity of time during the school day resulted in there being little opportunity for TAs and teachers to meet in order to effectively plan or provide feedback about lessons. This appears to be a management issue for research has identified schools where TAs and teachers are allocated time to plan together (Gerschel 2005). Webster et al. (2011) found that it was often due to the TAs 'goodwill' (i.e. working over their contracted hours) that opportunities to meet and plan were created.

The survey conducted in the DISS project showed that although TAs were satisfied with the training they received (often school-based training or informal support given by teachers) they felt the opportunities to train were limited (Webster et al., 2011). This is similar to findings a previous study conducted by the researcher of this current study, where TAs reported that they were rarely offered the opportunity to attend continuing professional development courses and so needed to be proactive in finding a course and making a request to attend. Whether they were able to attend the course is often subject to the availability of funds in their department budget or their attendance on the course would occur a number of months after their initial request; typically, when they are no longer supporting the child they required the training for. Earl and Bubb (2004) also identified the distinct difference between teacher and TA training opportunities and stated the following:

"Traditionally teachers and support staff have been treated very differently within schools; for example, access to appraisal and performance management, training and development, and involvement in decision-making

processes have usually been the right of the professional staff but not other paid employees. Other adults working in school were often taken for granted, marginalised or, in some cases, totally ignored. (Earley & Bubb, 2004, p. 105)"

As argued by Earley and Bubb (2004), the appraisal structure is often non-existent for TAs which makes identifying their professional development needs difficult. Considering Webster et al. (2011) identified that TAs often have limited subject and pedagogical knowledge, one would think that there would be a salient need to create more training opportunities. As well as providing training to understand the needs of children with SEND, it would also be beneficial for TAs to receive training which relates to pedagogical skills.

2.3.2. Deployment

As stated earlier, the majority of TA time is spent supporting children with SEND in a 1:1 or a small group setting. Webster et al. (2011) argue that the pupils supported by TAs experience separation from both the teacher and wider classroom activities because they are closely supported by their TAs and on occasions are taken out of the class to receive support. A meta-analysis on international research on TA support also reported a number of persistent findings from the studies reviewed. Some were that TAs are expected to perform tasks beyond their skill level and engage in a role that is more appropriately performed by teachers (e.g. work differentiation). Also, there was a lack of clarity about determining TA roles and TAs often received inadequate training and insufficient supervision, (Giangreco, 2013a). Giangreco (2013b) also makes a case about whether the extensive use of TAs would be viewed as acceptable if the children did not have a disability. TAs are often required to deliver specific interventions that they have little knowledge about, if they were to begin to support children without disabilities in a similar manner would this be deemed as appropriate? The question around the equity of appropriateness is an important one and highlights the need to establish a role for TAs that falls within their skill set and provides them

with the appropriate skills to support children with varying abilities and not just those with SEND. This is a gap in research that the current paper attempts to address, it presents an opportunity for TAs to acquire skills that can support children with varying abilities and review the impact such training has on TA practice.

2.3.3. Practice

When a TA sits next to a child and they are engaged in a learning which involves lot of talking, this talk has the potential to either help or hinder learning, depending on the nature of the talk strategies used.

Evidence suggests that the interactions TAs have with pupils are distinctly different to that of teachers. With regards to questioning, Rubie-Davis, Webster, Blatchford, Koutsoubou and Bassett (2010) found that teachers were more likely than TAs to ask open-ended questions and were more likely to rephrase the question or provide additional information to the children in order to support them with answering. Teachers would also promote additional thinking in students by using their responses as a springboard to ask other questions. In contrast, Radford, Blatchford and Webster (2011) found that TAs were more likely to 'close down' talk through asking closed questions and correct or supply the answer when pupils made errors or fail to find the answer. There was also an absence of prompts and hints from TAs resulting in there being fewer opportunities for pupils to think for themselves. However, TAs were able to ensure that the learners succeeded and avoided the emotional experience of failure (Radford et al., 2011) suggesting they played a valuable role in providing emotional support. There was also an emphasis on task completion amongst the TAs, whereas teachers emphasised on strategies that ensured oral participation, this restricts the opportunity for the child to explore or discuss and evaluate their ideas nor does it encourage learner independence.

The authors explained that the TAs may use the strategies described because they might believe that greater value is held for completed written work over oral discussion (Radford et al., 2011; Rubie-Davis et al., 2010). TAs often did not have an opportunity to plan for the lesson and they had little curriculum knowledge and so their support was identified as being reactive whereas the teacher was proactive. Data for this research was collected in Maths lessons alone and although the authors expressed the lack of research available that focuses on TA support in Maths lessons, it would have been useful to conduct a similar analysis in literacy lessons as this may have provided an opportunity to explore whether the student-oriented topic initiations (to generate ideas) and student oriented topical pursuit (to follow-up their ideas) mentioned by Radford et al. (2011) were encouraged. As a result of such findings, Radford et al. (2011) suggested that future research should focus on the type of talk TAs engaged in. Particularly talk which boosted 'soft skills' that support learning, e.g. motivation, confidence and independence (pg. 634). This study therefore, explores the impact of an intervention based on published materials that addresses the type of TA-student discourse that occurs during lessons. It will also explore whether as a result the intervention, TA practice will promote particular skills and constructs in students that will enhance their learning and achievement and foster learner independence.

2.4. WPR and TAs views

Cockfort and Atkinson (2015) used the WPR as a deductive framework to conceptualise their findings from a survey exploring the views of TAs. With regards to preparedness, TAs felt that a minimum Level 2 NVQ qualification was required for effective practice, however, some participants felt that the Level 2 course although important, did not adequately prepare them for their role. In reviewing the content of one of the Level 2 courses on offer (Level 2 NVQ in Supporting Teaching and Learning in Schools), it was apparent that although important topics such as safeguarding, equality, diversity and inclusion, health and safety and behaviour management are covered, there did not appear to be a unit covering information on the types of interactions

that would promote learner independence. The unit on communication mainly focused on learner outcomes and the importance of establishing respectful and appropriate relationships with children and young people (OCR, 2010). Similarly, the University of Greenwich offers a Foundation Degree in Supporting Teaching and Learning where some of the topics covered explore the psychology of learning and development, current policies in education, meeting the needs of children and supporting learners with special educational needs/additional educational needs. Successful completion of this course could result in the candidate progressing on to a BA Hons degree. However, it is unclear whether topics around effective interactions to support children in the classroom and fostering learner independence is covered during the programme. Considering the current research around the impact of TA interactions on pupil progress, it would be valuable for individuals who attend such courses to have an opportunity to develop a knowledge base (in the least) about the importance of effective TA-pupil interactions.

Cockfort and Atkinson (2015) also reported that the TAs felt that they had a positive impact on the child and provided effective support. They prided themselves on knowing the children they supported *'inside and out'* and felt it was important to have a positive relationship with the children. The rapport they built with the children and the links they made with home they felt also supported the teacher; this was conceptualised as the practice component of the WPR framework.

With regards to training, the TAs felt that limited training opportunities was a barrier to effective practice and led to the inaccurate implementation of interventions. In commenting on intervention delivery, the TAs felt they often were ill-equipped for the role and felt they spent a lot of their time '*muddling their way through.*' The TAs stated that some resources and information would be valuable in supporting children with specific needs (Cockfort & Atkinson, 2015, p98). These findings reinforce Giangreco's (2013b) view that it is the least qualified individual that is expected to provide instruction and support to the children with the most needs.

Other views that emerged from Cockfort and Atkinson's (2015) study regarding training was that, any further training received was often via support from other TAs or the sharing of good practice from teachers and other professionals such as Speech and Language Therapists and SENCOs. Although valuable to the TA, the practice shared often lacked theoretical rigour or rationale. This current study intends to deliver training directly to the TAs where the content has a theoretical underpinning, based on psychological theory of scaffolding and is valuable in contributing to assessment for learning.

2.5. Establishing a role for TAs

Researchers argue that TAs should not be expected to perform like teachers and should adopt a role which moves away from pedagogy and is focused more on encouraging pupil motivation, classroom motivation, organisation and management (Giangreco, 2009; Webster et al., 2011). Giangreco (2009) also argue that the TA should not be required to make pedagogical decisions and so their role in the class should be 'supplemental rather than primary or exclusive'. Webster et al. (2011) argue that if the TA role does primarily remain a pedagogical one then there needs to be some clarity about what is expected of them.

Such clarity has come from research and advice written by Bosanquet, Radford and Webster (2016), who refer to the SEN Code of Practice (DfE/DoH, 2015). It states that the teacher is *'responsible and accountable for the progress and development of the pupils in their class, including where pupil access support from teaching assistants or specialist staff'* (p.99). Therefore, tasks such as differentiating and assessing progress should be conducted by the Teacher with the support of the SENCO, rather than the TA. In agreement with Giangreco (2009) the authors express that the TAs' role should be complementary to that of the teacher and should make a distinctive contribution to assessment for learning.

In working in a one-to-one or small group setting, the TA has a unique position of being able to constantly monitor the progress of pupils working towards achieving their learning goals.

The authors suggest that the TA acting as a scaffolder (which will be explored in more detail below) presents the opportunity for immediate feedback to be offered to the child and support with particular aspects of the task the child may find difficult.

The training programme delivered in this current study focused on the interactions between TA and pupil. As previous research suggests, the majority of TA time is spent working in a one-to-one or small group setting where they acquire a pedagogical role (Webster et al., 2011). It is therefore important to ensure that the type of interactions that occur are those that foster learner independence.

2.6. Scaffolding

The use of scaffolding is key to the TA role as it presents an opportunity for TAs to foster learner independence and reduce the risk of promoting dependence in learners (Webster et al., 2011). Wood Bruner and Ross (1976) introduced the metaphor 'scaffolding' to describe the interactions between adult and individual children where the adult or the expert provides support to a child or the novice in 1:1 task settings. The child would play with a task that was above their current ability but within their capacity and the adult only intervened when the child experienced difficulty and needed support. The authors argued that scaffolding provided by an adult "*enables a child or novice to solve a problem, to carry out a task or achieve a goal which would be beyond his unassisted efforts"* (p.90). They identified several key features of successful scaffolding which were, recruitment of the child's interest in the task, making the task manageable to the child by reducing the degree of freedom, maintaining goal direction, marking critical features, controlling frustration and modelling solutions to the task (Wood et al., 1976 in Khaliliaqdam, 2014) Therefore, scaffolding may result in "development of task competence by the learner at a pace that would outstrip his unassisted efforts" Wood et al. (1976), (p. 90). The original view of scaffolding has been

criticised because it takes an unbalanced view that that the adult/expert alone provides the scaffold and the child is passive in the process (Daniels, 2001).

Scaffolding has evolved since its original conception, it is no longer seen as an isolated face-to-face interaction that occurs during 1:1 support but is identified as something that can occur during peer collaboration (e.g. Barnard, 2002; De Guerrero & Villamil, 2000; Shehadeh, 2011; Storch, 2007; Van Lier, 2004; Walqui, 2006) and between teacher and a full class of children (e.g. Davis & Miyake, 2004; Many, Dewberry, Taylor, & Coady, 2009).

The initial description of scaffolding has also developed and authors (Stone, 1998; van de Pol, Volman & Bieshuizen, 2010) view scaffolding as an interactive process where both student and teacher must participate actively in the process with the key characteristics being *contingency, fading and transfer of responsibility. Contingency* is where the adult's support is adapted to the student's current level of performance and the support is at the same or slightly higher level. To determine the child's current level the adult would need to use diagnostic strategies such formative assessment (Shepard 2005), dynamic assessment (Lajoie, 2005; Macrine and Sabbatino, 2008; Pea, 2004; Swanson and Lussier, 2001), or monitoring and checking students' understanding (Garza, 2009). *Fading* is when the adult decreases the level/and or amount of support over time which results in there being a *transfer of responsibility* and the student takes increasing learner control (van de Pol et al., 2010).

The role scaffolding plays in bridging the gap between the child's current ability and potential ability was identified as the zone of proximal development (ZPD) by Vygotsky, (1978). Vygotsky defined the ZPD as *"the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers"* (p. 86).
In order to successfully use the ZPD to scaffold the child's learning, the talk needs to be 'contingent' on what has occurred before. The adult has to pay

close attention to what the child has said and adapt their response so that the child will understand and also build on their response. If the talk is not contingent the child will not understand and if the talk is pitched too high or too low, the child will not learn (Radford et al., 2015).

Pentimonti and Justice (2010) argue that scaffolding strategies can span on a continuum of low to high support which differentiates the amount of support provided by the adult while the child is engaged in a task. Low levels of support would include strategies such as predicting, generalising and reasoning and would occur when the child is becoming mature in a particular area of development or skill. High levels of support would require more structured adult assistance which may include reducing choices, co-participating or eliciting. Such support is provided when the child is at the early stages of displaying a skill and requires a significant amount of support.

The authors delivered a one-day training workshop to teachers about read aloud interactions and scaffolding strategies that could be used in the classroom. They then video recorded a single whole class read aloud session and used coding to examine the teachers' use of the scaffolding strategies. It was found that teachers used more low support strategies during early years read aloud interactions and very little high support strategies, which was necessary when supporting children with SEND. The authors go on to state that successful scaffolding requires the teacher to manage the complexities of having subject knowledge as well as knowledge of the child's ability. They also need to be responsive to the child with regards to adjusting the level of support to ensure the child begins to assume more responsibility for learning (Pentimonti & Justice, 2010). Scaffolding in this capacity would be particularly difficult for TAs because they do not possess the pedagogical and subject knowledge to effectively support the child.

The coding in Pentimonti and Justice's (2010) research quantified the number of times a teacher used a scaffolding strategy, which is valuable in establishing whether the teachers are using the taught strategies however, it does not provide any insight into the detail or quality in which those strategies are being

used. Furthermore, a survey conducted in the same study found that teachers reported using high and low strategies about the same amount of time. This is different to the findings from the observation data suggesting the teachers may be unclear about the distinctions between high and low support strategies. A lack of detail from the observational data means that there is little scope to explore this further. The present study will be using conversation analysis to allow for the detail in the interactions between the TA and pupil to be analysed and provide further insight into the quality of those interactions.

Having the capacity to analyse the detail and quality of scaffolding strategies is valuable to establish the fidelity of its application. Research has questioned the validity of applying scaffolding to learning in the classroom where the teacher is responsible for scaffolding, because authors have found that teachers rarely use the contingent response or it is substituted with alternative strategies (Franke, Webb, Chan, Ingm Freund & Battey, 2009; van de Pol, Volman, Beishuizen, 2011). Therefore, scaffolding in the classroom is often confounded with various alternative strategies (Howe, 2013). However, scaffolding has been found to be more effective when teachers are supporting a small group of children rather than a whole class (Ankrum, Genest & Belcastro, 2014). It is argued that a diverse range of scaffolding strategies are required to meet the unique needs of all the children in a classroom environment (Pentimoni & Justice, 2010). Therefore, making it a challenge to effectively implement contingent responding to individual children in the class. Considering TAs predominantly support individual children and small groups, they are better positioned to effectively implement the contingent role of scaffolding.

Radford, Bosanquet, Webster and Blatchford (2015) proposed three key roles of scaffolding that could be used for SEN instruction that TAs could apply to their practice:

Repair Role - the term repair in interactions means anything that the participants treat as problematic in an interaction (Schegloff, 2007). Repairs occur frequently in the classroom to support in either getting children back on task or correcting unanswered or incorrectly answered questions. The most

appropriate repair strategy for TAs to use would be other initiated repair (OIR) because the responsibility is transferred to the learner (Radford, 2010) which encourages them to think for themselves, unlike corrections.

Support Role - this role is argued to be particularly important for children with attention, language, learning, emotional and/or behavioural difficulties (Radford et al., 2015). There are three functions identified in this role, recruitment (i.e. getting the child involved and interested in the learning experience), direction maintenance (i.e. ensuring the child remains on-task) and contingency management/frustration control (i.e. helping to reduce the learners' anxieties about a particular task) (Rojas-Drummond, Torreblanca, Predraza, Velez & Guzman, 2013; van de Pol et al., 2010). There is some evidence that TAs are already successfully performing the support role (Blatchford, Bassett, Brown & Webster, 2009).

Heuristic Role - this is offering strategies to problem solve that encourages learners to discover solutions for themselves (Blatchford, Russell & Webster, 2012). Holton and Clarke, (2006) make a distinction between *conceptual scaffolding* and *heuristic scaffolding* where 'concept' refers to the content of the subject being scaffolded and 'heuristic' refers to the approaches taken to problem solve. They argue that heuristic scaffolding empowers learners by encouraging them to explore relevant approaches to problem-solving. The authors present an example of a supervisor and a graduate student where the supervisor will have knowledge of the research area the student is exploring, but does not know what the student will find precisely. So, although not able to scaffold the 'concept' of the subject, the supervisor will possess the skills to guide the student to finding the result for themselves. Similarly, with the role of the TA, although they may not have extensive subject knowledge they will possess or can acquire skills to guide the pupil on how to work towards solving the problem.

2.7. Scaffolding framework

Bosanquet et al. (2016) have suggested a framework of talk strategies that TAs can use to support pupils, these are *self-scaffolding, prompting, clueing, modelling* and *correcting*. The framework is rooted in scaffolding theory and the strategies are presented in a hierarchy of least to most responsibility.

Self-scaffolding is done by the pupil on their own and gives the greatest responsibility to the learner. The learner would possess the necessary skills to plan how to approach a task, problem solve during the task and review the success of the task and how they approached it (Bosanquet et al., 2016) e.g. self-scaffolders who are writing a creative piece about Greek mythological creatures would be able to; plan what characters will be in the story, explore the particular features/powers of the mythological creatures they are writing about; decide on the structure of the story; decide how they intend to finish the story and check their grammar and spelling throughout the story.

Prompting is the first level of adult intervention where the TA may encourage the pupil to draw on their own knowledge. This sometimes could be saying nothing as extra thinking time may be required. The prompt should encourage the pupil without offering any strategy they should use. In the case of the writing task the TA may ask; "What do you need to do first?" or "How will your writing be structured?"

Clueing gives the pupil a hint when they may already have the knowledge they need to solve the problem. This is more specific than prompting as it gets the pupil to think of a particular strategy they know. With reference to the mythological creatures' example, the TA might ask 'What mythological creature are you going to write about? (*The answer may be a Minotaur) or* 'What goes at the beginning of your story?' (*The answer is an introduction)* or 'How do you start your sentences?' (*The answer is, with a capital letter).*

Modelling is offered when a skill or strategy is new to a pupil and they will benefit from having it modelled by someone. This may include giving the pupil

step-by-step instructions that will support them in practicing a skill or strategy and as result reducing the level of adult help. With regards to the mythological creatures' example, the TA might say; 'Go back through your book and look at your prompt sheet about structuring a story' (*This models how the child can use previous materials to support with other tasks).* Modelling could also mean providing a running commentary on how to use a particular strategy. For example, the TA may model how the child could do additions using a number line. Whilst the TA models the strategy they are also providing a running commentary about what they are doing at each stage.

Correcting means the pupil does not think independently because the right answer is given to them or the task is completed for them, (Radford et al., 2011) giving the least responsibility to the learner. In the example provided, the TA may say; 'So yesterday we learnt about the Chimera, shall we make the story about them?'

A number of techniques and examples of the types of interactions that may take place are offered by Bosanquet et al. (2016). This was included in the training programme as well as allowing TAs the opportunity to identify and share how their current practice can be applied to this model

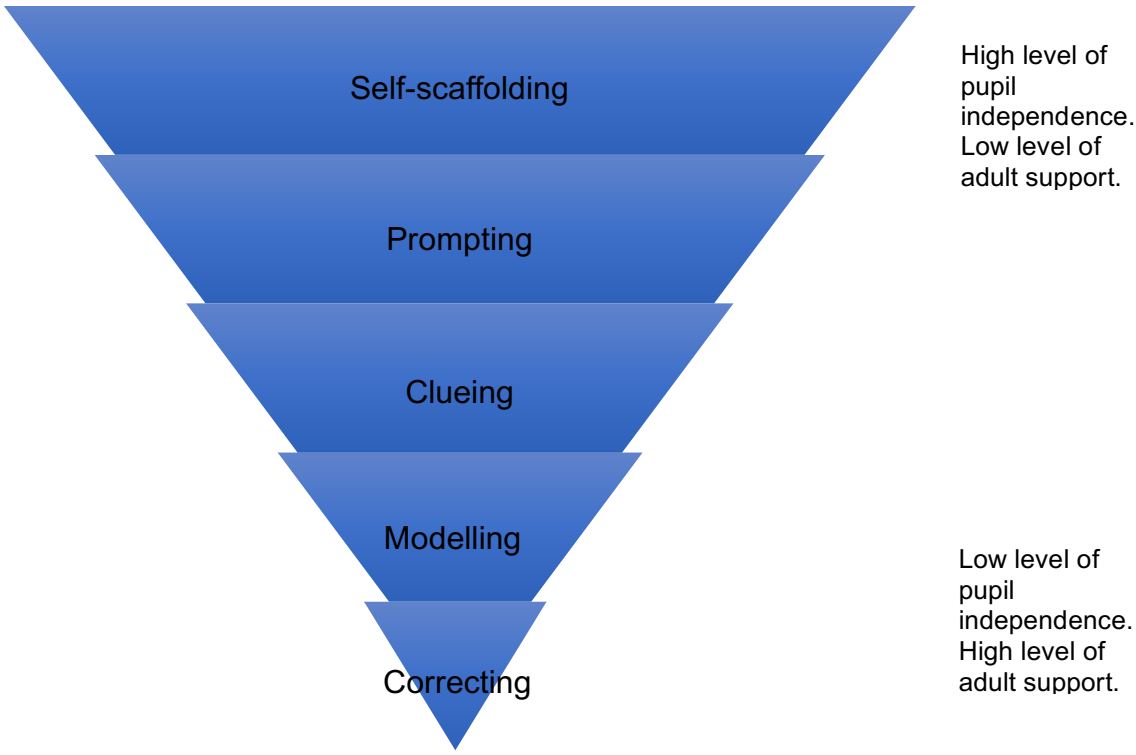


Figure 2 - Scaffolding Framework (Bosanquet et al., 2016)

2.8. Dialogic talk

The dialogic talk strategy is relevant to the training for TAs because it offers the TAs an opportunity to increase pupil engagement and raise the quality of the TA-pupil interaction (Lyle, 2008)

Research has found that the discourse between teacher and pupils with SEND is often dominated by teacher explanations, question/answer sequences and does not allow the child opportunity to explore and elaborate on their ideas (Hardman, Smith & Wall, 2005). This type of discourse is commonplace in classrooms and is known as Initiation-response-feedback (IRF) (Sinclair and Coulthard, 1975). IRF is where the teacher initiates a question about a topic (which is primarily a predictable or closed question), the child responds with an answer and the teacher then gives feedback in the form of praise for a correct answer or acknowledging/correcting the error in the child's response (Lefstein and Snell, 2011). This practice has been subject to criticism as it is identified as an adult led interaction where there are limited opportunities for

the child to exercise initiatives (Seedhouse, 1997; van Lier, 2000). It is also argued that IRF correlates negatively with learning because the child does not develop any ideas of their own and “remembering and guessing supplant thinking” (Nystrand, 2007; p6). Hardman, Smith & Wall, (2003) argue that interaction in the classroom is dominated by test questions and remains cognitively low-level.

Dialogic talk, focuses on the quality, dynamics and content of talk in the classroom (Alexander, 2008). The theoretical foundations of dialogic talk are influenced by Vygotsky's social constructionist approach to learning where it is argued that the child acquires knowledge as a result of interacting with others around them. Therefore, dialogic talk involves the child being an active participant in a two-way dialogue with their teacher rather than a passive recipient. This is important for the TAs as it reduces the amount of dependency a child may develop as a result of TA support.

Alexander (2006) identifies the key features of a dialogic classroom as;
Collective where learning tasks are addressed by teachers and children together, whether as a group or a class, rather than in isolation; *Reciprocal* is where ideas are shared and alternative viewpoints are considered as teachers and children listen to each other; *Supportive*, this allows children to express their ideas freely, without fear of embarrassment over ‘wrong’ answers, and help each other to reach common understandings; *Cumulative* gives teachers and children the opportunity to build on their own and each other’s’ ideas and chain them into coherent lines of thinking and enquiry and *Purposeful* where teachers plan and facilitate dialogic teaching with particular educational goals in view. (Alexander, 2006).

In addition to the features of a dialogic classroom, Nystrand and Gamoran, (1997) identified three key features of dialogic talk; 1.) *Authentic questioning* uses open questions that the teacher does not have a pre-specified answer to, 2) *Uptake* is where subsequent questions are asked about the child’s response and 3) *Cognitive level* is where the teacher asks the child to validate or elaborate on their response to encourage higher order thinking.

As demonstrated above the emphasis is on the adult appropriately responding to the child's answer where they are able to explore the child's knowledge of the topic and encourage them to share their ideas. This is distinctly different to the IRF pattern where the child is required to respond to a pre-existing answer the adult holds about a topic. The IRF pattern of talk has been demonstrated by TAs in Radford et al. (2011) where the TAs copy the teacher's initiation to support the child in arriving to the correct answer. Although the excerpt in Radford et al's. (2011) study demonstrated how TAs can support children to re-focus, the IRF model of talk limited the child's participation (Hardman, Smith & Wall, 2005).

Similar to scaffolding, the prevalence of dialogic talk in the classroom is rare and research suggests that teacher's voice remains dominant over the student. Nystrand et al. (1997) found that dialogic talk took up less than 15% of instruction time and was virtually absent amongst low ability children. This is partly due to there being an emphasis on factual recall rather than higher order interactions and also teachers lack the skills to effectively plan lessons that involve dialogic talk (Lyle, 2008; Myhill and Fisher, 2005). The research conducted by Nystrand et al. (1997) took place in a secondary school and so this current study would provide some insight into whether similar practices occur in primary schools.

Dialogic talk has however had success in small group activities, particularly with collaborative group work and training students to develop reasoned argumentation (Gilles & Khan, 2009: Reznitskaya, Kuo, Clark, Miller, Jadallah, Anderson & Nguyen-Jahiel, 2009). With Gilles and Khan's (2009) research, they demonstrated that teachers who were trained to challenge and scaffold the thinking of the children demonstrated more mediated behaviour and was able to model and train their children to pose questions that promote discourse, problem-solving and reasoning during their group activities.
Such findings suggest that dialogic talk is more successful when used with small groups rather than a classroom of children. As TAs are normally working

with small groups or individual children, they are well placed to use the dialogic talk strategy.

Dialogic talk also resonates with scaffolding theory and the Vygotsky's (1978) ZPD because in all approaches, there is a requirement for discussion and collaboration to occur in order to foster understanding. Research in both approaches have found there to be more success in application during group activities (Gilles & Khan, 2009; Ankrum, Genest, Belcastro, 2014). Training TAs to use these approaches would be valuable as they are currently well placed in the classroom to effectively implement these practices. Practices in dialogic talk was also included in the training because the researcher felt that it would significantly contribute to the quality of the interaction the TAs have with children when scaffolding their support.

2.9. Study aims and relevance to Educational Psychology Practice

The aim of this study is to provide a training programme that offers TAs insight into what is identified as effective communication in the classroom setting and offer the skills for them to apply it in their work. The training programme aims to cover topics around scaffolding, language for learning and behaviours that will promote independent learning in students. The focus will be on how TAs are able to use scaffolding strategies and incorporate dialogic talk strategies to support the child. They will also receive training on how to apply Bosanquet et al's. (2016) scaffolding framework to promote learner independence.

This current study is unique in its approach for it intends to begin to practically address some of the concerns from research about the TA role through delivering a bespoke training programme that is theoretically informed and suited to TAs. The intention is to equip TAs with the relevant skills to improve the quality of their interactions and also gain TAs' views about the pedagogical strategies they are currently using and their feedback about the training.

Furthermore, the uniqueness of triangulating the observation and interview data enables the researcher to identify whether the TAs' views and explanations about their strategies is truly reflected in their practice.

The current study is relevant to the role of Educational Psychologist (EP) because EPs are well placed in their Local Authorities to deliver such training. A number of EPs in the UK are currently already involved in the training and supervision of school support staff (including TAs) with the Emotional Literacy Support Assistant (ELSA) training programme (www.elsanetwrok.org), and so have established a means of contributing to the professional development of TAs.

The research questions that will be explored are:

1. To what extent will TAs adopt and implement the contingent role in scaffolding and dialogic talk strategies delivered in a training programme?
2. What are the TAs' views about the training programme and its impact (if any) on their practice?
3. Will there be a relationship between the TAs applying the strategies from the scaffolding framework, learnt during the training programme and children fostering learner independence?

3. Methodology

3.1. Introduction

This chapter will describe the research design and methodological considerations of the present study. The qualitative design will be described and an explanation for why the interview and observation data was triangulated will be offered before a description of the participants and the contexts in which the research took place will is given. The process of designing the training programme and interview scheduled will be given before the rationale for an explanation of the two methods of data analysis and ethical consideration is given.

3.2. Design

This was an intervention study with a qualitative design. A qualitative design was chosen because it allows for the analysis of the details in the TAs responses and interactions rather than to quantify the occurrence of a response or strategy. Therefore, semi-structured interviews and unstructured observations will be used to collect the data. Unstructured observation was the method chosen because it enables the researcher to gather information about the setting and participants. It also allows for the triangulation of data when used with interviews and so comparisons can be made between the participants' accounts and actual behaviour; which is what this present study intends to do. Unlike structured or systematic observation there are no predetermined codes that constrain the data and so unexpected behaviours and other contexts can be considered.

The research is conducted from a critical realist perspective where it identifies that reality exists independently of an individual's beliefs or knowledge, but is interpreted through social conditioning (Wahyuni, 2012). In the current research, the TAs' experiences and interpretations of the training will be constructed according to the context or social structure they observe. Therefore, the data collected will be based on their views explained within the

context of the school and classroom environment as well as their experiences that has influenced their role.

The study is comprised of three parts, baseline, intervention and post data collection (see Fig. 3)

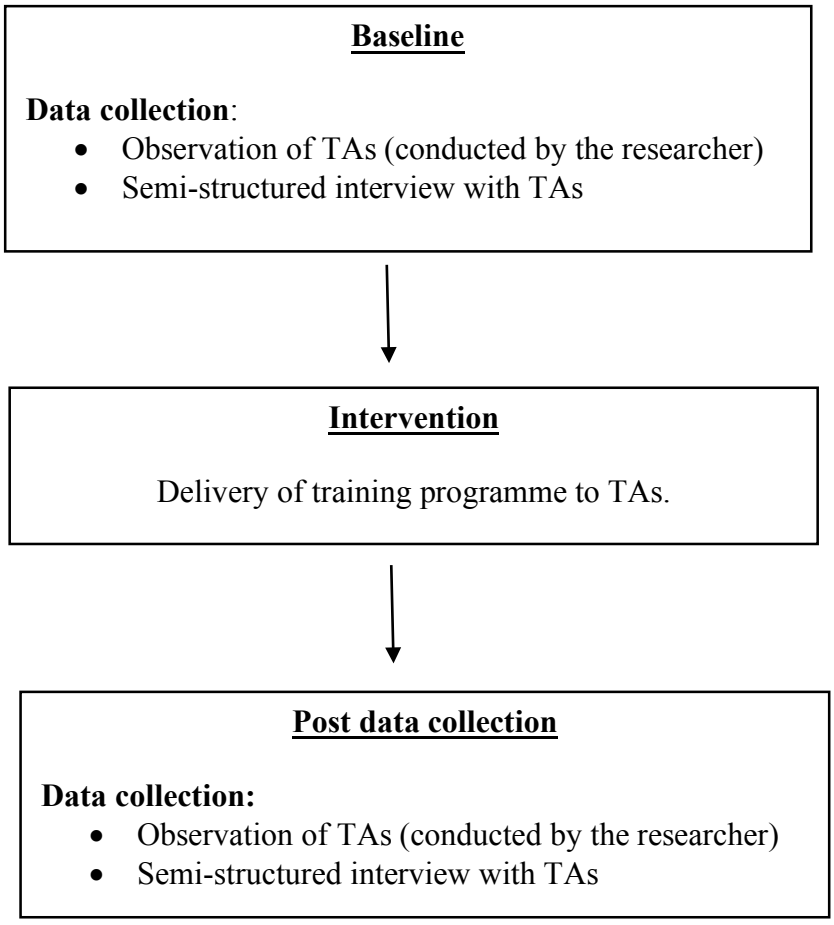


Figure 3: Phases of research.

The data was triangulated from interviews and observations and was analysed using qualitative approaches. It was also valuable to quantify the occurrence of certain behaviours observed in the TAs because it complemented the detailed analysis by providing an overall view across the participants. This was valuable in identifying if particular behaviours occurred more than others and exploring why that may be the case.

The researcher did not feel the use of predetermined codes in structural observations to be appropriate as it can limit the researcher's sensitivity to what is actually happening and the context in which the interaction took place can be lost, making it difficult to apply meaning (Mercer, 2010).

A disadvantage of using a qualitative design is that the sample size of participants is generally small; which is the case in this study. Therefore, it is not representative of the TA population and does not allow for generalisations to be made about the performance of TAs in schools. However, the focus of this study is to explore the impact of an intervention on TA practice as well as TAs perceptions about their role and views about the intervention. The intention therefore is to explore the quality of interactions that occur between TAs and pupils rather than quantifying the occurrence of certain behaviours.

Both the interviews and observations were intended to answer research question one about the whether there will be a change in TA practice as a result of receiving training. Unstructured observations and semi-structured interviews were conducted with 5 TAs. The interview data was intended to answer research question two about the TAs' perceptions of engaging in the training programme and the observation data was intended to answer research question three about whether the strategies used by TAs were fostering learner independence.

It was important to triangulate the data in order to get a detailed insight into TA practice for, although the participants may have been able to describe the strategies they used, it would also be valuable to see the detail of those strategies through observations and audio recordings. Also, TA research conducted by Bowles (2016) found that TAs experienced difficulty describing strategies they used to support children however the researcher was able to see examples of some of the strategies discussed through the observations they conducted.

3.3. Participants

The participants were selected using an opportunity sample whereby the researcher approached the Special Education Needs Co-Ordinator (SENCO) of the schools they had previously worked in as a Trainee Educational Psychologist.

Both primary and secondary schools were approached requesting their participation however the secondary schools did not express any interest in participating as they felt their TAs were adequately trained and mainly delivered specific interventions or provided pastoral (behavioural and emotional) support to particular pupils.

3.4. Context of Schools and profile of TAs

A total of five TAs from two mainstream primary schools located in the same inner London Local Authority participated in the study.

All the TAs supported children in key stage 2 (Year 3-6, age 7-11). This key stage was chosen because this is normally the stage where children are encouraged to work independently.

3.4.1. School A

School A is a large primary school located across two sites. One site has a two-form intake of children from Reception to Year 6 (up to 60 children in each year group) and a nursery class. The other site has a three-form intake from Reception to Year 6 (up to 90 children in each year group).

Three TAs came from this school and had been in post for an average of 4 years. The SENCO conducted regular observations of the TAs practice in class and also delivered half termly supervision to TAs where they had an opportunity to come together and share ideas of good practice or raise concerns. The SENCO had also previously discussed the findings and recommendations from the Maximising the Impact of Teaching Assistants (MITA) (Blatchford, Russell & Webster, 2013) study during these sessions.

3.4.2. School B

School B was a small school located in the centre of the borough. It has a 1.5 (up to 45 pupils can be admitted in each year group) intake of children from nursery to year 6.

Two TAs came from this school and had experience of being a TA for an average of 3 years. Similar to School A, the TAs had regular observations from the SENCO who would then feedback their findings.

3.4.3. Profile of the children

The intention was to observe all the TAs supporting a child who was identified as needing additional support to access the school curriculum, but were not subject to Statement of Special Education Need (SEN statement) or an Education Health and Care Plan (EHCP). This became difficult to achieve as TAs in both schools mainly supported children with an SEN statement or EHC plan. One TA provided 1:1 support to the same child in every lesson and the other four TAs provided support individual or small groups of children in specific lessons.

3.5. Training programme

The content from the training programme was adapted from the book entitled *'The Teaching Assistants Guide to Effective Interaction: How to maximise your practice'* by Bosanquet, Radford and Webster (2016). The book is aimed towards TAs and discusses psychological theories and practical tasks TAs can adopt to their practice.

The table below highlights the topics covered in the book and the topics included in the training programme.

Table 1: Topics included in the training programme

Topics covered in 'The Teaching Assistants guide of Effective Interaction: How to maximise your practise'	**Topics included in the training**
The role of the TA	
Constructivist Learning theory and ZPD	✓ (pre-training material)
Classroom talk	✓
Scaffolding theory	✓
Scaffolding strategies	✓
Providing feedback to teachers and pupils	✓
Promoting effective group work	
Delivering intervention programmes	

The selected topics were included because the researcher felt that the information could be delivered effectively within the time available for the training and TAs could gain some practical skills that they could immediately include in their practice.
A practical activity (see Appendices) was included as well allowing time for discussion and reflection.

The TAs were also given prompt cards (see Appendices) which outlined the different stages of the scaffolding framework which they were able to reference when supporting children.

The training programme was delivered during a three-hour session for both schools on a staff INSET day.

3.6. Theories and approaches that influenced delivery

The activities that were included in the training session accounted for the various learning styles individual TAs may have and so there was combination

presenting, discussion, and asking for TAs' views or reflections on their experiences that resonates with the information being presented.

This approach was informed by Knowles' theory of Andragogy (1984) and the Kolb Learning style inventory (Kolb, Kolb, Passarelli and Sharma, 2014). Knowles' theory identifies six assumptions about adult learners which distinguishes them from child learners. This includes adults having an internal motivation to learn and adults using their gained experiences as a rich source of learning (Knowles 1984). The Kolb Learning Style Inventory (Kolb et al., 2014) is based on the Experiential Learning Theory (Kolb, 1984) and describes nine learning styles adults may have; these include the ability to integrate and systemise ideas through reflection (known as 'The analysing style) and using theories and models to decide problem solution and courses of action (known as the 'Deciding style').

Critics have argued that this model of adult learning focuses purely on the individual and does not consider the context in which learning takes place (Grace, 1996), however the assumptions are useful in forming a basis for understanding how adults learn. Having some prior knowledge about the TAs attending the training was also valuable as the researcher was able to present information that can be compared to what the TAs already knew and create opportunities of reflection in action (Schon, 1983), this enabled the TAs to formulate abstract concepts and make sense of the new information

Activities were also included in the training programme to give TAs an opportunity to practice some of the new skills explored and finally each TA set a target of one thing they will implement into their practice as a result of attending the training session.

The researcher adopted the role of facilitator rather than expert during the session, for it was important that an active learning approach was taken where the TAs were able to contribute their knowledge and experiences rather than being a passive recipient of new information (Grasha, 1994). This was done by presenting the TA with the theories and information and asking their input

regarding their views or experiences that may relate to the information presented. More importantly, the TAs were given an opportunity to discuss how they would apply the new strategies to practice. The researcher supported this process by posing questions about possible challenges or opportunities enquired about the availability of resources.

3.7. Procedure

The researcher visited the schools and observed each TA in a Maths and English lesson for 45-60 minutes. The TAs were then interviewed using the pre-intervention interview schedule.

The TAs were given pre-training reading (Appendix D) a week before the training. It gave an introduction to the constructivist learning theory and ZPD. They were also given an activity to think about their current practice. The training was delivered (Appendix E) to TAs for three hours during the staff INSET day.

The post-intervention data was collected 10-12 weeks after the training was delivered. Each TA was observed in a Maths and English lesson for 45-60 minutes and were then interviewed using the post-intervention interview schedule.

3.8. Measure

3.8.1. Semi-structured interviews

A face-to-face Semi-structured interview was chosen to gain the TAs' views about their practice because it enabled participants to elaborate on their points if requested, there was flexibility in modifying the order of questions and allowed the participant enough time to reflect on their practice. The face-to-face element also allowed for the interviewer to observe any non-verbal cues the interviewee may present in response to a question, therefore allowing for

a deeper insight into the interviewee's response (Robson, 2011). A disadvantage to conducting such interviews is the researcher effect, where the TAs might perceive the researcher to be an individual who is inspecting or judging their practice. This would impact the validity of the data because TAs may be inclined to provide an answer they feel the researcher wants to hear rather than their views. To control these effects, the TAs were informed that the research was an opportunity for TAs to share their views about their role as well as sharing good practice and identifying the positives and challenges implementing skills gained in the training. Also, when constructing the questions, it was important that they were not too prescriptive or leading and the previous questions led into the following questions (Breakwell, Smith and Wright, 2012).

3.8.2. Interview Schedule

The interview aimed to explore the strategies TAs used to support children in the classroom and promote independent learning. Also, the interview intended to gain an understanding of what TAs perceived their role to be, describe the skills they would like to gain and possible training they would like to attend. The questions about their role and classroom strategies were asked both before and after the intervention. Both the pre-and post-intervention schedule asked TAs about the strategies used to support children to perform certain tasks. Questions around providing feedback and the TAs experience and impact of the training session were asked post intervention.

The schedule was piloted by the researcher at a primary school that was not part of this study and three TAs participated in the pilot. The initial schedule (see appendix) consisted of seven questions asking the TAs about the strategies they used to support children. The outcome of the pilot resulted in the addition of two prompt questions. This enabled the TA to expand on their responses about how they support children to problem solve and desceibe and how they provide feedback.

3.8.3. Observations

The TAs were observed supporting the same children in an English and Maths lesson which were 45-60 minutes long. Their interactions were audio recorded and observation notes were made regarding their non-verbal interactions and other occurrences during the lessons. Observations were used to supplement the information gathered from the interview with the TAs. Such triangulation of the data allowed for a more detailed analysis of the data collected where comparisons can be made about what the TAs described their practices to be and what was observed. It also offers an opportunity for the researcher to record any gesture or other non-verbal forms of communication TAs may use to support children; this would not be possible if the interactions were only voice recorded. The disadvantage of using observation is that the presence of the observer may impact the behaviour of the TA and child/children being observed. The researcher met with TAs beforehand to build a rapport and attempt to lessen any anxiety they may feel about being observed. To reduce the possibility of the Hawthorne effect (Robson, 2011) for the children, the researcher was placed in a discreet area of the classroom that did not interfere or disrupt which did not disrupt any of the activities occurring in the lesson. Also, permission was sought from all the parent/guardians of the children in each class and so the children did not know specifically who was being observed. The researcher was also informed by the SENCOs from both schools that the children were used to having visitors in the lesson and so their presence should not have an impact on their behaviour. The observation notes recorded any non-verbal behaviour observed during the lesson (e.g. pointing, gesturing or physically moving away from the child). The researcher deemed this valuable because there are aspects of the Scaffolding Framework (e.g. prompting) that encourages the use of non-verbal gesture.

The researcher was accompanied by another researcher for two lessons (one literacy, one maths) where they both observed the TA and recorded the time and detail of any non-verbal behaviours. The observation notes were cross referenced to check whether the behaviours were described in a similar way.

Both researchers recorded the similar information about the behaviours observed.

3.8.3.1. Observations scenarios - Pre-intervention

The table below outlines the topics covered during the observations. TAs 1-3 were from school A and TAs 4-5 were from School B

Table 2: Pre-intervention observation scenarios

TA	Year group	Type of support (Individual, pairs, group)	Lesson	Topic
TA1	Year 6	Individual	Maths	Measuring circumference and diameter
TA1	Year 6	Individual	Literacy	Complete piece of writing based on the story the class read and try to build suspense and tension using adverbs
TA2	Year 5	Pairs	Maths	Solving problems on a number spider (i.e. halve, double, add 10, subtract 3-, multiply and subtract 5, from 17)
TA2	Year 5	Individual	Literacy	Describe, identify and manipulate modal verbs
TA3	Year 3	Group	Maths	Telling the time
TA3	Year 3	Individual	Literacy	Write a poem about what you enjoy at school

TA4	Year 6	Individual	Maths	Ordering decimal numbers and multiplying and dividing numbers by 10.
TA4	Year 6	Individual	Year 6	Writing cooking ingredients and cooking instructions
TA5	Tear 3&4	Group	Maths	To complete the multiplication number sentences
TA5	Year 4	Pairs	Literacy	Recalling their journey to the River Thames.

Table 3: Post-intervention observation scenarios

TA	**Year group**	**Type of support (Individual, pairs, group)**	**Lesson**	**Topic**
TA1	Year 6	Individual	Maths	Calculating percentages
TA1	Year 6	Individual	Literacy	Writing a biography
TA2	Year 5	Pairs	Maths	Find the missing number in addition equations
TA2	Year 5	Individual	Literacy	Writing a persuasive letter
TA3	Year 3	Group	Maths	Measuring capacity
TA3	Year 3	Individual	Literacy	Ordering a story using pictures
TA4	Year 6	Individual	Maths	Measuring area and perimeter
TA4	Year 6	Individual	Literacy	Writing an account of an incident
TA5	Year 3&4	Group	Maths	Equivalent fractions
TA5	Year 4	Pairs	Literacy	Using fronted adverbial

3.9. Methods of analysis

3.9.1. Conversation Analysis (recorded interactions)

The recorded interactions between the TA and the pupil were analysed using, Conversation Analysis (CA). CA is described as “the study of talk- in-interaction" (Have, 2007, p.4). This approach to analysis was chosen because its focuses on the way social acts are organised during interactions (Seedhouse 2005) also from a CA perspective, human interaction is perceived as organisational and procedural and the analytic purpose of the approach is to explore how rather than why individuals interact with each other (Have, 2007). It also enabled the researcher to identify rules, techniques procedures and methods in the conversation. The purpose of this current study is to explore how TAs interact with the children they support by analysing their interactions and more importantly the turns in their interactions are interpreted line by line by the listener; as such, contribution of one individual is reliant upon on the input of the other. CA will enable the researcher to explore the strategies and types of talk TAs use in their support and child's response to them. CA will also provide insight into whether the type of talk the TA uses to support the child changes after intervention and more specifically whether they have adopted the talk strategies in the scaffolding framework, the contingent role in scaffolding and the dialogic talk approach that will be delivered during the training. The sequential analysis that occurs with CA will also enable the researcher to look at the turn of the pupil in the interaction and whether the TA is able to adjust their support over time (Radford et al., 2015).

As well as presenting a detailed analysis of the talk, the researcher deemed it valuable to quantify the occurrence of talk strategies (by using a tally) and categorise how the TAs used specific talk strategies to support the child (through describing what aspects of TA talk reflected each strategy in the scaffolding framework). The researcher felt this complemented the details analysis because it captured an overall picture of what was occurring across all 5 TAs as well as in the individual cases.

The researcher believed CA to be reliable because it requires one to display the analysis (see Results Chapter) which provides transparency. Therefore, it is reliable in the sense that the method can be repeated (Seedhouse 2005). Although CA can provide valuable insight into the interactions between TA and pupil, the analysis is time consuming and can only be used with a small sample, as a consequence, it is also difficult to make generalisations because the illustrative examples are so specific (Mercer, 2010). However, the focus of this current study it to explore whether an intervention can influence practice and its findings can inform how training of this nature can be delivered to a wider population. CA can be argued as being ecologically valid because it is an analysis of interactions that occur in everyday life and real-life settings (i.e. the classroom) where the interactions are not being manipulated (Mercer, 2010).

Once the recordings were listened to many times, specific episodes that were related to particular aspects of the literature on classroom talk, scaffolding, emotional support or the thematic analysis of the interview data was transcribed and analysed. As well as using the general CA transcription conventions (ten Have, 2007), non-verbal details such as gestures and nodding were included because they were an integral aspect of the strategies TAs used which contributed to the support the child received and responded to.

3.9.2. Thematic Analysis (Interviews and training session)

The data collected from the interviews with the TAs was transcribed and a separate analysis was conducted using inductive thematic analysis to gain the TAs' perspective on the strategies they currently use to support children and what they would benefit from to perform their role better.

Unexpected data emerged from the discussions held during the training sessions. Due to TAs being encouraged to share their knowledge and experience related to the topics discussed a number of point were raised which

provided valuable insight into the strategies used by TA and the challenges they face when undertaking their role. These findings were recorded by the researcher through written notes and thematic analysis was used to identify the emerging themes from the data.

The phases of thematic analysis were adapted from Braun & Clarke, 2006 (as described in Table 2).

Table 4: Phases of thematic analysis (adapted from Braun and Clarke 2006, p87)

Phase	Description
1. Familiarising yourself with the data	The interviews and classroom recordings were transcribed. They were then read and re-read and initial ideas were noted down.
2. Generating initial codes	Interesting features of the data were coded and data relevant to each code was collated.
3. Searching for themes	The codes were then collated into potential themes and all relevant data was gathered to each potential theme.
4. Reviewing themes	It was then checked if the themes related to the coded extracts and the entire data set. After which, a thematic map was generated.
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells. Clear definitions and names of each for each them were then generated.
6. Producing the report	The final opportunity for analysis. A selection of, vivid compelling extract examples, final analysis of selected extracts relating back of the analysis to the research question and literature and producing a scholarly report of the analysis.

3.10. Ethical considerations

Permission for the research to go ahead was granted by the UCL Institute of Education Ethical Committee supervisory panel.

There was a requirement for the participants to be informed about the aims of the study to enable them to make an informed decision about participating. Information was provided in the consent forms that were given to Head Teachers, parents and TAs. Also, more detailed information was given to TAs regarding the details and procedures of the research (see Appendices). All participants were informed of their right to withdraw in the consent form and the researcher reminded them when they visited the school.

Parental consent was sought from the parents/guardians of all the children in the class informing them about the research and the potential that their children may be audio recorded. An opt-out form was sent to parents/guardians for those who would choose for their child to not take part.

The audio recorded interviews and observations were stored on a password protected storage device. All transcriptions were anonymised to protect the participants' identity and the information was stored on a password protected device. Care was taken to ensure participants could not be identified by any information in the thesis.

A summary of findings was sent to the participating schools.

4. Results

4.1. Introduction

The following chapter is divided into three parts. The first part presents a tally of the number of occurrences of talk strategies and the results discussed. The conversation analysis of the observation and audio recorded interactions conducted pre- and post-intervention are presented after. Then the overarching themes that emerged from the data will be discussed before reporting on the talk strategies from the scaffolding framework that emerged in the data.

The second part presents the thematic analysis of the interview data from the pre-and post-intervention interviews, in which three thematic areas will be reported. The interview data has been analysed with the aim of answering research question 2 around TAs' views about the training programme and its impact on their practice.

The third and final part will present the themes that emerged from the group discussions held during the training session in which two thematic areas will be reported. The emerging themes were useful in providing further insight into the TAs' views about what strategies are present in the classroom and the challenges they face. This information is also valuable as it captured the opinions of all the TAs that attended the training and not just those who formed part of the case study.

Table 5: The occurrence of talk strategies pre-and post-intervention

Strategy	Pre-intervention	Post-intervention
Self-scaffolding	2	7
Prompting	4	18
Clueing	51	43
Modelling	24	18
Correcting	40	23

Table 5 shows a tally of the number of occurrences of the talk strategies both before and after the training was delivered.

Although this tally has no statistical significance, it is informative in identifying which strategies the TAs used the most and least. It also shows that there was a change in the number of strategies the TAs used before and after training.

Overall, the post-intervention tally shows that there was an increase in the occurrence of talk strategies that gave greater responsibility to the learner. Furthermore, compared to the pre-intervention tally, the post-intervention tally illustrates there was a decrease in the occurrence of talk strategies that gave the least responsibility to the learner.

4.2. Results of Pre-intervention conversation analysis

The TAs were recorded supporting children in a Maths and Literacy lesson. A conversation analysis (CA) approach was used where the analysis was based on the concepts described in the scaffolding framework (i.e. Self-scaffolding, Prompting, Clueing, Modelling and Correcting).
Other strategies TAs used to promote independent learning were also recorded. This section will initially report patterns that emerged from the analysis and will then go on to discuss the concepts from the scaffolding framework that emerged from the data.

From the analysis, the following patterns emerged:

- Starting a task
- Heuristic strategies
    - Problem solving during a task - types of questioning
- Formative feedback
- Support role
    - Praise and encouragement

4.2.1. Starting the task - 'Telling' the child what to do

There were no instances of the children starting a task independently. In each case, the child was informed about what to do by the TA:

Literacy

→	1.	TA1	Did you finish your build up from yesterday?
	2.	C	((nods))
→	3.	TA1	So, you need to carry on from there. Carry on from the build up

→	1.	TA4	So, what you need, you need to put butter and knife in brackets
	2.	TA4	What is the thing that you are trying to say that you need?
	3.	C	Uh. The knife is the main thing
→	4.	TA4	So, the added bit of information is the fact that it's a butter knife?

→	5.	TA5	OK so we need to try and order these pictures OK? So, if you want you can come up first T and try and order these pictures and then I'll get M to do thumbs up thumbs down if she thinks any need changing OK?
→	6.	TA5	What order do you think your day happened in?
	7.	C1	Here
→	8.	TA5	So, put them in, OK

→ = Significant turn

Maths

→	1.	TA1	So, draw around your circle and we're going to measure the diameter

→	1.	TA2	What's 17+10 how are we going to do this, what the easiest way?
	2.	C1	10 + 7?
	3.	TA2	Ok 10 + 7 is gonna be what?

→	1.	TA4	((Reads))"5.34 is smaller than 5.4, how would you prove this using mathematical vocabulary". So, remember yesterday we were talking about tens, hundredths.
→	2.	TA4	((Pause)). So that's a unit, isn't it? In the units' column there is a 5, they both have 5 in the unit's column, now we need to look at the....
	3.	C	umm Tens

→ = Significant turn

The above excerpts demonstrate how the TAs were instructing the children they support about the task and telling them what to do. In each of these cases, the interactions were immediately after the class teacher had addressed the whole class about the aims of the lesson. Therefore, there was an opportunity for the TAs to question the children about their understanding of the teachers' instructions or the task.

There was one instance where the TA attempted to ask questions around starting the task in a Maths lesson.

→	1.	TA3	So, K what do we write in these boxes, what do you think we are going to write in these boxes?
	2.	C1	I don't know
	3.	C1	umm... 1' o'clock?

→	4.	TA3	So, we are going to write the time

→ = Significant turn

The TA begins questioning the child about the task he has to do. However, after the child gives an incorrect response the TA then sets out the task. This interaction is also in the style of the IRF structure where the responsibility is taken away from the child to respond to the question. Also, the immediate corrections given by the TA does not allow for genuine collaboration between the learner and adult to occur.

4.2.2. Heuristic strategies

Overall, there were very few instances of TAs using heuristic strategies to problem solve because all the TAs observed remained with the child throughout the lesson and supported them at each stage of the learning activity.

4.2.2.1. Problem-solving during a task: Types of questioning

In all cases, there were instances of closed and open questions posed by the TA. Closed questions were predominantly used in Maths lessons whereas open questions were used during literacy lessons.

4.2.2.2. Open questioning

Literacy

→	1.	TA1	What did you like about her story?
	2.	C	It was good
→	3.	TA1	What was good about it?

→	1.	TA2	What else about the modal verbs? What do we want to effect, what do we want to say?
	2.	C	Pause
→	3.	TA2	((Addresses the whole table)) Help here, what's the effect why are we using modal verbs?

4.2.2.3. Closed questioning

Maths

	1.	TA2	What are we going to do?
	2.		((Children pause))
	3.	TA2	We're going to exchange a number, from 30 we're going to take 10
→	4.	TA2	What are we going to have left I?

	1.	C3	Is this one 9 past 8?
	2.	TA3	9 past ... so, so look
	3.	C3	Cos this one is past nine and ...
→	4.	TA3	Look when the long hand is at an angle like this, when the long hand is pointing to the 3, what is it always?
T	5.	C3	Uh, nine past 8?
	6.	TA3	When the long hand is at the three it is always quarter past
	7.	C3	Quarter past 3, Quarter past 9

→ = significant turn T = trouble or difficulty [= overlapped speech

The examples above demonstrate the type of questions that were posed during lessons. In the example from the Maths lesson, TA2 started with an open question (line 1) but when they noticed that the children were not responding or were going to be unsuccessful, they began offering answers (line 3) and using closed questions (line 4). Similarly, during Maths with TA3, the child poses a question about the time (line 1) and begins providing a rationale for why they think that is the correct answer (line 3). However rather than exploring the child's understanding further, the TA begins explaining the correct way to read the time, uses a closed question (line 4) and then eventually provides the answer (line 6). This again is another example of the IRF structure of classroom talk where the TA initiate the talk with a closed question, the child provides an incorrect response and the TA then corrects their answer with the feedback. Through beginning the talk with a closed

question and correcting the child's response, there is little opportunity for the child to participate in the dialogue.

This approach was noticed across all cases where once the child appeared to experience difficulty with a question posed to them, the TA would provide the answer rather than continue questioning or adopting another strategy to support the child.

4.2.3. Formative feedback

Only one TA was recorded providing verbal feedback to the child about their performance on the task. She summarised the task the child had undertaken and also commented on how well he had performed.

	1.	TA1	Right lets now move on
	2.	TA1	You've been so good at this and 100% on diameter, let's do a bit of a challenge and see if you can do the circumference yeah?
→	3.	TA1	Excellent you've done fantastic today, you've done the diameter and also taken the challenge and done the circumference which was really, really tricky but you did it really well. So, I'm proud of you and you need to be proud of yourself

4.2.4. Support role

4.2.4.1. Praise and encouragement

In all cases, the TAs gave praise and encouragement when the child correctly performed small aspects of a task or correctly answered questions. Furthermore, the constant questioning about the task ensured the child remained on task. This role of the TA suits the support role described by Radford et al. (2015) where they argued that the TA was best placed to ensure

children remained on task and helped reduce the learner's anxiety during the task.

Literacy

→	1.	TA1	Excellent so what do we need for a new speaker?
	2.	C	Full stop
	3.	TA1	What do we need for new speaker?
	4.	C	New line
→	5.	TA1	Good boy. So, copy out this do new speaker new line in your tidiest handwriting please
	6.	TA1	So, remember the punctuation, what are these.
	7.	C	Full stop
→	8.	TA	That's amazing really proud of you

	1.	TA2	(reads) "Adorable phrases must add to the excitement"
	2.	C	You can change it to could
	3.	TA2	Could add to the excitement
	4.	C	May
→	5.	TA2	May is good

Maths

	1.	TA1	So, it goes across. The circumference goes all the way round OK, so first you are going to measure the diameter and the we are going to make sure the circumference, what's the circumference?
	2.	C	Round here
	3.	TA1	All the way round, good boy
	4.	C	And the diameter is in the middle
	5.	TA1	From one end to the other good boy
	6.	C	And the circumference is all the way round
→	7.	TA1	Excellent good boy well done.

	1.	TA4	So, if I divide by 10, is that the answer I'm going to get? If I divide 834 by ten is that the answer I'm going to get?
	2.	C	Yeeaah
	3.	TA4	Yes, why is that the answer I'm going to get?
	4.	C	Because you've moved it once to the right?
	5.	TA4	OK, what did I move
	6.	C	You moved the number
→	7.	TA4	What's the first number I moved?
	8.	C	4
	9.	TA4	Well done. And what's the next number
	10.	C	3, then 8
→	11.	TA4	Lovely and then it becomes that, so that's right.

→ = significant turn

4.2.5. Example of good scaffolding

There was one example of good scaffolding where the TA was able to support the child to independently undertake a task during maths.

	1.	TA1	Ok let's go
	2.	TA1	So, draw around your circle and we're going to measure the diameter
→	3.	C	I can't hold it, I think you need to hold it.
	4.	TA1	Would you like me to help you?
	5.		((Child nods))
	6.	TA1	Ok I'll hold it and you draw around it
	7.	TA1	Excellent drawing
→	8.	TA1	What do we do next, what are we trying to find?
	9.	C	We are trying to find how many cm a circle is?
→	10.	TA1	And what's it called when we are measuring from one end to the other?
	11.	C	The diameter

→	12.	TA1	Excellent so we are finding the diameter. What do we need to measure the diameter?
	13.	TA1	Pause
	14.	TA1	What do we need
	15.	C	A ruler
	16.	TA1	Excellent
→	17.	TA1	What do we start at?
	18.	C	Zero
	19.	TA1	Excellent good boy well remembered

The above excerpt shows the dialogue at the start of the lesson after the TA had informed the child of the terms and techniques required to measure the diameter of the circle. In lines 1-6 the child requires a high level of support to draw the circle. The TA then begins questioning the child about the task and check his understanding and what is required for him to measure the diameter (line's 8, 10, 12 and 17).

	1.	TA1	Ok so next circle, choose another one now
	2.	TA1	Good
→	3.	TA1	Now this time you try and hold the circle
	4.	TA1	Huh wow, superstar that was amazing, that is excellent. Now what do we do?
	5.	C	We need to get the ruler and always have to start at zero?
→	6.	TA1	Good and what are we measuring?
	7.	C	Diameter
	8.	TA1	Good boy

Here the TA has encouraged the child to start the task independently, and he was then able to describe the next steps he had to undertake and knew what he was measuring. This example also demonstrated that closed questioning was a useful tool to prompt the child about the various terms and steps he had

to take to perform the task. He was then able to create a running commentary in his head about what he had to do.

4.2.6. Concepts from the scaffolding framework.

All five concepts from the scaffolding framework were observed in the data however some were more prominent than others.

4.2.6.1. Self-scaffolding

Self-scaffolding presented the least across the cases and was mainly present during literacy lessons. (n = 2)

Class discussion about the extra challenge to build suspense and tension and using adverbs			
	1.	TA1	Listen
→	2.	C	I need to write a powerful ending for my writing

→ = significant turn SR = self-repair

In the example with TA1, the child was able to independently identify what they needed to do for their writing task with no TA support.

4.2.6.2. Prompting

Similar to self-scaffolding there were only a few instances (n=4) where TAs used prompting and this only occurred in relation to supporting the child to progress on to the next stage of a task.

Maths

	1.	TA1	Are you starting on the right side? Look at the ruler, that says 'mm' what are you measuring in?
	2.	C	CM
→	3.	TA1	OK so what do we need to do?

Literacy

	1.	TA2	(Reads) Adorable phrases will add to the excitement.
	2.	C	I just think we should change will
	3.	TA2	OK
	4.	C	To should or can
→	5.	TA2	Which one are we gonna use?
	6.	C	Should
	7.	TA2	Adorable phrases
	8.	C	Might
→	9.	TA2	You want to use might?
SR	10.	C	Not might because it has to
	11.	TA2	OK it has to it definitely has to

In the second example, the TA used prompts to support the child to review whether he had chosen the correct word for their sentence.

4.2.6.3. Clueing

There were more occurrences of clueing from the TAs. This normally presented when they were supporting the children to problem solve or answer a question within a task (n = 61)

Literacy

	1.	TA1	Who's worried that she is acting really strange
	2.	C	Menyara
→	3.	TA1	Ok let's look back at the plan. Who's worried that she's been acting strange? Who's her husband

→	1.	2. 3.	TA4	So, remember I said what extra instructions you will need to put when it comes to the method section
	4.	5.	C	Um bullet point?

	6.	7. 8.	TA4	You could use bullet points but what's even better than bullet points
	9.	10.	C	Um I don't know
→	11.	12. 13. 14. 15. 16. 17.	TA4	If you think about a set of instructions if you think when we were looking at recipes and at different types of instructions and looking at what makes a good set of instructions what did the recipes have? Even any of the instruction when it came to the method, the method is when they tell us what to do, what did it have?
	18.	19.	C	Uh. numbers
	20.	21.	TA4	There you go numbered steps

	1.	TA5	22.
	2.	C1	Uhh the back of it, no the side of it
	3.		(Pause)
→	4.	TA5	I'll give you a clue, the second part of the word is shore
	5.	C2	Foreshore
	6.	TA5	M you've got it that's right the foreshore.

Maths

→	1.	TA1	We start at 0, what does it say here?
	2.	C	3cm
→	3.	TA1	Not quite 3cm, look at it again. What does it say in the middle?
	4.	C	2.5?
	5.	TA1	Excellent good boy

→	1.	TA3	OK K, where is the long hand is at the 3, what is it?
	2.	C1	When the long hand it at the three its....

	3.		Pause
	4.	C1	Half past, no quarter past...

→	1.	TA4	OK, check your question before that, what did you do, when you were timesing?
	2.	C	umm
	3.	TA4	Where did you move?
	4.	C	Um
→	5.	TA4	Did you move to the left?

4.2.6.4. Modelling

The TAs mainly used modelling during Maths tasks where they demonstrated how to perform a particular aspect of the task. The 'recasting' element of modelling primarily occurred during literacy lessons (n = 24)

Literacy

	1.	C2	S said the logs because the people who tried to take out everything that was dirty and they took things and put it in the River Thames got smaller and smaller
	2.	TA5	I remember what you're are talking about so they made the River smaller, so back in Victorian times they made the River Thames Smaller by putting in an embankment of some kind
	3.	C1	They put some like uh big things
→	4.	TA5	Big structures
	5.	C1	Yeah like circles
→	6.	TA5	On the banks of the river, that's right

Maths

	1.	TA1	How are you going to hold your ruler to measure from one end to the next?
→	2.	TA1	So, you're going to need to measure from here to here. Put your ruler on top here this way, that's it.
	3.	TA1	Watch from there, can you see what does it say on the ruler?

→	1.	TA2	**If we count from 17 on a number line** and add 10 where are we going to get to?
	2.	TA2	K, how are we going to find 17 + 10
	3.	C	10 Times 10?
	4.	TA2	No add 10, No Addition
→	5.	TA2	So, **if we start on the number line from 17** and count how many jumps are we going to do?
	6.	C	Umm
→	7.	TA2	**Ok we start at 17 and we're going to add how many?**
T	8.	C	17?
→	9.	TA2	No, we start from 17 and we add how many?
	10.	C	10
	11.	TA2	We don't have enough time to do big jumps like this, have to do small jumps
	12.	C	(Starts counting)

(bold text denotes talk about learning strategies)

In the literacy example, the TA used the recasting element of modelling to support the child to learn new vocabulary and concepts. In the maths example, TA1 uses a relatively high support strategy to model the procedure for measuring because they are telling the child the process rather than eliciting it from the child; this approach could suggest the child remains dependent on the TA when undertaking activities in the task. In contrast, TA2 in the second example is modelling heuristic strategies to support the child with adding. They begin with introducing the number line to help with solving addition sums and

then starts asking questions about the number the child should count from. Modelling in this manner will hopefully mean the child can refer to this strategy and use it correctly when the TA is not present.

4.2.6.5. Correcting

Similar to 'Clueing' and 'Modelling' there were a number of instances where TAs corrected children during a task in both Literacy and Maths (n = 40)

Literacy

	1.	TA1	Preposition, can you read that for me?
	2.	C	(Reads)
	3.	TA1	OK
→	4.	TA1	So, it represents time or place
	5.	TA1	Can you give me an example?
	6.	C	At
	7.	TA1	What else?
	8.	C	(pause)
→	9.	TA	After

	1.	TA2	Leave this now, look at the verbs, K look at the verb
	2.	C	Past or present words?
	3.	TA2	Are they past?
	4.	C	And present…or should?
	5.	TA2	I should go to the cinema or should go to shower, is that past?
T	6.	C	Is shower?
→	7.	TA2	That's all in the future, in present or in the future. What else?

Maths

	1.	TA3	Ok how did the hand help you to know it is quarter past 1
	2.	C	Because this is the minute and the hour hand
	3.	TA3	Can you point to the minute hand?
	4.		(Child points)
	5.	C	And that's the hour
→	6.	TA3	No, S, the long hand is the minute and short hand is the hour

→	1.	TA4	5.34 is smaller than 5.4, how would you prove this using mathematical vocabulary. So, remember yesterday we were talking about tens, hundredths. (Pause). So that's a unit, isn't it? In the units' column there is a 5, they both have 5 in the unit's column, now we need to look at the....
	2.	C	umm Tens
	3.	TA4	Tenths, and the...
	4.	C	Hundredths
	5.	TA4	Hundredths, OK
	6.	C	That one is bigger
	7.	TA4	Exactly, so how do you explain that?
	8.	C	The tenth's in this number
	9.	TA4	OK so the tenths in what number, how would you explain that in a sentence.
	10.	C	The Tenths in this number is bigger, greater than the tenths in the first number
→	11.	TA4	So just say the actual number because we don't know if you "the first number" so say the actual number, so say 5.37

In the literacy examples, both TAs begin asking questions around the topic however as soon as child experiences difficulty or pauses the TA then offers the answer.

4.3. Summary

The pre-intervention data shows that there were very few instances of TAs promoting learner independence through their interactions. Concerning the scaffolding framework, there were more instances of TAs using the talk strategies towards the bottom of the framework (e.g. correcting and modelling) where there is a low level of pupil independence and a high level of adult support. There was a high occurrence of correcting (n = 40), and modelling was often delivered with a high level of support where the TA would talk through the whole strategy and there was little contribution from the child.

The TAs remained seated beside the child/children throughout all the lessons observed and there were no instances of TAs setting small tasks for children to complete independently without their support.

4.4. Post-intervention data

The following patterns emerged from the post-intervention analysis

- Starting a task
- Heuristic strategies
    - Problem solving
    - Dialogic talk
    - Checking understanding
- Support role
    - Praise and encouragement
- Promoting independence

4.4.1. Starting a task

There was some change in how TAs supported children to start a task. In several cases, the TAs were asking children what they had to do on the task using either open questions or prompts. Questioning about starting the task occurred more in Literacy lessons than Maths.

Literacy

→	1.	TA5	So, what are we going to do guys, what's our task. M, do you remember what the task is?
	2.	C2	Not really.
	3.	TA5	You don't remember what the task is?
→	4.	TA5	So, T, here is our worksheet that we are going to work through. Do you remember MS C say what we were going to do T?
	5.	C1	I know Um we have to um, put um
→	6.	TA5	Yeah, we have to put?
	7.	C1	Adverbs
	8.	TA5	Yes adverbs, T where are we putting them?
	9.	C1	Time?
	10.	TA5	Ok
	11.	C1	How, when, where?
→	12.	TA5	Where are they going to go?
	13.	C1	In a sentence
→	14.	TA5	Whereabouts in a sentence?
	15.	C1	At the beginning
→	16.	TA5	OK what's another word for beginning?
	17.	C1	Um
	18.	C1	Front
	19.	C2	Opening adverbs?
→	20.	TA5	Can we remember the name of them?
	21.	C1	Fronted adverb

→	1.	TA3	So, what is the first thing that you are doing?
	2.	C	Stick in the learning objective
→	3.	TA3	Good, then what?
	4.	C	We have to describe what's in the pictures
→	5.	TA3	Ok, and what else?
	6.	C	Put the pictures in order
→	7.	TA3	Good well done

Maths

→	1.	TA2	15+11, what do you have to do first?
	2.	C1	Add the units
→	3.	TA2	And what are they?
	4.	C1	5 + 1
	5.	TA2	Ok

→	1.	TA5	What did we learn yesterday?
T	2.	C2	Equal
→	3.	TA5	Not quite, take a second
	4.	C1	Equivalent
	5.	C3	Equivalent fractions
	6.	TA5	Fantastic
→	7.	TA5	Ok what is the first question?
	8.	C1	We have to find one fourth
	9.	C3	We need to find something that is equivalent to that

In the literacy example, TA5 poses an open question to one of the children about the task (line 1) and when the child was unable to answer, she then prompted the other child to refer to the worksheet (line 4). TA5 continues to respond to the child's answers with further questions to support them with expressing what they have to do in the task. TA3 used a similar style of questioning to support the child to explain the tasks they had to undertake. With the maths example, although TA2 stated the sum the child needed to solve, they asked about the technique the child would use (line 5) and checked

the child's understanding about units through further questioning (line 3). These findings are an improvement from the pre-intervention data where all the TAs informed children about the task they were doing.

4.4.2. Heuristic strategies

4.4.2.1. Problem solving open questioning and dialogic talk

There were more instances of open questioning to support children with problem solving and some TAs used dialogic talk, where they posed questions based on the child's response.

Literacy

	1.	C4	How do you spell April?
→	2.	TA4	How do you think you spell it, try?
	3.	C4	A-p-r-i-l-l
→	4.	TA4	Nearly
	5.	C4	One 'l'?
	6.	TA4	Yes, well done

Maths

	1.	TA2	S, what are you doing?
	2.	C2	3 fours
→	3.	TA2	Mm are we multiplying, do we need three groups of four?
	4.		Pause
→	5.	TA2	Is that the sign for multiplication?
	6.	C2	Yup
→	7.	TA2	Is it? How do we write the sign for multiplication?
	8.	C2	It goes like this
	9.	TA2	Yes, it is an 'x'
→	10.	TA2	And what sign is this one
	11.	C2	Add

→	12.	TA2	That's right, so what do we need to do with 3 and 4
	13.	C2	We need to add them

In the literacy example the TA used a dialogic talk strategy to transfer the responsibility back to the child who was trying to spell a word. TA4 then offered encouragement rather than correction (line 4) to support the child to correct their spelling. In the maths example, TA2 uses dialogic talk to question the child about their responses, which prompts the child to check their method but also enables the TA to check the child's understanding about the difference between adding and multiplying.

Unlike the data from the pre-intervention interactions, the TAs were more inclined to continue with this type of questioning rather than correcting the child's response. Furthermore, throughout the post-intervention interactions, the TAs used more questioning as prompts when the children experienced trouble, unlike the pre-intervention interactions where the TAs mainly corrected the children.

4.4.2.2. Checking for understanding - Contingent role in scaffolding

This was a new pattern of talk that emerged from the post-intervention data where the TAs used questioning to check the child's understanding about a particular topic. The TAs also used open questions (e.g. 'why') and though-type questions (e.g. 'what do you think) as opposed to closed questions, which is a distinct difference and improvement from the pre-intervention interactions.

Maths

→	1.	TA4	Why are you putting in a place holder zero
	2.	C	Because your timesing by 10

Literacy

→	1.	TA1	(Reads) Michael Rosen, what do you think it needs?

	2.	C	I think it needs a capital M
→	3.	TA1	Why does it need a capital
	4.	C	You always need a Capital M at the start of a sentence.
→	5.	TA1	And also, what is Michael Rosen?
	6.	C	Um it needs a capital when it is the start of the sentence and when it is somebody's name
	7.	TA1	Well done

In the maths example the TA used an open question which required an explanation from the child rather than a simple yes or no response. In the literacy example the TA used questions to prompt the child about using a capital letter (line 1) and uses questioning that intends to provoke thought in the child further to check their knowledge about using capital letter. In framing questions with 'why' and 'what do you think' the TA enables the child to express and expand on their views where no restriction is placed on how the child should respond, such questions are also useful in checking for understanding. This would hopefully enable the child to use the same prompts when they are working independently.

4.4.2.3. Closed questioning

When closed questions were used it was often as a prompt rather than questioning to arrive at an answer.

→	1.	TA1	So, OK, could you start a sentence with went?
	2.	C	No
→	3.	TA1	So, what could we put in front of went?
	4.	C	Umm He
	5.	TA1	Yup you can start with he,

→ = significant turn

In the above example the TA begins with a closed question about the appropriate use of the word 'went' (line 1). The child correctly answers and the

TA then transfers the responsibility back to the child and questions them about how they can correct the sentence.

This differed to the pre-intervention data where the TAs used closed questions to arrive at an answer and there were less instances where the TAs built on the child's response or transferred the responsibility back to the child to problem solve.

4.4.3. Support role

4.4.3.1. Praise and encouragement

Similar to the pre-intervention data, praise and encouragement was regularly used by TAs and the continuous prompts and questioning ensured the child remained on task.

Literacy

	1.	TA5	Yes, Fronted adverbials and what's special about them?
	2.		Pause
	3.	TA5	They give us some extra...
	4.	C1	Detail
	5.	TA5	Detail yes for our sentence. What kind of details do they tell us T?
	6.	C1	Uh what happened or where it happened
	7.	TA5	Where it happened, what else where it happened??
	8.	C1	Um, Um,
	9.	TA5	Can you think, where it might have happened and what else?
	10.	C1	Or when
	11.	TA5	Yes, when it might have happened
	12.	C1	Where
	13.	TA5	Yes, where, when or…
	14.	C1	How

→	15.	TA5	Yes fantastic!

Maths

	1.	TA5	What did we learn yesterday?
	2.	C2	Equal
	3.	TA5	Not quite, take a second
	4.	C4	Equivalent
→	5.	TA5	Equivalent fractions, fantastic

In the above examples the TA continued questioning the children about the topic until they arrived to the correct answer and then praised their efforts. In the literacy example, each time the child gave a response, the TA would acknowledge what they said through repeating a word and then question them further about it (e.g. lines 4 -5). This again is also an example of the TA using the dialogic talk strategy and also continuously transferring the responsibility back to the child which keeps the child engaged in the interaction and activity.

4.4.4. Promoting independence

Another new pattern of talk that emerged from the post-intervention data was promoting independence. Unlike the pre-intervention data, where there were no instances of promoting independence, the post-intervention data found two TAs who were encouraging children to complete tasks independently. They did this either through setting a task and moving away or encouraging the child to complete the task on their own.

Literacy

	1. 2.	TA4	Can you read from the beginning and see whether there is anything you can improve one?
	3. 4.	TA4	Read it out to me, sometimes it is easier when you read it aloud
	5.	C7	(Reads)

	6. 7.	TA4	OK, first of all when you said the date you hesitated, why did you hesitate?
	8.	C7	Oh, because I have missed the number there?
	9.	TA4	What do you actually want it to say?
	10.	C7	21st
	11.	TA4	Ok so how do we write 21st
	12.	C7	((writes))
	13.	TA4	Lovely now you know that is definitely 21st
→	14. 15.	TA4	Check your full stops and capital letters and I will be back shortly

Maths

	1.	TA2	Yes 20, good girl!
→	2.	TA2	Now try the next one by yourself
	3.	C2	OK
→	4.	TA2	Let me know when you're finished.

In the above examples both TAs encouraged the child to continue their task independently. In the literacy example the TA prompts the child through a strategy to check their work (lines 1-4) and then encourages them to continue checking their work independently (lines 14-15). With the maths example the TA encourages the child to continue with the next task independently and (line 2). In both instances the TAs physically moved away from the children and returned once they felt the child had completed the task.

4.4.5. Concepts from the Scaffolding framework

4.4.5.1. Self-scaffolding

Similar to the pre-intervention data, instances of self-scaffolding presented the least in the data (n = 7 compared to n = 2 pre-intervention)

	1.	TA3	This is a dialogue
	2.	C	What is a dialogue?
	3.	TA3	Somebody speaking
SR	4.	C	Do I do this? (writes speech marks)
	5.	TA3	Yes
	6.	TA3	Where does it start?
	7.	C	Here
	8.	TA3	Excellent, and where does it finish?
	9.		(Child correctly places speech mark)
→	10.	C	I need to put a full stop
	11.	TA3	Look at this word, 'where' what kind of word is where?
T	12.	C	A punctuation?
	13.	TA3	(reads) "Where are you going on holiday said Holly"
	14.	TA3	Pause
OIR	15.	TA3	She's not just making a statement, she's asking a question so what do we need to put?
SR	16.	C	Oh, a question mark
	17.	TA3	Excellent
	18.	TA3	Read that K
	19.	C	(reads) " I'm going to Barcelona"
	20.	C	Shall I do a question mark?
	21.	TA3	Is it a question or is somebody speaking?
SR	22.	C	Oh, I'll put a speech marks
	23.	TA3	Excellent well done K
→	24.	C	Oh, it's not quite right I am going to try again
	25.	C	((rubs out speech marks and re-writes them)
	26.	TA3	Fantastic
→	27.	C	We should've written it this way so that it could all fit
	28.	TA3	You're right, next time

→ = significant turn SR = self-repair T = trouble OIR = other-initiated repair

In the above example the child was able to independently self-scaffold at various points during the task (lines 10, 24 and 26).

Furthermore, the TA establishes a repair role (Radford et al., 2015) where they withhold the answer and continues questioning. In line 15 the TA provided the answer about the sentence by stating it is a question however, the focus appears to be on supporting the child to use the appropriate punctuation and (i.e. using a question mark) so they pose a question regarding that. Later in line 21 the TA then offers a clue to support the child to arrive to the correct answer. It could be argued that a clue or prompt could have been offered in line 15 before correcting. Nonetheless, the TA made an effort to not give the child the answer and when they did it was followed by a question.

4.4.5.2. Prompting

The post-intervention data showed that the TAs used prompts more (n = 18 compared to n = 4 pre-intervention). This is an important finding because prompting is a low-level support strategy in terms of the TA taking responsibility. It therefore affords a high level of independence for the learners.

Literacy

→	1. 2.	TA3	Ok so you've started and have gone straight into what you've seen, can you see what Ms R has added? What did she add?
	3.	C1	Time and dates

Maths

T	1.	C1	Is the answer 10 + 6?
→	2.	TA2	What did R say you should use?
	3.	C1	Use cubes
	4.	TA2	Ok so use the cubes
	5.	TA2	((Turns her attention to the other child))
	6.	C1	((Begins using the cubes to solve the problem))
	7.	C1	Oh, I've got it H
	8.	TA2	Have you? Ok what is the answer

	9.	C1	It's 2
	10.	TA2	What is 2?
	11.	C1	It equals 2
→	12.	TA2	OK so what was the problem again?
	13.	C1	10 + A =12, so the missing number is 2
	14.	TA2	Well done and how did you find the answer
	15.	C1	I counted 10 cubes and then I put 2 more on to make 12
	16.	TA2	Excellent! Now try the next one please.

In the literacy example TA3 prompts the child to refer to the teacher's example in order to add information to their piece of writing. In the maths example the child is experiencing trouble solving the problem and gives TA2 a guess (line 1). TA2 then prompts them to refer back to the technique the class teacher told them to use, (line 2). TA2 then focuses on another child and leaves C1 to continue with the problem independently. Once C1 has solved the problem, TA2 uses prompting (line 12) and questions them about the techniques they used (line 14). In verbally describing their technique, the child has created a commentary that they are able to refer to solve a similar problem independently. Moreover, as a result of the TA's prompt in line 14, the child is able to self-scaffold in line (line15) regarding the strategy they used.

4.4.5.3. Clueing

There were less instances of clueing in the post intervention (n = 43 compared to n = 51 pre-intervention). However similar to the pre-intervention data, it was the most used talk strategy post intervention.

Literacy

	1.	TA5	What would be a nice fronted adverbial M?
	2.	C2	Quietly, we walked along the beach
	3.	TA5	Yes, well done and what does it tell us?
	4.	C2	Pause

→	5.	TA5	Does it tell us how we walked along the beach, when we walked along the beach or where?
	6.	C2	How
	7.	TA5	That's right M

Maths

→	1.	TA3	So, is it 3 fours or do we need two different numbers what do we need?
	2.	C2	Four
→	3.	TA3	Yes, four and what else do we need?
	4.	C2	3
	5.	TA3	Yes 3

In the literacy example, TA5 poses an open question about the type of fronted adverbial C2 has chosen (line 3). After a pause, it appears C2 has not understood what TA5 was asking and so TA5 uses clueing to support the child. With the maths example TA3 uses clueing to clarify what type of operation the child will be doing with the two numbers (line 1). The contingent aspect of scaffolding is demonstrated in line 3 where TA3 asks further questions about the other number needed which transfers the responsibility back to the child and also checks their understanding.

4.4.5.4. Modelling

There were less instances of modelling post-intervention, (n = 18 compared to 24 pre-intervention) and as demonstrated below, when it did occur, the TA attempted to pose questions to the child so they were active participants in the process.

Maths

	1. 2.	TA3	Ok shall I show you the first one then you can do the other ones?

	3.	C2	Yes
→	4. 5.	TA3	OK so we have 20 and then we are missing something and we need to get, what do we have here?
	6.	C2	40
	7.	TA3	Yes 40
→	8. 9.	TA3	((using 10 numicons)) So here we have 4 of these and we already have 2 so how many are missing?
T	10.	C2	2
	11.	TA3	Is it 2 or
SR	12.	C2	20
	13.	TA3	Yes 20, good girl!

→ = significant turn SR = self-repair

In the above example, TA3 starts with a commentary about the sum (lines 4) and then poses a question to the child about the sum (line 5). This is a useful strategy to ensure the child is paying attention but also understands what is being modelled; the same strategy is used in lines 8 and 9. In line 11 TA3 questions the child's response without providing the answer and the child is able to self-repair in line 12. As stated by Bosanquet et al. (2016) this type of commentary is useful to the child as it becomes a form of mental rehearsal the child can refer to independently.

4.4.5.5. Correcting

There were still instances of TAs correcting children however the number of occurrences were less (n = 23, compared to n = 40 pre-intervention).

Literacy

	1.	TA1	Michael Rosen was born on 7th May, Michael needs to be spelt correctly
	2.	C	Is it M.i.c.h.e.l
→	3.	TA1	no a.e.l

Maths

	1.	TA4	What are you writing?
	2.	C	The numbers
→	3.	TA4	These are the numbers 2.4 x 10
→	4.	TA4	That's the wrong number 2.4 not 24.

4.4.6. Summary

The post-intervention data showed that TAs used more talk strategies that placed the responsibility on the child. There were more instances of prompting and applying the contingent aspect of scaffolding. There was also a shift from the monologic IRF talk strategy to dialogic talk. Additionally, some TAs were promoting independence by setting tasks and leaving the child to complete it independently by physically moving away from the child.

In both conditions, the TA used the clueing strategy the most and self-scaffolding was observed the least, however, there was a small increase self-scaffolding in the post-intervention data. There was a reduction in the amount of time correcting and modelling was used post-intervention and there was an increase in the use of prompting. This would suggest that the training delivered to the TAs did have an impact on how they supported children. There were instances where prompting could have been used instead of clueing however these are positive outcomes considering the TAs only attended one three-hour training session.

4.5. Thematic Analysis of Interview Data

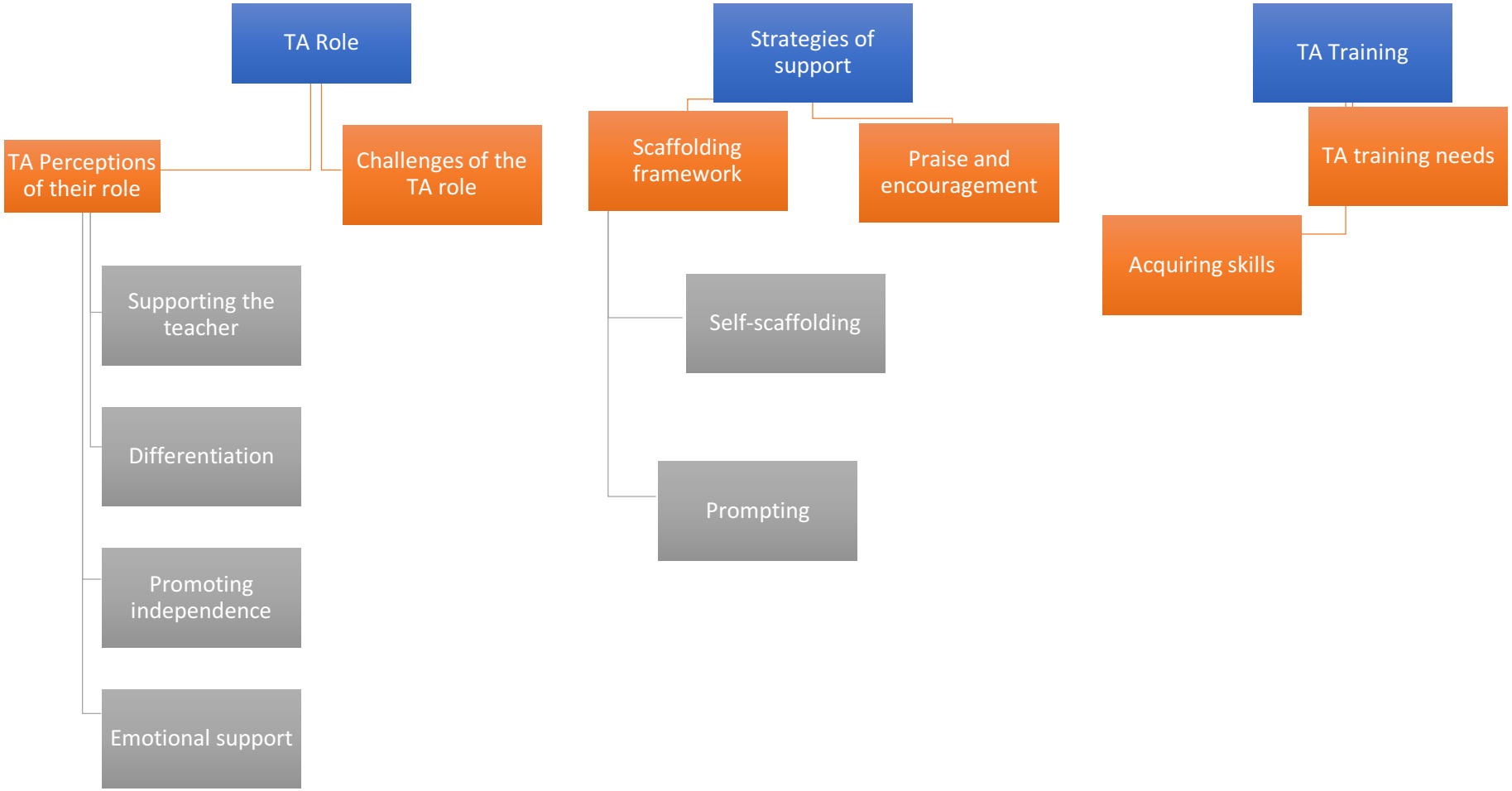
The TAs were interviewed before and after the training programme to gain insight into the strategies they used to support children and their views about the training programme. Thematic analysis was used to analyse the transcript where the identified themes were deemed as important because of their relevance to the research questions and theory in the literature about the role of TAs and scaffolding, rather than their quantitative prevalence in the data

(Braun & Clarke, 2006). The number of TAs who contributed to each theme was recorded to highlight the popularity of some themes and strengthen external validity.

There were three main thematic areas in each condition which were 'TA role', Strategies of support' and 'TA training', also some main themes and associated sub-themes emerged from the analysis of the data. These themes related to the TAs' views about their role, strategies they used to support children in the classroom and training.

Figure 3 shows an overview of the thematic areas, main themes and sub-themes that emerged from the pre-intervention interviews.

Figure 4: Themes from pre-intervention interviews



4.5.1. Thematic Area 1: TA Role

The first thematic area - 'TA Role' is made up of two main themes: TA perceptions of their role and Challenges of the TA role. The theme TAs' perceptions of their role, was concerned with what TAs believed their role to be. The challenges of the TA role, was concerned with the aspects of the role that TAs felt impacted on how well they could perform their job for example, supporting a group children with differing needs.

4.5.1.1. TA role theme: TA Perceptions of their role

Two of the 5 TAs saw supporting the teacher as part of their role when they either plan lessons or work with teachers to support children who needed additional help. The TAs also felt that differentiating the work for the children they support was part of their role. None of the TA expressed whether the teacher was involved in the differentiation process and one expressed that they were solely responsible for differentiating the work for the child they support. Three TAs expressed that promoting independence was a part of their role either in order to support the child with forthcoming transitions or to enable them to be less reliant on an adult. All the TAs described aspects of their role where there were required to emotionally support a child to help them make progress.

Table 6: Example Quotes for TA Role Theme 'TAs Perceptions of Their Role'

Sub-theme	Interview Extract	TA
Supporting the teacher (n=2)	Well I work closely with the teacher to plan lessons	TA4
	I assist the teacher in supporting those children who don't understand	TA5

Differentiation (n=3)	Differentiating resources, making it a bit simpler. Adding visual aids so they can better access the curriculum.	TA1
	So, my job is basically to kind of adapt activities that the class are doing to his needs, because he's working at a lower level than a lot of his classmates, it really, he's doing quite a different curriculum. The class teacher normally gives me the resources the class will be using and I then simplify it so that 'M' can access it. This sometime mean just keeping the topic the same but the actual work is different to what the class does.	TA5
Promoting independence (n=3)	I'm in Year 5 now and we are working to teach them to work more independently…it's to help them to start being more independent which will get them prepared for secondary school	TA3
	So, my role is just kind of progressing them and keeping them independent	TA1
Emotional support (n=5)	I try to make the work more manageable and help her feel confident in what she's already attained rather than be negative about it.	TA5
	Being there for him, progressing him because he finds it hard to focus and just get the work done. So, it's basically keeping them focused.	TA2

4.5.1.2. TA Role Theme: Challenges of the TA role

Three TAs expressed that there were certain challenges that made it difficult to perform their role. They all stated that having little or no planning time was a challenge. Also, one TA expressed that in having English as an additional

language, they did not always feel equipped to support a child who had literacy needs.

Table 7: Example Quotes for TA role Theme 'Challenges of the TA Role'

Theme	Interview Extract	TA
Challenges of the TA role (n=3)	I don't always have time to sort of plan my resources and really sort of do a proper plan	TA5
	But sometimes I find it difficult, especially in English because, first of all, it's not my own language and, second of all, it's just, it's easy to lead a child who can at least give you something, you know, at least can give you an idea and you can work around this idea. But he cannot give an idea.	TA2

4.5.2. Thematic Area 2: Strategies of support

The thematic area of 'Strategies of support' consist of two themes 'Praise and encouragement and 'The scaffolding framework'. Both themes relate to the strategies used to support children as described by TAs. The 'scaffolding framework' theme identifies how the TAs current strategies relate to the scaffolding framework that is delivered in the training.

4.5.2.1. Strategies of support theme: Praise and encouragement

All the TAs described various strategies that they felt built the confidence in the children they support. Also, there were a number of references to how praise and rewards could be used to support with problem solving and giving the child feedback about their progress or performance.

Table 8: Example Quotes for Strategies of support theme 'Praise and encouragement'

Theme	Interview Extract	TA
Emotional support (n=5)	So, I use a lot, a lot of praise because in the moment he loses his confidence, I've lost him, and then we can't work.	TA2
	And really sort of praising when they do make a small breakthrough, no matter how small.	TA1

4.5.2.2. Strategies of support theme: Scaffolding Strategies

The TAs experienced difficulty describing the strategies they used to support children and of strategies discussed, very few corresponded with the talks strategies in the scaffolding framework; only two TAs described strategies that resembled those in the scaffolding framework. One TA mentioned a strategy she used that related to self-scaffolding and the other TA described a strategy she used that is related to prompting.

Table 9: Example Quotes for Strategies of support theme 'Scaffolding strategies'

Scaffolding strategy	Interview Extract	TA
Self-scaffolding (n=1)	When it is time to do an evaluation, he'll write down in his book what he found tricky	TA1
Prompting (n=1)	I've never really waited for them to say what they need to do. I normally ask them a question so, I don't know, maybe it would be really, really vague and just be like, "Okay, so what are we doing today?"	TA4

4.5.3. Thematic Area 3: TA Training

The thematic area of 'TA Training consists of two themes, 'acquiring skills' and 'TA training needs'. The 'acquiring skills' theme was related to the TAs comments about how they have acquired the skills to support children and the 'TA training needs' theme was concerned with particular areas TAs felt they needed training in.

4.5.3.1. TA Training Theme: Acquiring skills

Three TAs expressed that they have acquired most of their skills through observing the teacher. They all commented on how the class teacher provided an example of how to support children and one TA explained that she would behave in a similar manner to class teacher because she felt that was how the teacher wanted her to act.

Table 10: Example Quotes for TA Training theme 'Acquiring Skills'

Sub-theme	Interview Extract	TA
Acquiring skills (n=3)	…I try to model what the teacher does when he or she is dealing with a child who may have a particular issue, for example. So, I try to model what they are doing because that's clearly the way in which they prefer things to be done.	TA4
	I am really lucky that I work with 'T' because she is a great teacher …I have learned a lot from her.	TA2

4.5.3.2. TA Training Theme: Training needs

All the TAs expressed that they would like further training in order to be better skilled in areas such as interacting with the children, understanding the child's needs and having some practical examples of what 'good support' looks like.

Table 11: Example Quotes for TA Training theme 'Training needs'

Sub-theme	Interview Extract	TA
TA training needs (n=5)	I really want to know how to better interact with the children because I think that this is comforting, once I know how to do it…We know the regulation, everything. But you don't actually the things until you've done… you didn't know how do the thing until you sit and do it in your practice	TA3
	I went on a course about children who has needs like 'K' and it was really helpful in terms of how they learn, what their specific difficulties are, where their strengths are. So, again, if I could maybe access more training like that, that would be really useful.	TA1

4.6. Summary

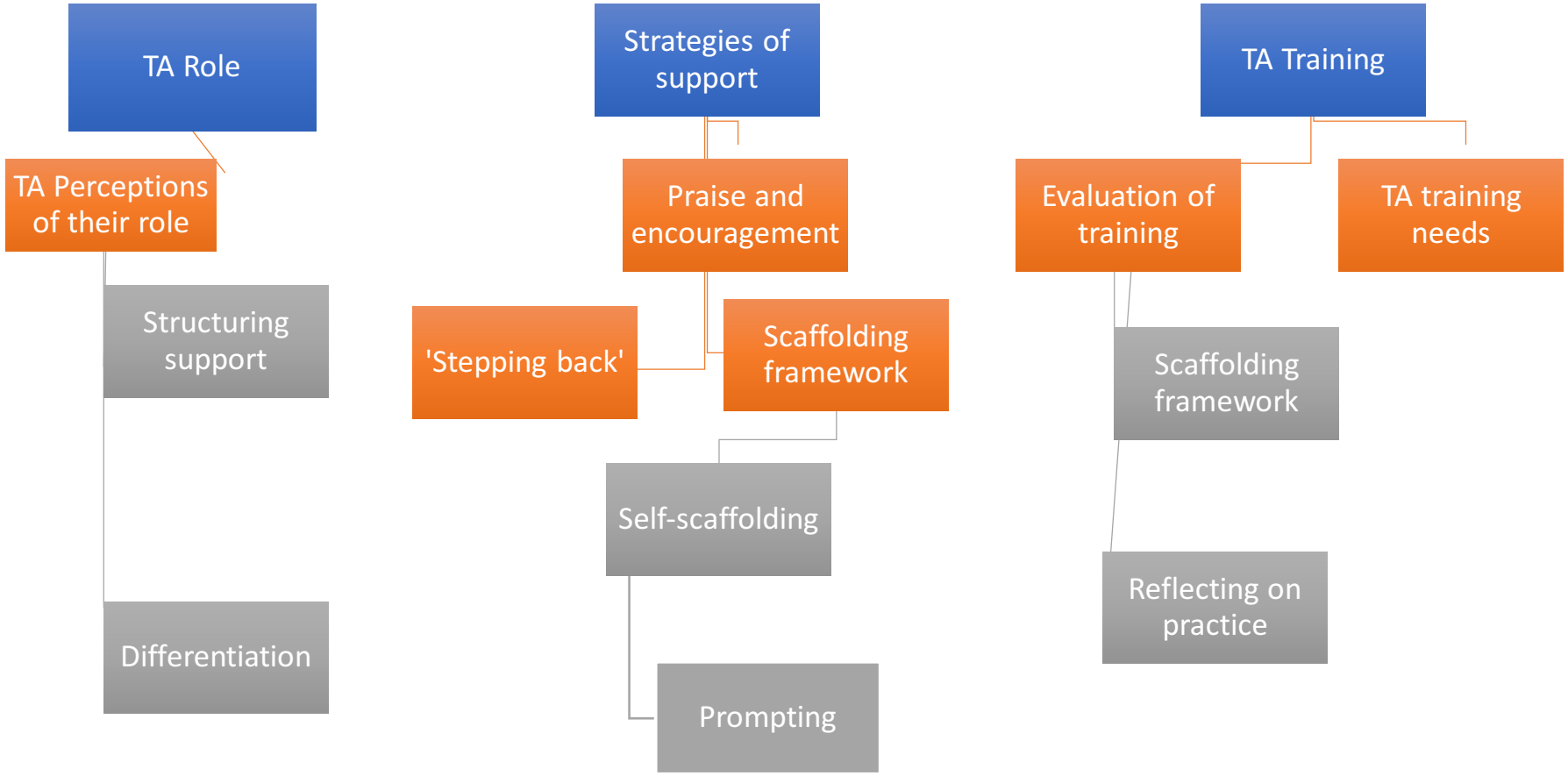
The data from the pre-intervention interviews suggest that TAs have an awareness of the need to promote independence in the children they support and feel it is part of their role to do so. However, they experienced difficulty describing the strategies they used to promote independence which suggests they lack the knowledge and understanding to either describe the strategies or demonstrate them in practice. The TAs' views about providing emotional support was also supported by the audio recorded interactions and their descriptions of strategies around praise and encouragement.

The TAs' comments about training demonstrate that they identify the need for them to acquire new skills to appropriately provide support to children. Also, their comments about learning through observing the teacher reinforces the argument that TAs are presented with few opportunities to engage in training and have to rely on the examples provided by other professionals to inform their practice.

4.7. Post intervention interview themes

Figure 4 shows an overview of the thematic areas, main themes and sub-themes that emerged from the post-intervention interviews.

Figure 5: Themes from post-intervention interviews



4.7.1. Thematic Area 1: TA Role

One theme emerged from this thematic area which was TA perception of their role. Similar to the pre-intervention interviews some TAs still felt that they were responsible for differentiating the work for the children they support. A new sub-theme that emerged was about structuring their support. Four TAs identified providing structured support as part of their role and one TA described part of their role was to help scaffold the child's learning.

Table 12: Example Quotes for TA Role Theme' TAs Perceptions of Their Role'

Sub-theme	Interview Extract	TA
Differentiation (n = 3)	I'd say differentiating resources, adapting myself to suit their individual needs, giving them more time to understand learning objectives, giving them more time to complete work.	TA3
Structuring support (n =4)	It's to help them scaffold their learning. So obviously not feeding the information, helping them with obviously any barriers of their learning that they have. Just helping them scaffold.	TA1

4.7.2. Thematic Area 2: Strategies of support

The thematic area of 'Strategies of support' consists of three themes 'Praise and encouragement', 'Scaffolding framework' and 'Promoting independence'. Similar to the pre-intervention interview data, the TAs described various strategies about praising and encouraging children during a task. TAs also described strategies and resources that were similar to the 'self-scaffolding' and 'prompting' strategy in the scaffolding framework. A new theme also emerged, 'stepping back' where the TAs described what they did to support the child in becoming more independent.

4.7.2.1. Strategies of support theme: Praise and encouragement

All the TAs described using praise and encouragement as a strategy to either promote independence or approach a challenging task.

Table 13: Example quotes for Strategies of support theme 'Praise and encouragement'

Sub-theme	Interview Extract	TA
Praise and encouragement (n=5)	So, I will try in the moment to say, you know, "Really proud of the way you tackled that task."	TA3

4.7.2.2. Strategies of support theme: Scaffolding framework

Four TAs made reference to strategies they used that were similar to the self-scaffolding and prompting strategy of the scaffolding framework. One TA described resources they used to support the child and other gave examples of talk strategies they used to prompt the child to arrive to the answer themselves.

Table 14: Example Quotes for Strategies of support theme 'Scaffolding framework'

Scaffolding strategy	Interview Extract	TA
Self-scaffolding (n=1)	I've found the task planner quite useful and Visual aids. With the task planner, he writes each task he has to do and then ticks them off when he's done them.	TA3
Prompting (n=3)	If they're in that panic, they're going, "Oh, I don't get it. I don't understand," kind of starting from the beginning with them, asking them what they know and then how can they use what they know. And then really trying to	TA4

	support them but kind of allowing them to get there themselves.	

4.7.2.3. Strategies of support theme: Stepping back

All the TAs described particular strategies where they would 'step back' to encourage the child to work independently, this was either through physically moving away from the child or pausing or resisting the need to intervene too quickly.

Table 15: Example Quotes for Strategies of support theme 'Stepping back'

Sub-theme	Interview Extract	TA
'Stepping back' (n=5)	But there's listening to what they're saying, how they're doing before I model what they exactly have to do.	TA3
	I try to maybe start him off for the first five minutes and then, "Okay, try to do it yourself." I might use like a timer to, you know, give him that prompt, "Oh, you need to get this done in a certain amount of time." So, I'm not sitting next to him saying, "You need to do this." The timer kind of is his indication of, you know, how much time is left and what you need to complete	TA2

4.7.3. Thematic Area 3: TA Training

The thematic area of 'TA Training consists of two themes, 'Evaluation of training' and 'TA training needs'. The 'Evaluation of training' theme was related to the TAs comments about the training programme and aspects they found most useful and areas of improvement. 'TA training needs' theme was

concerned with particular areas TAs felt they still would require further training in.

4.7.3.1. TA Training Theme: Evaluation of training

Two sub-themes emerged from this theme which were 'scaffolding framework' and 'reflecting on practice'. All the TAs expressed that the scaffolding framework was the most valuable information they took away from the training. One TA stated that they have incorporated it in their planning with the class teacher whilst others expressed that it brought structure to how they support children. Although the TAs did not overtly state they were more reflective about their practice, it became apparent during the interviews for they were comparing their previous practice to their current.

Table 16: Example Quotes for TA Training theme 'Evaluation of training'

Sub-theme	Interview Extract	TA
Scaffolding framework (n=5)	Oh, I found scaffolding framework very useful. Like, you don't have to maybe model it straight away, there's like steps before you show them how to do it.	TA3
	Just the scaffolding thing, really. I like the structure and I've used it in planning with my planning and marking.	TA1
Reflecting on practice (n=3)	Well in, in the beginning before the, before the training, I kind of, I caught myself. Because I kind of give them the full, the full solution of the problem in the beginning. I don't, I didn't give them enough time to get to the answer themselves. And now I learned to give them more time, and to check first with a little of information of what they can do themselves.	TA2

4.7.3.2. TA Training Theme: Training needs

All the TAs expressed that they would like further training in order to be better skilled in areas such as interacting with the children, understanding the child's needs and having some practical examples of what 'good support' looks like.

Table 17: Example Quotes for TA Training Theme 'Training needs'

Sub-theme	Interview Extract	TA
TA training needs (n=5)	I really want to know how to better interact with the children because I think that this is comforting, once I know how to do it…We know the regulation, everything. But you don't actually the things until you've done… you didn't know how do the thing until you sit and do it in your practice	
	I went on a course about children who has needs like 'K' and it was really helpful in terms of how they learn, what their specific difficulties are, where their strengths are. So, again, if I could maybe access more training like that, that would be really useful.	TA1

4.8. Summary

The post intervention data showed that the TAs acknowledged that their role could include providing structured support to children through scaffolding their learning.

With regards to discussing the strategies used to support children, the TAs appeared more confident and were able to offer various examples and resources they used. This is different to the pre-intervention interviews where TAs mainly identified praise and encouragement as a strategy.

The TAs identified the scaffolding framework as the most useful resource from the training and felt they would benefit from receiving further training about how to effectively interact with children. Some TAs also expressed that they would like the opportunity to observe how others were using the framework with examples of good practice.

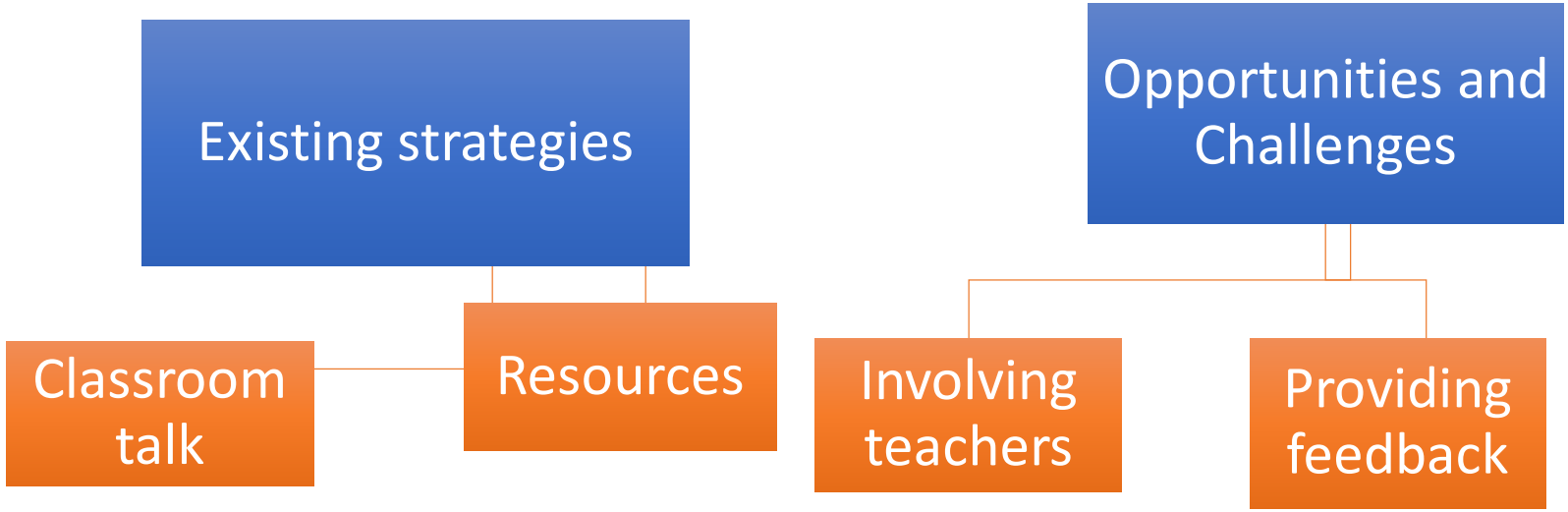
Overall the TAs spoke positively about the training and were able to provide examples of how the applied their newly acquired skills to their practice.

4.9. Emergent Themes from the Training sessions

During the training sessions, some themes emerged regarding current practice with TAs and teachers and opportunities and potential challenges that may present when implementing the new strategies.

Figure 5 shows an overview of the two consistent themes that emerged as a result of various discussion about the training programme in relation to TA practice.

Figure 6: Themes that emerged from discussions during the training



4.9.1. Theme 1: Existing strategies

This theme was concerned with the TAs identifying existing strategies they are currently using that are similar to the strategies in the training programme and the type of talk currently occurring in the classroom.

4.9.1.1. Classroom talk

The TAs in both schools expressed that they mainly observe the monologic IRF style of talking between teachers and pupils. They saw the value in using dialogic talk but felt it required more time which would not be possible during whole class discussions. The TAs from School B expressed that IRF often occurred during carpet time discussions whereas dialogic talk would occur during small group or paired activities.

> *"In the classroom, the class teacher mainly uses IRF, especially during the carpet time activities in Maths lessons"*

> *"I've definitely seen the teacher use dialogic talk in our English lessons and when she is working with the small group of children on my table*"

The above quotes suggest that the use of IRF or dialogic talk by teacher in the classroom is dependent upon the subject and the number of children they are addressing.

4.9.1.2. Resources

The TAs from School A identified they had various resources (i.e. task planners and visual prompts) they could use to support the self-scaffolding strategy of the scaffolding framework. As a result, the planners were distributed to all TAs who were encouraged to use them with the children they support.

The TAs in School B described 'task starters' which were a list of prompts of questions that the children will have on the sheet to support them with ensuring they have written the date and title etc. and also prompts them with strategies to check their work.

4.9.2. Theme 2: Opportunities and challenges

This theme was concerned with what the TAs identified as opportunities and potential challenges in implementing the strategies to their practice.

4.9.2.1. Opportunities

The SENCO in School A felt that it would be valuable for teaching staff to have access to the training presentation so that they are aware of the training the TAs received and could support them with applying the strategies to their practice. There was also an emphasis on providing effective feedback to teaching staff and the SENCO felt that if the teachers had some knowledge of the scaffolding framework, they would better understand the new approach the TAs took to providing feedback.

4.9.2.2. Challenges

The TAs in both schools expressed their reservations about use of the assessment for learning approach presented. Many felt that this would require a change to the whole school approach on providing feedback as there was an established marking and written feedback system in both schools. The TAs in School A in particular, felt that the feedback they currently give, although acknowledged, is often not acted upon (i.e. the work is not adapted in response to the feedback) and so they did not see the value in providing more detail than they already do. The SENCO identified this as a systemic issue among some teaching staff and encouraged the TAs to try the assessment for learning approach and consistently leave comments as a means of evidencing that various requests for adapting the work were made.

This topic was beyond the remit of the training programme but the discussion was valuable for the SENCO in School A to identify the current challenges faced by the TAs and also presents further training opportunities where a whole school approach is taken to implement the assessment for learning model.

5. Discussion

This section will begin by answering each research question before going on to discuss how well the TAs effectively applied scaffolding, dialogic talk and the talk strategies to their practice. It will then go on to discuss how well the TAs fulfilled the scaffolding roles outlined by Radford et al. (2015) and how their practice could be developed further for those roles. The WPR model will be discussed and the extent to which schools in the current study address and the deployment, practice and preparedness of TAs will be reviewed. Recommendations of how schools could adequately support TAs in each aspect will be offered.

The limitations of the current study will be identified, and suggestions for future research will be given. The implications for EP practice will be discussed with regards to they can contribute to the work at various organisational levels. Finally, a summary of findings will be offered.

5.1. Research questions

In answering research question 1. *To what extent will TAs adopt and implement the contingent role in scaffolding and dialogic talk strategies delivered in a training programme?* From the observed interactions, the TAs demonstrated that they were able to apply the talk strategies from the scaffolding framework to their practice. There was also a difference in the type of talk TAs used after training. The pre-intervention CA showed that TAs were using the monologic IRF model of talk, where the TA dominated the talk (Radford, Ireson & Mahon, 2008) and limited the amount of insight the TA gained about the child's knowledge and skills and gave the child less responsibility when problem solving or participating in learning activities. Whereas, the post-intervention data showed that TAs were engaging more in dialogic talk and were building on the pupils' responses to move their thinking forward. Similarly, the post-intervention data showed that the TAs used talk that adopted the contingency aspect of the scaffolding theory where the TAs

transferred the responsibility back to the child to solve problems but also questioned them about a particular topic to check their understanding.

Furthermore, the pre-intervention data showed that the majority of the talk strategies used by the TAs were at the bottom of the framework (modelling and correcting) where less responsibility is given to the learner. Whereas the post-intervention data showed, the TAs used prompting more and modelling and correcting less, giving a more even spread across the framework. In both conditions, self-scaffolding occurred the least and clueing occurred the most. This suggests that the TAs may require additional support to promote self-scaffolding and use prompting strategies instead of clues.

The observation data did not show any evidence of the TAs adopting the assessment for learning strategies to plan how they support the children or provide feedback to them and the class teachers about their performance. One TA did report that they used the scaffolding framework in their planning however they did not provide much detail into how they did so.

In answering research question 2, *What are the TAs' views about the training programme and its impact (if any) on their practice?* All the TAs reported that the scaffolding framework was the most useful strategy they gained from the training. Many expressed that it provided structure to how they supported children and they were less inclined to go straight in with offering the answer or model for them. Some TAs also reported that they were beginning to physically move away from the child to give them the opportunity to complete tasks independently. In being reflective about their practice, some TAs were able to compare the differences in their practice pre-and post-intervention and others were able to identify areas of success and where they would like further training or an opportunity to develop their skills.

Moreover, there was a difference in how the TAs were able to describe their pedagogical strategies. In the post-intervention interviews, the TAs appeared to be more confident in articulating their strategies of support and were able to provide more detailed descriptions of the strategies they used.

In answering research question 3, *Will there be a relationship between the TAs applying the strategies from the scaffolding framework, learnt during the training programme and children fostering learner independence?* The pre-intervention interview data demonstrated that TAs identified promoting learner independence as part of their role. However, they experienced difficulty describing the strategies they used, and there were no examples of them promoting learner independence in the pre-intervention CA data. This changed in the post-intervention data, where the CA data showed that the TAs were beginning to transfer the responsibility back to the child for them to acquire the skills to problem solve and use various learning strategies independently. Furthermore, some TAs set tasks and left the child to complete them independently. In the post-intervention interviews, the TAs were able to describe strategies and resources they used to support the child in becoming more independent. They also identified there was a need for them to support the child to become more independent, particularly with those children who would be transferring to secondary school in the next two years. These findings, therefore, suggest that there was a positive relationship between the TAs applying the strategies delivered in the training and a change in TA attitude and practice regarding fostering learner independence. This finding also demonstrates the value of triangulating the data. However aside from the few instances where TAs physically removed themselves from beside the child, the TAs remained close to the child and often used ‘high support' strategies where the child relied upon their input to arrive at the correct answer.

The assessment for learning tool would also contribute to fostering learner independence because it presents an opportunity for the TA to give feedback to the child about their performance in a learning activity. This would provide the child with the skills to be able to review their success and self-evaluate their performance (Bosanquet et al., 2016). This tool was not adopted by the TA resulting in there being no opportunity to assess its effectiveness. According to the SENCO feedback this appeared to be a systematic problem which requires further development in the school.

5.2. Scaffolding theory, Dialogic talk and the Scaffolding Framework

The TAs demonstrated, through the observation data, that they were able to adopt and implement the contingent role from the scaffolding theory and the talk strategies in the scaffolding framework. The post-intervention data showed that the TAs used various types of questioning to pitch the level of support they would provide and there was evidence of open and thought type questions that are suited to dialogic talk. They were then able to use the framework of the talk strategies from the scaffolding framework which provided structure to their support. The use of each strategy will be discussed in turn.

5.2.1. Self-scaffolding

This strategy requires the highest level of pupil independence and was promoted the least (either through prompting or modelling) by the TAs both before and after the intervention. With this this approach the TA needs to ‘step back’ and observe before intervening to support the child (Bosanquet et al., 2016). There is also a need for a set of prompts to be in place for the child to refer to. There was some evidence of TAs both stepping back and using task sheets as prompts; however, the occurrences were few. An explanation for the small number of self-scaffolding instances observed may be due to the TAs wanting to avoid the child becoming upset or distressed. As stated in their interviews, the TAs felt they had a responsibility to build and maintain the child's confidence and so would avoid situations where they felt the child may become upset. As such, they would find it difficult to observe the child struggling and feel compelled to intervene.

The TAs would also benefit from further training about creating a prompt list that the child can access independently. This list would adopt the framework of the process success criteria discussed in Bosanquet et al. (2016) and the structure of the prompts would present as mini-goals that start with a verb (Bosanquet et al., 2016). The process success criteria, identifies the 'end product' of a piece of work the child is expected to produce, a list is then

created as that outlines each 'mini-goal' the child will need to achieve to complete the task.

Although the training covered the topic of process success criteria, the TAs were not observed using it during the study. This may be as a result of a lack of understanding about its function or how to create it. The TAs would also require some planning time to make the list which they rarely get and so that could be a contributing factor. The process success criteria plays a significant role in planning how to scaffold the support for a child and so the TAs would need to be confident in using one which would in turn give the child more opportunity to self-scaffold.

5.2.2. Prompting

Prompting requires the TA to intervene by using verbal prompts or gesture. The verbal prompts would consist of open questions asking the child to express their views or understanding of a task and gestures would direct the child to refer to a prompt sheet or resource that reminds them about a particular strategy they could use (Bosanquet et al., 2016). Prompting also involves the TA pausing and allowing the child to process their thoughts before intervening with support. The TAs in the current study were more successful in using prompts post-intervention where they used open questioning or prompted the child to think about strategies they used previously. In each case the prompts were successful in supporting the child. Prompting would be the preferred strategy rather than clueing because it requires a low level of support for the TA and high responsibility from the student.

5.2.3. Clueing

The TAs used clueing the most both pre-and post- intervention. This strategy requires the TA to give the child a piece of information or hint to support them (Bosanquet et al., 2016). Similar to Bosanquet et al. (2016), the TAs in this

study were too quick to give the child a clue and would often skip offering a prompt.

Despite the regular occurrence of clueing both pre-and post intervention, there was some improvement in how clueing was used post intervention. Rather than just offering clues, the TA also used the contingent aspect of scaffolding to build on the clue they offered (4.4.5.3) which transferred the responsibility back to the child.

5.2.4. Modelling

The strategy of modelling involves demonstrating how to do the part of the task the child is unable to do (Bosanquet et al., 2016). There were less occurrences of modelling post-intervention and there was some difference in use of the strategy. The pre-intervention data showed the TA using a relatively high support strategy where they were telling the child the process and did not attempt to seek any contribution from the child, which resulted in the child remaining dependent on the TA. This could lead to over-dependence on the TA rather than greater pupil independence (Bosanquet et al., 2016). There was evidence of the TAs using modelling constructively post intervention because the child contributed more to the process as the TA posed more questions to the child whilst they modelled the strategy.

5.2.5. Correcting

The correcting strategy had the second highest occurrences in both pre-and post-intervention, suggesting the TAs were still inclined to provide the child with the answer. In both instances, the TA corrected the child when they were experiencing difficulty with a task. All the TAs corrected the child at some point during the interaction despite previously demonstrating that they could use the other strategies in the framework. Rarely did the use of correcting come as a result of the TA being unsuccessful in using the other talk strategies. This again confirms that they would benefit from further

training in using the talk strategies towards the top of the framework (e.g. prompting or clueing) more often. It would also be valuable for TAs to have solid understanding of the scaffolding theory and the importance of the contingent role (van de Pol et al., 2010). Although the TAs demonstrated the contingent aspect of scaffolding in the post-intervention observation data the regular occurrence of correcting students suggests there is a need to ensure they completely grasp the theory.

5.3. TA Role – Scaffolding

The findings from the present study confirmed that TAs can acquire and use the strategies delivered in training to perform the scaffolding roles discussed in Radford et al. (2015).

5.3.1. Repair role

The current study demonstrated that the TAs were able to support the child better when they used other-initiated repair OIR through prompting or questioning the child about an incorrect response (Radford, 2010). When other-initiated-other-repair (OIOR) or corrections were used (Radford et al., 2011), it was difficult to ascertain what the child knew because the TAs gave the answer which also gave the child less responsibility to problem solve. Compared to the pre-intervention data, the post-intervention data showed an increase in the TAs using OIR and a decrease in using OISR. The use of OIR transferred the responsibility back to the learner to solve the problems which meant they were less reliant on the TA for the answer. In comparison to the finding in Radford et al. (2011), the TAs in the present study showed more evidence of OIR than the TAs in the maths classrooms. However, the TAs did not use OIR as much as in the Radford (2010) paper about applied linguistics possibly because the participants in that paper they were teachers of children with speech and language difficulties and they were proficient at prompting children to self-repair.

To further develop the TAs capacity to perform the repair role, Radford et al. (2015) suggest the use of prompt cards with statements that will support the child to clarify their responses e.g. *"what do you mean?'* or *"Did you mean X or Y".* Although the TAs did not use prompt cards in this capacity in the current study, the post-intervention CA data showed that they did pose such questions to the children. The use of prompts cards would be a valuable resource as it is something the child could access independent of the TA which would see a reduction in TAs providing the 'Velcro' model of support.

5.3.2. Support role

Due to the nature of their role, TAs are well placed to provide moment-by-moment support for children who have emotional and behavioural needs and experience difficulties with their language, learning and attention (Radford et al., 2015). The three functions that are present in the support role are recruitment, direction maintenance and contingency management/frustration control. The post-intervention data gathered in this current study identified that the TAs were able to 'recruit' the children by getting them involved and engaged in the learning activity. This was often done by asking children about the task or asking them to recall what was done in previous lessons. Once the TAs had recruited the children, they were able to keep the child on-task and engaged through continued questioning about the task and immediately responding to questions posed by the children, this fulfils the 'direction maintenance' of the support role.

The TAs also used a lot of praise and encouragement when supporting the children and on the occasions where the child's responses were incorrect, they encouraged them with phrases like "nearly" and "almost" and made a point to praise when they were correct. This fulfils the contingency management/frustration control of the support role which is concerned with helping to reduce the learner's anxiety during a task (Radford et al., 2015).

Radford et al. (2015) also highlighted the need for TAs to know how to develop self-supporting strategies for the children they support which would help the

child to maintain direction and persevere with challenging tasks. TA3 demonstrated the use of such strategies with child she supported where the child completed a task list, and the TA gave him a set time to complete some of the tasks. As a result, the structure of the task list and the presence of a timer enabled the child to remain focused while the TA could leave him to work independently. Furthermore, having knowledge of the type of strategies the child responds well to enable the TA to introduce an approach that would have an impact; the use of timers could be counterproductive as it may invoke an anxious response in some children. Therefore, it is important to know which strategies work best with the child.

5.3.3. Heuristic role

The TAs in this study often demonstrated the heuristic role when modelling learning or strategies to problem solve. In both the pre-and post-intervention data the TAs modelled heuristic strategies to support the child to problem solve. The interactions in the post-intervention data were more valuable because the TA posed questions to the child while modelling the technique; the child was, therefore, an active participant rather than a passive recipient. Similar to the findings in research conducted by Radford et al. (2014), the TAs used a variation of high, mid and low support heuristic strategies. in the pre-intervention data, there was predominantly evidence of a high support strategy where the TAs used modelling to support the child. The post-intervention data showed that TAs were able to use a mid-support strategy in the form of questions about the subject (e.g. 4.4.2.1) and a heuristic prompt (low control), (Radford et al., 2014) to ask the child about the strategy they used to solve a maths problem (e.g. 4.4.5.2).

As well as fulfilling the scaffolding roles described by Radford et al. (2015), the TAs also used the dialogic talk approach more in the post-intervention data. This enabled them to explore the child's understanding of a particular topic and support them in arriving at the correct answer. Furthermore, TA2 prompted the child to recall a strategy taught by the maths teacher and

encouraged the child to verbalise how they were able to solve the problem; both of which were identified as aspects of the heuristic support role by Radford et al. (2015).

5.4. Wider Pedagogical Role (WPR)

5.4.1. Deployment - Pedagogical Role

All the TAs in the present study (except one) undertook a pedagogical role where they were differentiating the work for the child/children and was the consistent adult who supported them, either in a one-to-one setting or as a small group. There was one instance where the TA provided class-based support and worked one-to-one with a particular child in one class, in the other class, she walked around ensuring children were on task and supporting those they particular needs (known as roving), (Blatchford et al., 2016). Blatchford et al. (2016) suggest that schools need to clarify the pedagogical role of TAs which should be outlined in policy. This would be valuable practice because the majority of the TAs in the current study felt that work differentiation was their responsibility, despite the SEN code of practice (2015) explicitly stating it is the responsibility of the teacher.

A whole school policy on the deployment of TAs would be valuable to clarify roles regarding differentiation but also to ensure some consistency of practice within the school. In the present study, there was some variation in how TAs were deployed within the same school. This was dependent upon the class teacher's instruction on what tasks needed to be completed (e.g. one TA worked with a small group of children with SEN, doing maths while the teacher and the rest of the class completed a different activity in the playground). In this context, it may have been more valuable for the class teacher to lead the maths activity as they possess the knowledge and skills to support children with SEN. Blatchford et al. (2016) and Giangreco et al. (2014) make a similar recommendation where teachers, rather than the TAs, should have regular contact with the children with the most need in the class. They go on to suggest

that school leaders should look for evidence from teachers that they are taking responsibility for the teaching and learning of all pupils as part of the monitoring process.

There was some indication that School A had a monitoring process in place whereby the SLT met with class teachers to review how they were supporting the needs of children with SEN. However, the TAs expressed that work was not being adjusted in response to their feedback about the child's performance on learning tasks and subsequently the child's needs were not effectively being met. The SENCO felt that the assessment for learning tool could be used effectively to report the child's performance on individual tasks and would act as evidence that the TAs are communicating the child's needs to the class teacher. The SLT would then be able to review and evaluate whether teachers were making the necessary adjustments to support the child.

As stated by Blatchford et al. (2016), clarifying the role of the TAs needs to be a whole-school drive which is embedded in their policy where teachers and TAs know they have the support of SLT throughout the change process. This was highlighted as an important issue in the present study because the feedback from the discussions during training, suggests that the success of effectively implementing the scaffolding strategies was dependent upon the support the TAs have from, SENCOs, SLT and teachers. The SENCO in School A shared the information about the training with all teachers which suggests that the programme was endorsed by a senior member of staff and so would be acknowledged by other staff. It was apparent that the SENCO believed that the TAs had an important role to play in contributing to raising the attainment of the children they support and as a result was pro-active in ensuring there was an opportunity to for them to apply the skills they gained during training in the classroom. Feedback from one TA suggested this was effective as they expressed that they were able to discuss with the teacher how they could incorporate the scaffolding framework in planning and target setting for the child; this was the only instance of its kind from the cohort of TAs in the study. However, it demonstrates that having the support from SLT is essential (Radford, 2015).

The majority of the schools the researcher has worked in during their Educational Psychology training, continue to deploy TAs in the traditional way where they are employed to fulfil the specifications of an EHCP for a child for a particular number of hours of additional or individual support. Conversations with SENCOs have highlighted that cuts in government funding and the increase in the number of children receiving EHCPs mean that there is less flexibility in how schools can deploy TAs, and so they continue to provide one-to-one support for children which consequently becomes the 'Velcro' model of support (Gerschel, 2005). This was demonstrated in the current study where despite there being a change in the TAs' pedagogical strategies, they were still providing a high level of support where they remained beside the child for the whole lesson.

Case studies from Gerschel's (2005) research demonstrated that some schools were able to change how TAs were deployed by changing to class-based or subject-based support. One SENCO expressed that once she gained the support of SLT, she held weekly INSET sessions with TAs and highlighted the importance of preparing the child for adulthood through promoting active participation in learning, empowerment and independence and also supported them with the change process. When some TAs were experiencing feelings of loss as a result of the dependent relationships they had created with particular children. This type of support structure is something the schools in the current study will have to consider for change in how TAs are deployed to be consistent and effective.

5.4.2. Practice

The current study demonstrated that TAs were able to adopt scaffolding and talk strategies that worked towards supporting children to foster learner independence. It is also important that once the strategies are embedded into TA practice, a system of sustaining them needs to be established. EPs can contribute to this by facilitating a supervision session for TAs (this will be discussed later). However, schools will also need to create a system where

they can support and monitor the practice of the TAs. This could be through regular INSET for TAs and opportunities for TAs to appraise their practice (Blatchford et al., 2016). As stated earlier TAs are often not subject to an appraisal or performance management system resulting in there being very little opportunity for them to review their practice or highlight areas requiring training and development. A shift in practice regarding this is necessary, and the change will need to be implemented by the SLT across the school to ensure staff are clear that there is an expectation for TAs to continue to demonstrate the effective use of the scaffolding and talk strategies and are continuously improving their practice. (Blatchford et al., 2016).

An example of implementing such a system was demonstrated in Gerschel's (2005) research where a SENCO of a secondary school introduced performance management and classroom observations for TAs. Similarly, the TAs in the current study were regularly observed by SENCOs. However, neither the school in Gerschel's research nor the schools in this present study had a system where TAs could access training or development as a result of performance management or observations. This may be because there was no established criterion of skills to assess them by. The scaffolding and talk strategies delivered in training from this study could be used by SENCOs to contribute to a criterion of behaviours and strategies TAs are required to demonstrate in their practice. Furthermore, TAs should be encouraged to be reflective in their practice in order for them to develop strategies that would improve their practice. Despite it being a fundamental aspect of teacher's professional development, little attention or opportunity is given for TAs to critically evaluate their work (Collins & Simco, 2006); this could be as a result of the difficulty in defining the role of the TA. Therefore, establishing a scaffolding role will allow for a framework in which TAs are able to reflect. As argued by Convery (1998), individuals would benefit from having the support of others if they are to be constructive and self-critical in their reflection. Therefore, the TAs' reflective practice needs to be done in collaboration with teachers (Blatchford et al., 2016).

5.4.3. Preparedness

As well as receiving training in effective interactions with pupils, the feedback from the TA interviews suggests that TAs require training regarding the needs of the children they support and to improve their knowledge of some subjects. If TAs adopt a scaffolding role, in-house training around subject knowledge would be sufficient to support them in their practice Blatchford et al., 2016). This could be delivered through weekly team meetings or during whole school INSET (Gerschel, 2005). There needs to be culture where regular training is offered to continue supporting TAs with their development and also includes them collaborating with teachers as often as possible, in order to maintain a consistency in practice and clarity in their roles.

The current research and previous research has demonstrated that TAs are able to acquire and apply skills to support children in class (Butt & Lowe, 2012). The Australian study conducted by Butt and Lowe (2012), delivered a 10-hour training programme which focused on reading, literacy and numeracy strategies, information about specific developmental disorders (e.g. autism and global developmental delay) and behaviour management. As with the present study, the TAs reported an increase in confidence and improvement in skills as a result of receiving the training this is despite the training in the present study being delivered over 3 hours and the focus being about changing practice rather than providing information about particular needs.

Butt and Lowe's (2012) training fulfilled the in-service, skills-based training that is recommended in the literature (Riggs, 2004; Blatchford et al., 2016). There is also a need for pre-service training which can only be provided once there is clarity about the role of TAs (Riggs, 2004)

In addition to the mandatory information regarding safeguarding, school policies and health and safety practice. The induction training could introduce the scaffolding strategies. Blatchford et al. (2016) discuss the importance of a formal induction programme for teachers and TAs regarding TA deployment.

The authors describe models of induction which included new TAs shadowing experienced and effective TAs or using video recordings of TAs in action. Blatchford et al. (2016) make an important point about the importance of there being an ongoing review of induction programmes to ensure outcomes are achieved. Also, the need for TAs to be properly prepared needs to be effectively implemented to achieve consistent school-wide practice (Blatchford et al., 2016).

5.4.3.1. Day-to-day preparedness

The TAs in the current study expressed that they rarely had time to plan with the teacher about their support in lessons. Creating time for TAs and teachers to plan will be an important aspect of ensuring TAs have the appropriate support to fulfil their scaffolding role (Blatchford et al., 2016).

Furthermore, research conducted by Bach, Kessler and Heron (2006) who reviewed how TAs were deployed in 10 primary schools in the UK, argued that there was an *'important interaction between the characteristics of the TA workforce, the degree to which heads viewed the TAs as integral to raising standards in their school and the policies they used to manage the workforce'* (pg. 16). This highlights the need for the deployment, preparedness and training aspect to of the WPR model to be addressed equally in order for the TAs to have the opportunity to effectively apply the aspects of the training model as well as have clearly defined roles where their support complements the work of the teacher but also contributes to the progress and development of the children.

5.5. TA and Teacher collaboration

The findings from this current study and previous research (Blatchford et al., 2016) highlight the importance of creating opportunities for TA and Teacher collaboration. Particularly with regards to planning, feedback and establishing roles in the classroom. Devecchi and Rouse (2010) argued that

"the successful inclusion of students is dependent on how schools as organisations and communities are also able to support the inclusion of adults". (p. 91)

As a result of conducting a survey amongst teachers and TAs from two secondary schools in England, Devecchi and Rouse (2010) identified a number of factors that contributed to successful collaboration between teacher and TA which included sharing knowledge, skills, resources and ideas useful to support individual children and the whole class, knowing each other's teaching strategies, classroom behaviour management and having clarity and flexibility about roles and responsibilities.

The consequences of not having a clarity of about roles have been reported by Butt and Lowe (2012) who found that TAs and teacher had different perceptions of what the TA role should be and what their training needs were.

In line with the findings in the current study, TAs in Butt and Lowe's (2012) research identified supporting children with specific needs whereas the teachers defined the role of the TA as managing behaviour (through keeping children on task) and working with the teacher to support teaching and learning. With regards to skills the TAs identified the need to develop personal qualities like patience and remaining calm. However, teachers felt that TAs would benefit from acquiring literacy and numeracy skills as well as skills that enable them to ask comprehension questions and providing prompts. The present research has demonstrated that TAs are able to acquire skills around providing prompts and use them with some success which presents as a unique contribution to literature about TAs.

In order to begin to establish a clarity in roles and responsibilities, Devecchi and Rouse (2010) argue that there needs to be ongoing collaboration where TAs are included and have access to relevant knowledge that enables them to participate in defining their role.

Devecchi and Rouse (2010) also found that effective collaborations resulted in staff being supportive where they were able to reflect and consider other's viewpoints, problem solve together and review and alter their practices to promote inclusion. As a result, rather than being marginal to the school, TAs became an important resource that benefited all staff.

5.6. Collaboration training - Teacher and TA.

In order for teachers to effectively collaborate with and support TAs they would require additional training to develop the appropriate skills (Wallace, Shinn, Bartholomay & Stahl, 2001). Skills in communication, planning, scheduling and instructional support have been identified as important (Wallace et al, 2001). Also, skills such as mentoring, negotiating, policy development and delegations were covered as part of a professional development programme that equipped teachers to work effectively with TAs (Bedford et al., 2008).

The benefits of collaboration training were also described by Morgan, Ashbaker and Forbush (1998) where teachers and TAs attended an 8-week training programme about teamwork and evaluation. Topics such as defining roles and responsibilities, the need for continuous self-assessment as well as curriculum focused tasks were covered. The TAs reported an increase in worth and esteem, whilst the teachers expressed the value of being able to model good practice regarding a specific skill. Furthermore, the opportunity to discuss pupils' needs and pool their knowledge and expertise together created a sense of them being a team.

Due to the current demands on resources and time in schools, an 8-week programme may be difficult to deliver. However INSET days over the course of the year may allow for the delivery and review of skills and strategies that both TAs and teachers can use.

5.7. Strengths and Limitations of the present study and future research

5.7.1. Strengths of the study

The study addresses a gap in the research about training TAs to use long term strategies that can be used in the classroom with children with or without SEND, rather than training in skills to deliver short term interventions to a particular group of children.

As a result of using CA as a tool for analysis, there was a richness in the data yielded from the TA observations which provided a detailed insight into TA interactions. Also, the triangulation of both the observation and interview data allowed for in depth analysis and cross references to be made which validated the TAs' interview responses and practices observed.

5.7.2. Limited observation data.

The study observed each TA once in maths and literacy before and after training, and although some detailed interactions emerged from the data, it limited the opportunity to explore whether there were any developed patterns of behaviours or strategies. It was valuable to identify that a particular talk strategy presented during a lesson but it would be interesting to explore if such behaviour was consistent across various lessons. Longitudinal data collection could record more classroom practice and begin to explore whether there was a consistent use of specific talk strategies.

There were difficulties in making some interpretations about the impact of the TAs' practice on fostering learner independence due to the limited amount of observational data. Although TAs discussed strategies they used to foster learner independence in their interviews, there were few reference points in the observation data that corresponded with the TAs' description. It could be argued that there is a discrepancy between what the TAs say they do and what they do in practice, but it would be difficult to suggest that with the small number of recorded observations collected.

5.7.3. Schedule and interview limitations

Although the interview questions were piloted and the questions appeared broad enough for TAs to provide descriptions about their practice, the TAs appeared to experience difficulty describing strategies they used to support learners. This became easier for the TAs during the post-intervention interviews however, there were still instances where the TAs required clarification or more time to respond to the questions about particular strategies. This may be due to TAs having little opportunity to be reflective about their practice and as a result, are not used to having to describe their practice. Also, a lack of knowledge about strategies means they can talk in general terms about their strategies but may not have knowledge of specific terms for pedagogical strategies. As stated earlier, the post-intervention interviews showed that the TAs were able to apply some of the terms they learnt during the training to their practice (e.g. scaffolding) however it was limited to one or two terms. The TAs would benefit from additional training or information about pedagogical strategies and the time to explore whether they are already using it in their practice.

5.7.4. Training programme limitations

During the training sessions, a large amount of information was delivered over a short period. Although there was evidence that the TAs understood and practically applied a great deal of the information to their practice, the absence of the use of the assessment for learning strategies suggest that it may have been too much information for the TAs to retain. Both the training presentation and prompt cards were given to TAs after the training session as reference points. However, there was little opportunity for TAs to explore the information in more detail with the researcher or other TAs. The researcher intended to hold a supervision session for the TAs before the post-intervention data was collected, but there were challenges with finding time where all TAs could attend, and so the sessions did not come to fruition. Some TAs stated that

they would like the opportunity to share good practice and observe other TAs using the talk strategies suggesting there is a need for supervision sessions.

Future research should attempt to incorporate supervision which could be led by the EP or the SENCO and measure its impact on TA practice. Research suggests that supervision is important in offering support and ensuring the quality of one's work (Barden, 2001; Dunsmuir & Leadbetter, 2010). Furthermore, effective supervision results in the supervisee having feelings in self-awareness, self-efficacy and enhanced skills and knowledge (Wheeler & Richards, 2007). Although the research mentioned discusses supervision for individuals providing therapeutic support, the benefits gained from supervision would be valuable to the TAs of this present study to enable them to provide long term, consistent and quality support to children

Future research should also explore the value of delivering the training content over a longer period where TAs are given the opportunity to practice one skill before learning another. Such an approach is currently used in ELSA training where sessions are delivered over a period (e.g. six sessions delivered fortnightly) and the trainees have an opportunity to start applying their skills immediately after training (ww.elsanetwork.org). There is also a requirement for ELSAs to attend half termly supervision session to maintain their ELSA status (ww.elsanetwork.org). A survey about ELSA supervision found that the ELSAs felt supported and saw the value in engaging in group supervision where there was an opportunity to share and discuss experiences and useful resources as well as extending their knowledge (Osborne & Burton, 2014). Considering these are the needs highlighted by the TAs in this present study, the ELSA supervision model would appropriately address this.

Based on the researcher's own experience, ELSAs sometimes experience difficulty starting the ELSA programme in their school due to the lack of time allocated to plan and run the sessions. This is often due to the SLT or SENCOs not understanding the ELSA programme and as a consequence not providing ELSAs with sufficient time and resources. Therefore, it would be beneficial for

SENCOs to gain more detailed insight into the ELSA programme by attending a training session or an information evening.

In the current study, the researcher saw the benefits of a SENCO attending the training session (in the case of School A) because they were able to offer the TAs resources and provide teaching staff with the necessary information that would also support the TA. As a result, future research or training should encourage the attendance of SENCOs or provide an opportunity for SENCOs to access the training material, so they have an understanding about the support TAs will need to effectively apply the learnt skills to their practice.

There was a 10-12 week gap between the delivery of the training and collecting the post-intervention data. This would suggest that any changes observed were short term and it would be valuable to explore whether the training had any long-term influence. A longitudinal approach to data collection would allow for observation to be conducted at termly intervals (10-12 weeks) over one or two academic years.

5.8. Implications for EP Practice

EPs are well placed within local authorities to disseminate the findings of the current research, deliver the training and supervise staff at various organisational levels.

5.8.1. Local Authority level

EPs could present the research and its findings at Head Teacher, SENCO or TA forums held within the local authority. They could suggest how schools can introduce the theory to TA practice or begin to work towards delivering the training. Also, EPs encourage those who attend such forums to consider how TAs are currently deployed in their schools and how their work could be more effective.

5.8.2. Whole school level - School policy development

Recommendations from Blatchford et al. (2016) and findings from the current study suggest that schools would benefit from introducing policies outlining the deployment and responsibilities of TAs; this would provide clarity and consistency of practice across the school. EPs could support SLT members in constructing such a policy whilst referencing the evidence base that supports it. EPs could also contribute to the construction of the performance management document for TAs, where they could advise on the further training that could be offered to continue the TAs' professional development. Furthermore, EPs could suggest particular behaviours or practices TAs could be assessed against for classroom observations.

5.8.3. Group level - Training and supervision

As mentioned previously most EPs already use an established training and supervision model with the ELSA programme which could be adapted and used as a framework of how the training in the current study could be delivered.

In addition to the TA training, EPs can deliver or support the SENCO in creating a presentation for teaching staff about the training programme and how they could contribute to supporting TAs to effectively apply the scaffolding and talk strategies to their practice.

5.8.4. Individual level

EPs could support individual TAs regarding developing their practice and SENCO regarding managing and maintaining good quality practice amongst TAs.

To deliver such support the school would need to commit to allowing staff members the time to plan and attend the various sessions. The researcher’s

experience from their professional placement suggest that this can be difficult to negotiate and sustain. An agreement from the SLT would need to be sought and in the case of the TAs, the class teacher will need to be informed about the times the TA will be away. Should the teacher require support when the TA is absent, the responsibility to arrange cover should lay with the TA's line manager.

5.9. Summary of findings

The present study demonstrated that TAs are able to adopt and implement scaffolding and talk strategies that foster learner independence in the children they support. The success of the training is attributed to the strong evidence base regarding scaffolding and the programme was created and delivered to suit the target audience. The findings confirmed the research conducted by Radford et al. (2015) that TAs have the potential to provide a scaffolding role that would support the teacher's in the classroom.

There is still some confusion about the TA role because the TAs in the present study felt it was their responsibility to plan and differentiate the work for the children they support. In order to provide clarity about the TA role schools will need to begin working towards defining and establishing a role for TAs which could be described in their policies and implemented across the school. The TAs should be part of this process and an investment in training and supervision for TAs and teachers will be required to ensure the TAs continue to provide a good standard of support to children.

EPs are best placed in local authorities to deliver the training, offer supervision and work with schools to establish the TA role. This will require schools to 'buy-in' to the programme and remain committed to allowing the time required for each task to be executed and maintained.

Future research should focus on conducting a longitudinal study to explore the impact of the training on TA practice over time. It will also be valuable to

measure the impact of the strategies on pupils' performance. Researchers will have to ensure that an appropriate and comprehensive tool is used (other than summative assessments) to measure whether there is a change in pupil performance, learner independence and pupil confidence.

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7. Appendices

7.1. Appendix A - Information leaflet and Consent forms

Teaching assistants' support and interactions: Measuring the impact of an intervention that provides teaching assistants with the relevant skills to foster independent learning in the children they support.

This current research aims to explore the impact a training programme will have on how Teaching Assistants (TA) support pupils regarding their learning.

The research will consist of delivering a training programme, undertaking observations of TAs supporting children and interviews with TAs.

The training programme will focus on the following:

- How TAs can scaffold their support to promote learner independence.
- The type of 'talk' TAs can use to promote learner independence.
- How TAs can provide valuable feedback regarding progress the child has made.

Training will be three hours long (how it is delivered is negotiable) and will be based around approaches from the book "*The Teaching Assistant's Guide to Effective Interaction"* (Bosanquet, Radford & Webster 2016).

One session of supervision and regular email contact will be available after the training.

Observations and interviews will be conducted before and after the training.

This research will provide valuable insight into how the approaches from Bosanquet et al's book can be practically applied and the role Educational Psychologists can play in delivering this type of training.

Benefits for you are:

- **It can help improve your interactions with pupils in the classroom.**
- **Help you to understand the principles behind effective classroom talk.**
- **Understand and apply the strategy of scaffolding to support pupils' learning.**
- **Support in the assessment for learning process**
- **Free CPD and supervision!**

Institute of Education

Dear Sir/Madame,

My name is Natoya Ivey; I am a trainee Educational Psychologist at UCL Institute of Education.

I am currently undertaking research to explore the impact a training programme will have on how Teaching Assistants (TA) support students regarding their learning and would like to conduct my research in your school.

The research will consist of a delivering a training programme, undertaking observations of TAs supporting children and interviews with TAs.

The training programme will focus on the following:

- How TAs can scaffold their support to promote learner independence.
- The type of 'talk' TAs can use to promote learner independence.
- How TAs can provide valuable feedback regarding the progress the child has made.

The observation will take place in the classroom in a lesson where TAs would normally support children and their conversation will be audio recorded. I would also like to interview the TAs to understand what they identify as important strategies and techniques that best support children in their learning, this interview will also be audio recorded to ensure no details in their answers are missed.

When reporting my results, the detail of the children, TAs and your school will remain anonymous and I will be happy to share my findings with you.

Your participation in this research is completely voluntary and if you agree to participate, you will have to right to withdraw at any point during the study and any information gathered about the participants at your school will not be used.

If you have any further queries regarding my research please contact me, natoya.ivey.14@ucl.ac.uk

Yours sincerely

[redacted]

Natoya Ivey

Please sign below to indicate you give consent for your school to participate in this research

Name:

Position:

Signature: Date:

Institute of Education

Dear Parent/Guardian

My name is Natoya Ivey; I am a Trainee Educational Psychologist at UCL Institute of Education.
I am currently undertaking research to explore how Teaching Assistants (TAs) support students regarding their learning and would like to observe you child receiving support from their TA.

The observation will take place in the classroom in a lesson where the TA would normally support your child. The conversation between the TA and your child will be audio recorded. Your child will be observed on two separate occasions and I will then use the data collected to contribute to the information gathered from interviewing the TA. When reporting my findings, the identity of your child, the TA and their school will remain anonymous.

Your child's participation in this research is completely voluntary and if you agree to them participating, you and your child will have the right to withdraw at any point during the study and any information gathered about them will not be used.

If you have any further queries regarding my research, please contact me, natoya.ivey.14@ucl.ac.uk

Yours sincerely

[redacted]

Natoya Ivey.

Please sign below if you **do not want** your child to participate in this research

Child's Name:

Class:

Parent/Guardian Name:

Parent/Guardian signature:

Date:

7.2. Appendix B - Pilot interview schedule

Pilot TA Interview Schedule

TA details: Name, gender, relevant qualifications, years in post, needs of children worked with.

1. What do you understand your role to be with regards to supporting children with their learning?

2. How do you support a child with starting a task?

3. Do you use any particular strategies to support children to problem solve?

4. How do you encourage a child to do something challenging?

5. Do you use any particular strategies to promote independent learning?

6. Do you feedback to the child about their effort and progress?

7. Are there any particular areas in your work that you would like to gain more skills in?

7.3. Appendix C - Pre-Intervention interview schedule

TA Interview Schedule

TA details: Name, gender, relevant qualifications, years in post, needs of children worked with.

8. What do you understand your role to be with regards to supporting children with their learning?

9. How do you support a child with starting a task?

10. Do you use any particular strategies to support children to problem solve?

    Do you offer any prompts about what they could do?

11. How do you encourage a child to do something challenging?

12. Do you use any particular strategies to promote independent learning?

13. Do you feedback to the child about their effort and progress?

    How?

14. Are there any particular areas in your work that you would like to gain more skills in?

7.4. Appendix D - Post-intervention interview schedule

TA Interview Schedule

TA details: Name, gender.

1. What do you understand your role to be with regards to supporting children with their learning?

2. Have you gained any new strategies to support children to do the following:

   Start a task
   Problem solve
   Promote independent learning
   Do something challenging
   Provide feedback about their effort and progress

3. Were there any aspects of the training that you found most useful?

4. Are there any particular areas of the training that you would like to gain more skills in?

5. Are there any other particular areas that was not covered by the training you would develop your skills in?

7.5. Appendix E - Training materials and presentation

Theories underpinning Scaffolding

Constructivist learning theory (Piaget, 1977)

This theory argues that we construct our own ideas individually through our interaction with the world around us. We develop mental structures by making links between what we know and new ideas; this is called 'schema'. Schemata (plural of schema) can be thought of concepts or categories which are used to process and identify or classify new information (Wadsworth, 2004)

Schemata change over time as we add new ideas gained from experience. This is done either through *assimilation* or *accommodation.*

Assimilation is where new information is integrated into an existing schema, this does not result in the schema changing but instead adds to the schema.

Accommodation occurs when it is not possible to assimilate into an existing schema, therefor a new schema will need to be created or and existing schema can be modified so that the new information fits into it (e.g. John sees a cow for the first time, based on the schema he already has he knows it is an animal because it has four legs like a dog or a cat. He doesn't label it as a cat because it is not similar in size or have the same features. He might therefore label it as a dog based on the schema he has available however as he continues to experience his environment and interact with others his schema would adjust and he would identify it as a cow).

Piaget saw cognitive development as something that mainly occurs in the mind of the individual. He does acknowledge that interactions with other could enable a child to adjust their schemas however he argued that a child would still show cognitive development if left alone to interact with the world around them (Bosanquet, Radford & Webster, 2016).

Social constructivist learning theory (Vygostky, 1978)

Unlike Piaget, Vygotsky (1986) believed that interactions with others plays a significant role in cognitive development.
He argued that *"interaction with others help us to decide what is important in our society - that, what we need to learn right from birth*" (Bosanquet et al 2016, pg 26). Mugny, De Paolis and Carugati (1984) found that cognitive development takes place a result of mutual interaction between the child and those people whom they have regular contact with (Sutherland, 1992). Suggesting that rather than the child being the 'recipient' of knowledge, it is co-constructed through a two-way dialogue (Bosanquet et al 2016). Which was the view also held by Vygotsky. Vygostky's social view of cognition was described as

'Any function in the child's cultural development appears twice: first on a social level, and later, on the individual level; first between people

(interpsychological), and then inside the child (intrapsyhcological). This applies equally to voluntary attention, to logical memory and to the formation of concepts. All the higher functions originate as actual relations between human individuals.

(Vygotsky, 1978, p.57)

Zone of Proximal development (ZPD)

Vygotsky argued that children could acquire new skills through mediated support from an adult. This could be achieved by the adult working within the child's ZPD, Vygotsky described the ZPD as:

'the distance between the actual developmental level, as determined by individual problem solving under adult guidance or with more capable peers'

(Vygotsky, 1978, p. 86)

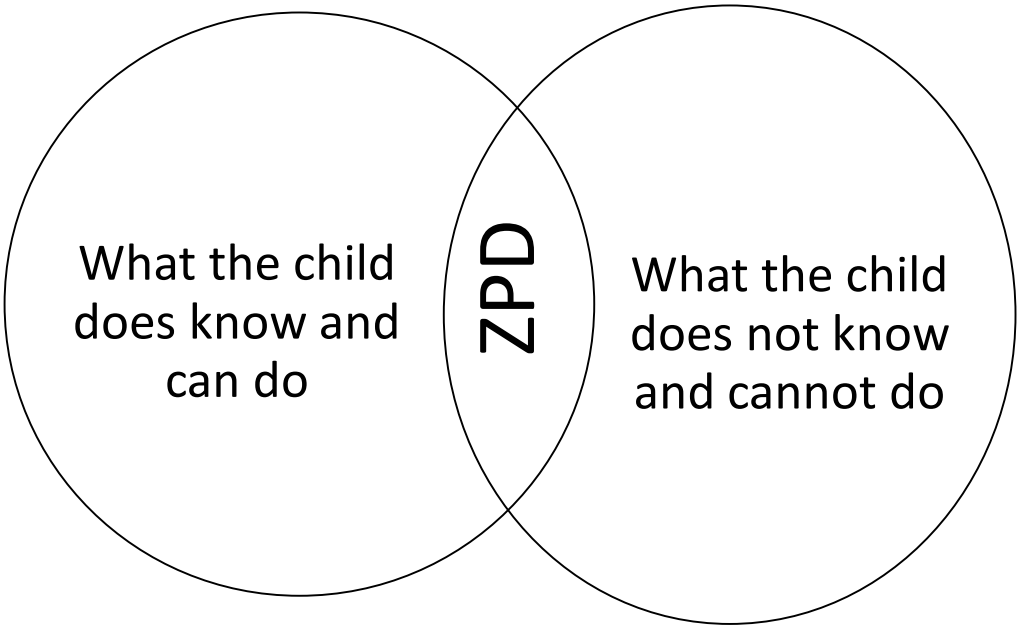


Figure 1. The zone of proximal development (Bosanquent et al 2016)

To apply this to a classroom task, consider the following example around reading: A teacher would like a pupil to develop their comprehension skills, therefor they provide a text that may be challenging to decode and so it is read by the adult who would then ask the child questions about the text. If the end goal is for the child to be able to better decode words, then a less challenging text would be provided but there would some unfamiliar words the child would need to practice and work out (Bosanquet et al 2016). Learning occurs in the ZPD and tasks for the pupil are planned so that the activities fall within the space where the fringes of what the pupil knows and does not know overlap (Bosanquet et al 2016).

Bosanquet et al 2016 created the grid below to demonstrate ZPD using a maths example:

Overall task: To calculate the amount of degrees in an angle under 180^{o}		
Part of task	*Things pupil can do*	*Things pupil will learn during task*
1. Make sure the protractor is the right way up (so you can read the numbers).	Choose the protractor from a range of resources. Put the protractor the right way up.	
2. Put the small circle of the protractor over where the two lines of the angle meet.	Put the circle over where the line meet.	
3. Line up the thick line along the bottom of the protractor with the left hand in line of the angle, making sure the circle stays in place.	Line up the two lines.	Reposition the protractor along the line so the little circle is in the correct place.
4. Starting from the left, use pencil to follow the curve of the protractor, stopping where the right-hand line of the angle is visible.	Follow the curve of the protractor.	
5. Using the number on the protractor, read off the angle.	Read off the large number (to the nearest 10)	Read off the whole number, so taking an accurate measure (counting along from nearest 10 in ones).

Overall task:		
Part of task	*Things pupil can do*	*Things pupil will learn during task*
		.

EFFECTIVE INTERACTION FOR TEACHING ASSISTANTS.

Adapted from 'The Teaching Assistant's Guide to Effective Interaction' (Bosanquet, Radford and Webster 2016)

Delivered by Natoya Ivey

SESSION AIMS

By the end of the session we should have covered

- The practical aspects of scaffolding
- The type of talk involved in effective scaffolding
- How to scaffold the support you give to the pupil
- How to assess the pupil's success at a task and how to report that
- Explore how you may go about planning the way you support your pupil.

SCAFFOLDING

Scaffolding is where structured help is provided by an adult so that the pupil can reach a specific goal.

It is about ***simplifying*** rather than modifying the task the pupil needs to complete. The pupil is therefor allowed to attempt each part of the task by themselves, but structured help is provided for parts of the task they find difficult. As the pupil becomes more skilled, the help is gradually withdrawn until they are able to perform all aspects of the task independently. (Bosanquet et al, 2016)

Characteristics of scaffolding

- Contingency - where the adult's support is adapted to the student's current level of performance and the support is at the same or slightly higher level.
  - It involves the adult making moment-by-moment responses to what the child has said or done.
  - Through asking diagnostic questions, the adult can judge what the child knows and can do.
  - The adult is then able to pitch the amount of support the pupil requires.
- Fading - when the adult decreases the level/and or amount of support over time
- Transfer of responsibility - the student takes increasing learner control

The pupil does the part of the task they can. The TA provides structured help for the parts the pupil finds difficult	The pupil attempts the parts they find difficult using strategies learned via the interaction with the TA	The pupil carries out all parts of the task by themselves competently and confidently
Stage 1 - Contingency	Stage 2 - Fading	Stage 3 – Transfer of responsibility

The scaffolding process (Bosanquet et al, 2016 and Van de Pol 2010)

The main focus is the interaction between the adult and child and so both need to be present and proactive contributors for scaffolding to take place.

CLASSROOM TALK

Initiation **R**esponse **F**eedback (IRF)

Research has found that the pattern in traditional classroom talk is not very helpful in supporting deep learning, this is known as the IRF pattern

Initiation	This is normally a question asked by the teacher. Usually one to which they already know the answer, such as 'What is the capital of France?'
Response	This is the pupil's answer. Let's say in this case, the pupil's response is 'Rome'.
Feedback	This is the feedback the teacher provides on the pupil's answer. They will say whether the answer is right or wrong, and if it is wrong, why it is wrong. 'No Rome is the capital of Italy'.

Example: From a literacy intervention with children aged 7 and 8 years old the TA has asked for the spelling of 'disgrace'.

I TA: Does anybody know how to spell it? Ryan

R Ryan: Disgrass

F TA: Disgrace… grace. As in the girl's name Grace.

Dialogic Talk

A genuine two-way discussion that builds shared understandings (Alexander, 2005)

Martin Nystrand et al (1997) identified three key features of dialogic talk:

1. 'Authentic questions': these are open questions which the teacher may not know the answer, or to which there is more than one possible answer.
2. 'Uptake': where the responses are incorporated into subsequent questions.
3. High level evaluation': this refers to the teacher's efforts to validate and elaborate on pupils' responses.

Three skills are required for successful dialogic talk:

- Questioning: Asking authentic questions to find out a pupil's ideas about the part of the task they are doing.
- Evaluating: Judging what to say next in response to what the pupil has just said;
- Responding: Saying something which moves the pupil's thinking forward by building on what they have just said.

IRF v Dialogic talk

The following example is from a math lesson where Rob has misread a question asking him to find out the mode and he is checking the meaning with the TA:

IRF

Rob: What is a model?
TA: Do you mean mode?
Rob: Yes

Dialogic talk

Rob: What is a model?
TA: Model, Model? What do you think that is?
Rob: Mode?
TA: Yes, What is mode anyway?

PROCESS SUCCESS CRITERIA

These are 'mini goals' that are set to establish what you are aiming for the child to achieve. This will relate to the piece of work the pupil is expected to complete in the class.

Example: The task is for pupils to write about a recent school journey to the Science Museum, using subordinate conjunctions and adjectives in their sentences the task criteria may be to:

- Describe the journey there
- Talk about what they saw
- Write about what they learnt
- What as the highlight of their day

When assessing the completed piece of work the teacher is not able to understand why a pupil did not correctly complete certain aspects of the task.

The process success criteria offers an opportunity for that to occur by creating mini goals for each task criteria.

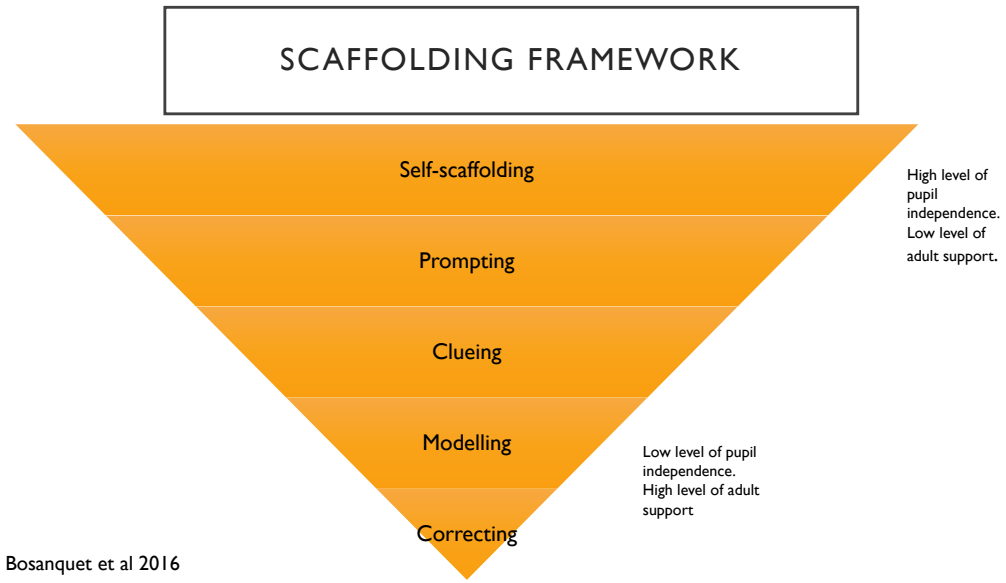
Using the previous example:

- Describe the journey there
- Talk about what you saw
- Write about what you learnt
- What was the highlight of your day

Using the above example the process success criteria may look like this

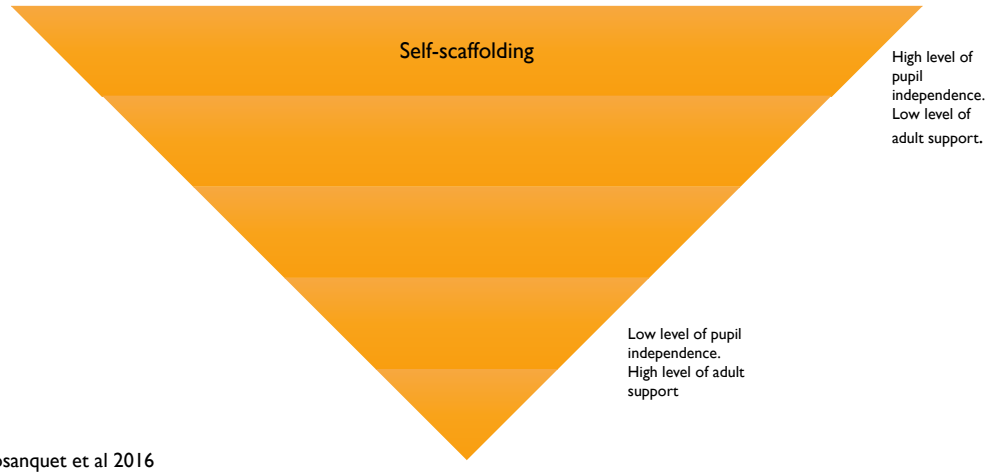
Task criteria	Process success criteria
Describe the journey there	• Say what transport we took to the museum • Say how long it took • Use subordinate conjunctions
Talk about what you saw	• Name at least two items you saw at the museum • Use adjectives
Talk about what you learned	• Describe what new information you learned about those items
What was the highlight of your day	• Say what you enjoyed about the day and why

Later we will look at how this will contribute to assessment for learning.



Bosanquet et al 2016

SCAFFOLDING FRAMEWORK



Bosanquet et al 2016

SELF-SCAFFOLDING

Done by the pupil on their own where by using strategies they previously learned, they are able plan how to approach a task, problem solve during the task and review the success of the task and how they approached it. (Bosanquet et al, 2016), self-scaffolding involves:

- Planning how to approach a task
- Problem solving during the task
- Reviewing our success at the task and the strategies we used

Planning how to approach a task

If written instructions are provided, a prompt sheet could be useful in supporting the child with how they start a task and could include:

- Equipment needed
- Date, title and learning objective written down
- What do you need to do first?

If verbal instructions are given the child could do the following:

- Take notes
- Use and audio recorder to record the instructions
- Ask the pupil to recall what they need to do and write down the steps they need to take to do it
- Use visuals or symbols (e.g. pictures, images or Makaton) to show the key steps for the task

Problem solving during the task

Problem solving strategies pupils may already use:

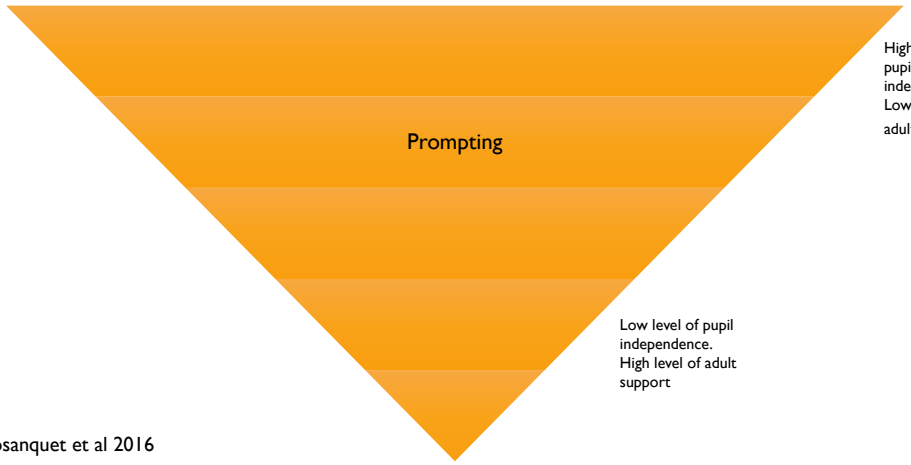
- Re-reading instructions or notes relating to the task
- Use various resources (e.g. displays, dictionary, number line or the internet)
- Look for similar previously done in their books
- Ask a peer
- Ask the teacher

If the child you support is not already using these strategies, these could be put on a prompt sheet or card.

Reviewing the success of the task and the strategies used

A good self-scaffolder would be able to review what aspects of the task they felt they were successful in and aspects they found challenging.

SCAFFOLDING FRAMEWORK



Bosanquet et al 2016

PROMPTING

Three types of useful prompts:

- Say nothing – resist the temptation to do or say something

e.g. TA: What are icicles
Ginny: They're ice that…they're ice that, um, like (moves hand down and up)
TA: (five-second pause)
Ginny: Hang down

- Verbal prompts – should be designed to get the pupil to think some more and/or provide reassurance

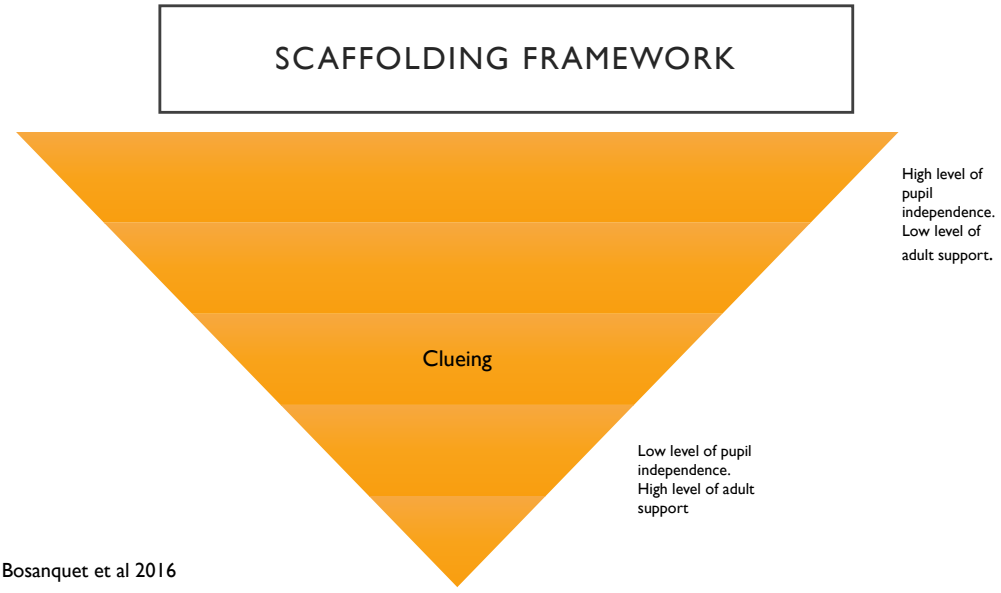
e.g. - 'You have a think about what to do next'
- 'What do you think you could do?'
- 'What is your plan'
- 'I'm not sure – can you remember what the teacher said?'
- 'So you are not sure about that word, how could you work it out?'

• Gesture – non-verbal gesture such as pointing to a prompt sheet can encourage self-scaffolding in children.
e.g. The TA asks Kim about a picture of a trip to see Father Christmas, she is experiencing difficulty finding the right word to describe the picture

TA:	And then what was this one?
Kim:	We went to uhhh (five second pause)
TA:	(points to prompt sheet)
Kim:	(picks up pen and draws Santa) Santa
TA:	Yes, we went to see Santa

(Kim's self-help sheet that prompts her in finding a word, offers her three options; draw a picture, think of the first sound or think of something that rhymes with the word)

This is the best strategy to use after silence and should be used before pointing at a picture (which gives a clue), giving the first sound (also a clue) or telling the word (giving a model).



Bosanquet et al 2016

CLUEING

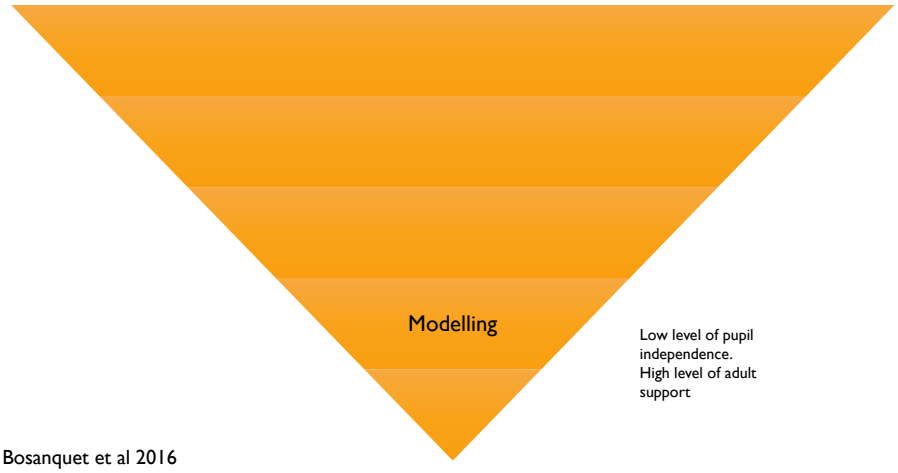
If the pupil is unable to self-scaffold and has not responded to the prompts you have given, you can then move on to Clueing.
"A clue gives the pupil a piece of information – or a hint – that will help to work out what to do" (Bosanquet et al, pg 66)

- Start with a small clue and then additional clues if needed

Example: A group of children are working on common digraphs (a single sound made up of two letter when written). Nicole is experiencing difficulty writing the digraph for 'sh'

Nicole: (sighs)
TA: Come on, Nicole. You remember sh. *(First clue)*
Nicole: I remember, but
TA: Shhhop. What comes first? *(Second clue)* Two letters *(Third clue)*
Nicole: S H
TA: Well done, sh

SCAFFOLDING FRAMEWORK



High level of pupil independence. Low level of adult support.

Low level of pupil independence. High level of adult support

Bosanquet et al 2016

MODELLING

"A model demonstrates the how to do the part of the task the pupil is unable to do". (Bosanquet et al 2016, pg 68)

Different ways of modelling:

- Providing a commentary – a running commentary is providing alongside modelling the task
  Example: The TA is modeling how to answer the question 'How many snowmen are there'

  TA: So I'm going to have a turn. It [*the question*] says, How many? I'm going count slowly, and I'm going to make sure that I mark everyone off when I do it. So (*crossing off a snowman each time*) 1, 2, 3, 4, 5, 6, 7, 8, 9. OK I'm going to write 9 in the box.

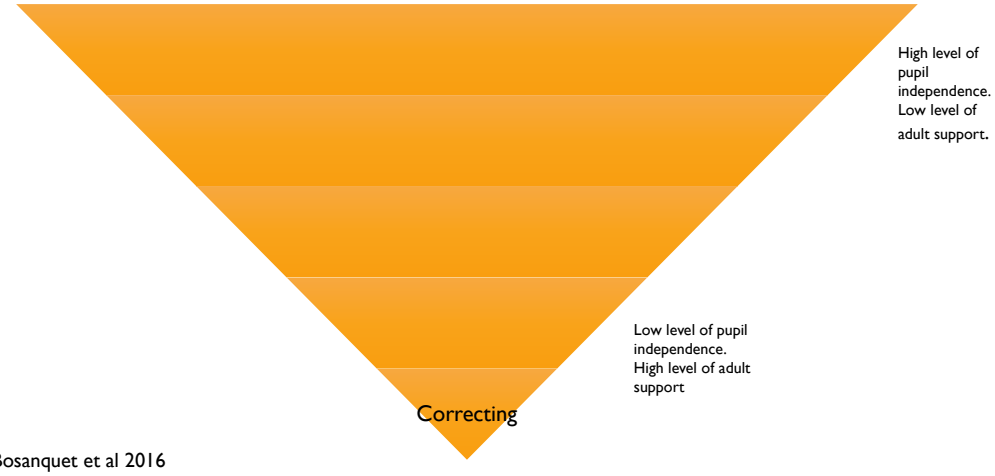
Using 'I' instead of 'you' means the pupil is able to replay the commentary in their head and help reinforce the steps in their mind, the pupil's is also able to take ownership of the task as they recall the steps in first person.

- Recasting – "repeating or reflecting a pupil's words, but in the correct form"(Bosanquet et al 2016, pg 69)
  e.g. TA: What did you do at the weekend?
  Sam: I went Romford
  TA: Oh, you went *to* Romford? That's interesting. What did you do there?

Golden rules of modelling

- Use modelling techniques if you are sure that the task is something the pupil cannot attempt by themselves with prompting or clueing.
- Modelling can also be used in situation when the pupil has done or said something incorrectly and it appears they are unaware of their error.
- Short, clear models work best, as they are more easily retained.
- Pupil's must be actively listening. Some might need a cue to ensure they are attentive: 'I am going to model this step for you. I want you to look and listen carefully so you can try it by yourself when I finish'.
- Pupil's need to try it themselves as soon as possible after you have modelled. Make sure you encourage the to give it a go.

SCAFFOLDING FRAMEWORK



Bosanquet et al 2016

CORRECTING

Correcting is 'giving the answer or telling them how to do something' (Bosanquet et al 2016, pg 70).

Example: The group is reading words and then splitting them into the prefix (a letter or a group of letters added to the beginning of an existing word in order to create a new word and change it's meaning) and suffix (a letter or a group of letters added to the end of a word to change its meaning). Ben is reading the word mistrust

Ben: mmm, mistrus
TA: mistrust. So break it make it mis and trust.

ASSESSMENT FOR LEARNING

Assessment *for* learning vs Assessment *of* learning

Assessment for learning

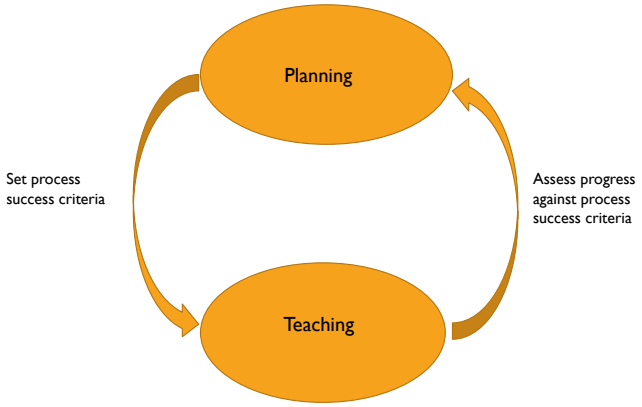
- Formative assessment (ongoing review of progress)
- Actions we take to change the way we work with a pupil.
- Where information is used to adjust and individualise a pupil's learning experience.

Assessment of learning

- Summative assessment (tests, exams)
- Determines what a pupil can do at a specific point in time.

Assessment for learning is often described as cycle

Assessment for learning cycle (Bosanquet et al, 2016)



PROCESS SUCCESS CRITERIA AND THE TA'S ROLE IN PROVIDING QUALITY FEEDBACK

Due to the in-depth nature of the TA's interaction with the pupil, they are able to provide live feedback about how a pupil performs on a task

Going back the the previous example about the school journey to the Science Museum, we had the following process success criteria. You are now working with Sam to complete the task and is able to complete the table as below

Task criteria	Process success criteria	Pupil: Sam
Describe the journey there	• Say what transport we took to the museum • Use subordinate conjunctions	✓ ✓
Talk about what you saw	• Name at least two items you saw at the museum • Use adjectives	p ✓
Talk about what you learned	Describe what new information you learned about those items	p
What was the highlight of your day	Say what you enjoyed about the day and why	C

Key:
✓ Can do independently

P Can do with prompting

C Can do with clues

M Modelled for the child

POSSIBLE CHALLENGES

What challenges could you face with implementing this approach?