ERRORLESS COMPLIANCE TRAINING: USED BY A RESEARCHER AND TEACHER AIDES TO INCREASE COMPLIANCE OF CHILDREN UNDER FIVE YEARS OF AGE IN EITHER THE HOME OR EDUCATION SETTING

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ABSTRACT

Errorless Compliance Training (ECT) was developed as a nonaversive alternative approach to traditional compliance training (Ducharme & Worling,1994; Ducharme, Popynick, Pontes, & Steele,1996). Experiment 1 aimed to see if this method could be used to increase the compliance of three children aged four, with two of the participants' treatments taking place in the family home and the third taking place in an early education setting. Results showed that all participants had increases in the level of compliance to specific requests. Child 1 and 3 completed all phases of the training and showed significant increases in compliance to Level 4 requests compared to that of the baseline data. Child 2 reached Phase 3 only, however, he still had significant increases in compliance in Phase 2 and 3 of the treatment. The results suggest that Errorless Compliance Training was successful in increasing compliance with these participants, who were four years of age, in an early education setting as well as in home settings. Experiment 2 aimed to increase compliance with two children in a primary school setting, by teaching the teacher aides working with the children Errorless Compliance Training following Ducharme's (1996) procedure. Replication of Ducharme's Errorless Compliance Training findings to increased compliance was not possible. A range of issues meant the Observational Probability Analyses were not completed in the time frame and treatment could not begin. Experiment 2's results suggest that Errorless Compliance Training may not be a treatment that can be easily implemented by teacher aides within the school setting. One reason for this is that the Observation Probability

Analysis requires all requests to be delivered each session, which takes approximately two hours, therefore the sessions are not able to be completed within the time restraints of the teacher aides.

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Schoen (1983) operationally defined compliance as a response to an instruction that is appropriate for that instruction and that follows the instruction within a reasonable amount of time or within a designated time frame. Schoen defined non-compliance as a failure to comply with an instruction. This failure can be by no response being given to the instruction, or by the response not being given within a reasonable amount of time or within the designated time frame and other non requested behaviours being performed. More recently, Forehand and McMahon (2003) define non-compliance as being the "refusal to initiate or complete" (p.2) an instruction given by another person. Their definition of non-compliance breaks the specific response to an instruction into two components, these being a) the time it takes to initiate the specific response and b) the time taken to complete the specific request. They suggest that the time taken to initiate a response to a request should be between 5 and 15s, this however is dependent on the age of the child and on factors such as disabilities. This is to ensure that there is sufficient amount of time given to the child to respond to the request.

When trying to determine whether a child's behaviour is compliant or non-compliant following a request, it is important to take their age into account. This can be done by using age-appropriate rates of compliance for comparison. However, as Forehand and McMahon (2003) point out, it is difficult to ascertain the typical percentages of compliance and non-compliance for various ages because of the differences across studies such as the definitions, the participants attributes, the tasks used to test for compliance and experimental settings. Forehand (as cited in Forehand and

McMahon, 2003) reported that typical-developing preschool-aged children should be complying 60 – 80% of the time to parental commands. More recently Jacobs et al. (as cited in Forehand and McMahon, 2003) found that children demonstrate non-compliance 17% of the time when given the opportunity to comply. However, as stated above, these rates are hard to assess, therefore may need to be interpreted with some caution.

One of the main problems associated with the non-compliance of a child, is the negative effects it has on their learning. Rhode, Jenson and Reavis (1993) suggest that non-compliance in a school setting interferes with the child's learning and that if compliance is at a level of under 60%, then this may damage a child's education by limiting the number of instructional opportunities followed by the child. Not only can the child who is being non-compliant miss out on learning opportunities, other children may also be affected by this. Belfore, Basile and Lee (2007) point out that when teachers spend excessive amounts of the school day dealing with student's non-compliance "then academic and social instructional time is lost". That is, the more time the teacher has to spend addressing non-compliance in the classroom the less time there is to engage students in academic and social requirements of the classroom.

A search of the literature showed three commonly used approaches to help reduce non-compliance of children, these being the use of aversive consequences, effective instruction delivery and positive consequences. These approaches have been used on their own to help reduce non-compliance and they have also been used in conjunction with one another.

Aversive consequences such as time out, have often been used to try and reduce non-compliance and have been shown to be effective (Roberts, 1982,1984; Roberts, Hatzenbuehler, & Bean, 1981; Everett, Olmi, Edwards, Tingstrom, Sterling-Turner, & Christ, 2007). Time out is where the child is removed from the opportunity to receive positive reinforcement for a period of time (Ford, Olmi, Ewdards, & Tingtrom, 2001). If the consequence (time out) is effective in reducing non-compliance then this can be classed as a punisher, a consequence that when presented after a specific behaviour (non-compliance) makes that behaviour less likely to occur in the future (Martin & Pear, 2007). Such aversive consequences can however have a number of potentially harmful effects. These effects include aggressive behaviour, emotional behaviour such as crying and fearfulness, escape and avoidance behaviour, no new behaviours being taught to replace the problem behaviour and the modelling of punishment (Martin & Pear, 2007).

Positive consequences for compliance, such as 'time in', are also used to increase compliance. Time in is given in the form of social attention (e.g. smiles, verbal praise and physical contact), which is made contingent on an appropriate behaviour. To increase compliance to requests, when the child is engaging in the appropriate behaviour (being compliant) social attention is given and continues to be given while they are engaged in that behaviour. For example, while a child is engaging in appropriate behaviour, verbal praise and a pat on the shoulder is given at least once every two minutes (Benoit, Edwards, Olmi, Wilczynski, & Mandal, 2001). If the positive consequence (time in) is effective in reducing non-compliance this can be classed as a

positive reinforcer, an event that when presented following a specific behaviour (compliance), makes that behaviour more likely to occur in the future (Martin & Pear, 2007).

Delivering instructions effectively is another intervention that has been shown to increase compliance (Ford et al., 2001; Mandal, Olmi, Fdwards, Tingstrom, & Benoit, 2000 , Benoit et al.,2001). Ford et al. (2001) suggest that the factors that are important when delivering instructions are;

- That the instructions should be direct and specific,
- They should be given one at a time,
- They should be followed by a 5s waiting period for the children to respond,
- The distance between the person giving the instruction and child should be close e.g. 900cm,
- When giving the instruction, eye contact should be gained.

Ford et al. (2001) suggest that teaching parents and teachers to give instructions using the above factors the level of compliance will increase.

All of these three approaches have been shown to be effective when used both alone and in combination with each other. For example, two recent studies have evaluated the effectiveness of aversive consequences, effective instruction delivery and positive consequences in increasing compliance among non-compliant children along with other factors such as the generalisation of compliance (Ford et al.; Benoit et al.).

Ford et al. (2001) evaluated the effectiveness of effective instruction delivery (EID), time in (TI) and time out (TO) used as a package in increasing

compliance. These approaches were sequentially introduced by the teacher to four children in a general education classroom setting, with EID being introduced initially, followed by TI and then TO was introduced third. Results showed that EID alone increased compliance by an average of 34.5% across all participants. When EID and TI were both used there was an additional increase on average by 15% across the four participants, giving an overall increase of compliance across all participants an average of 49.5%. Lastly, when EID, TI and TO were all used there was an additional average of 12.5% increase in compliance, taking overall compliance percentage for all participants over 85% compliance. Compliance levels were maintained on follow up of one and four months with data being similar to that during the interventions. This study supports the use of EID, TI and TO used individually or combined to increase children's compliance significantly.

Benoit et al. (2001) evaluated the effectiveness of EID firstly alone and then together with TI, in both a clinic and home setting. Three parents were taught the components of EID and TI as a treatment for their children's non-compliance. Results showed that compliance for all three children significantly increased during the phase when EID was used separately in both the clinic and home. Child 1 increased from approximately 30% compliance to 80% during the EID phase in the clinic setting, in the home setting compliance increased from 30% to 60%. Child 2, in the EID phase, increased compliance from approximately 20% to 70% in the clinic and in the home compliance increased from 30% to 60%. Child 3's compliance increased from 30% to approximately 80% in the clinic. Child 3 discontinued

participation so there was no data for the home setting. There were also additional increases with all children when EID and TI were both used, in both the home and clinic setting. Child 1 increased further, exceeding 90% compliance in the clinic and 70-80% compliance in the home, Child 2's compliance increased to approximately 90% at the clinic and approximately 70% compliance in the home and lastly, Child 3's compliance increased to approximately 80% compliance in the clinic setting. This study shows that the use of EID and TI, either individually or in combination, gave significant improvements in child compliance.

Errorless Compliance Training

Another method used to increase compliance is called Errorless Compliance Training (ECT). This approach was developed (Ducharme & Worling,1994; Ducharme, Popynick, Pontes, & Steele, 1996) as an alternative approach to aversive consequences to increase compliance, although this approach does include elements of both EID and positive consequences. ECT is a process where children are gradually and systematically taught to comply with requests (Ducharme, Sanjuan, & Drain, 2007).

ECT involves the use of behavioural momentum, errorless learning and effective request delivery. The first of these, behavioural momentum, involves a series of requests that the child has a high probability of complying with (high probability requests) that are followed by a request that the child previously has complied with less (a low probability request) which can result in greater compliance of the low probability requests by the child. It is said that the compliance with the high probability requests creates what is termed

as a momentum of compliance which encourages greater compliance with the low probability requests. The second of these is errorless learning; this is where the number of low probability requests is gradually faded in an attempt to maintain high rates of correct responses trying to make sure compliance continues. These aspects of ECT will be discussed further below. The last component of ECT is that parents must be taught to deliver requests appropriately. Parents who implement ECT are taught how to give requests, such as to use a firm voice, to avoid repeating the request immediately and to use 'stating' rather than 'asking' (Ducharme, Spencer, Davidson, & Rushford, 2002).

Behavioural Momentum. The term behavioural momentum is used to refer to the "tendency for behaviour to persist following a change in environmental conditions" (Mace, et al., 1988, p. 123). An operant behaviour's resistance to change is said to be dependent on its rate of reinforcement (Nevin, Mandell & Atak, 1983). When behaviour is maintained under a schedule of reinforcement, then the higher the rate of reinforcement schedule the more likely the behaviour is to persist over time and to resist change (Nevin et al., 1983).

Nevin et al. (1983) suggested that there may be a parallel between behaviour's resistance to change and the momentum of objects (Newton's first law of motion). Mace et al. (1988) pointed out that Nevin argued that behaviour may possess the "property of momentum" (pp.123). In physic's momentum is the product of mass and velocity, for behavioural momentum

Nevin suggests response strength (resistance to change) can be considered the mass, with response rate being velocity.

Behavioural momentum was demonstrated by Nevin et al. (1983) using pigeons and a two component multiple VI VI (variable interval) schedule procedure. Once the pigeons were key pecking in both components, in one condition key pecking was placed under extinction and in another condition there was non-contingent delivery of food between components. The component in which the behaviour that was most resistant to change in extinction was the component with the relatively higher rate of reinforcement. Also the component in which the behaviour was least disrupted by the response-independent food delivery was also that with the higher reinforcement rate. Nevin et al. argued that these results showed that the richer reinforcement rate produced behaviour with a greater 'mass' and hence greater momentum.

Interventions based on increasing behavioural momentum have been applied to non-compliance with humans. Mace et al. (1988) conducted a series of five experiments with a male adult with severe intellectual disability, who displayed non-compliant behaviour and aggression. The participant was given a series of demands by the experimenter which they were likely to follow, these being termed high probability demands (high p), these were then immediately followed by a low probability demand (low p, one not likely to be followed). The results across all five experiments showed that when the high p demands were immediately followed by a low p demand, compliance with the low p demands increased. Mace et al. argued that high p demands

resulted in a ‘momentum’ of compliance, which continued to persist when a low p demand was given. Overall compliance increased and the time taken to comply (latency) and the time taken to do the task (task duration) decreased. Ducharme and Worling (1994) used a similar method in a study with two children, 5 and 15 years old with intellectual disabilities. Their results were similar to those of Mace at al. (1988), Ducharme and Worling (1994) went further and faded out the high probability requests once the compliance to the low probability requests was at a high level. Fading of the high p requests was done through both reducing the number of high p requests given and by increasing the time between the high p and the low p requests. Results showed that a high level of compliance was maintained at a 16 week follow up period.

More recently Belfiore, Basile, and Lee (2007) examined the effects of a teacher giving high p requests prior to low p requests to a 7 year old child with Down Syndrome. Results showed an increase in compliance to low p requests, from a mean compliance to low p requests of 13% to 77% (p. 167), similar to that of Ducharme and Worling (1994).

Errorless Learning. Errorless learning was introduced by Terrace (1963). It represents a set of teaching procedures designed to reduce incorrect responding through prompting the correct response, allowing higher rates of correct responding (Mueller, Palkovic, & Maynard, 2007). In ECT, to reduce the number of errors when teaching to comply with requests, training begins with the participant undertaking a simple task or a task that is known that they are able and likely to complete with reinforcement being given for

compliance. Difficult tasks are then gradually introduced. By using this approach acquisition of learning is faster, a history of learning being reinforced is developed and lastly prevents building up a history of inappropriate learned behaviours (errors) which can occur through trial and error learning. Mueller, Palkovic, and Maynard (2007) suggest that trial and error learning can also result in aggression and frustration due to the lack of reinforcements associated with errors made, where errorless learning increases the opportunities for reinforcement thus reducing frustration and aggression.

Errorless learning has been used to teach new skills to people with developmental learning disabilities as well as to those with cognitive deficits (Wilson & Evans, 1996). Errorless learning was first used by Terrace (1983) to train discriminations with animals. Here Terrace trained pigeons in a discrimination task where key pecks to a red light were reinforced while key pecks to a green light were not reinforced. Terrace presented the red light by itself to ensure that errors could not be made by pecking the green light. Once pecking with the red light was reliably occurring, both lights were gradually presented (light faded both in duration and the intensity) until both lights were the same. The pigeons continued to peck the key in the presence of the red light. So he showed it was effective in training discriminations and went on to argue that it did not result in the negative effects of making errors and so missing reinforcers. This method has also been used to teach individuals with learning disabilities. For example, Cullen (1976) used errorless learning to teach concepts of shape, weight and colour to individuals

with learning disabilities (cited Wilson, Breen & Hodges. 1999). It has also been shown that individuals achieved better scores (correct responses) when they are prevented from making errors while learning, than individuals who learn by trial and error. A study by Duffy and Wishart (1987) compared trial-and-error and errorless learning strategies used for teaching discrimination to 13 children with Down Syndrome and to 13 mental-age-matched normal developing children. Two types of discrimination tasks were used, shape and nonsense figure tasks. Results showed that errorless learning resulted in more correct responses in both groups, during both the training and in post-tests.

Procedure of Errorless Compliance Training

Errorless Compliance Training begins with an Assessment of Compliance Probabilities, this is used to determine the probability of compliance to a range of requests. As part of the assessment, parents or teachers fill out a Compliance Probability Checklist where they rate (1 to 4) the likelihood of children complying to 100 common requests, with Level 1 being almost always complies (76 – 100%) and Level 4 being rarely complies (0- 25%). The responses from the checklist are used as the basis for deciding which requests should be included in the Observational Probability Analysis (Ducharme & Di Adamo, 2005). In the Observational Probability Analysis, each session (where possible) eight requests from each of the four levels are presented to the child a specific number of times, across 10 sessions. Compliance or non-compliance is recorded for each of the requests, with no consequences being given. From this observational

assessment, the requests are categorised into the final four levels, Level 1 is requests that are “almost always” complied with (76 – 100%), Level 2 is requests that are “usually” complied with (51 – 75%), Level 3 “occasionally complies” (26 - 50%) and Level 4 being “rarely complies” (0- 25%) (Ducharme & DiAdamo, 2005, p. 109).

ECT begins by delivering Level 1 requests to the participant, this is phase one of the treatment. Social attention and / or reinforcement is given for compliance, with non-compliance being placed under extinction i.e. no consequences. Lower level requests are then gradually introduced at a rate which ensures compliance continues. Once compliance reaches 75% of the current level’s requests, for three consecutive sessions, a transition phase occurs (Ducharme, Sanjuan, & Drain, 2007). A transition phase is where the requests from the current level are presented alongside the requests from the level above, two requests from the current level and two requests from the next level. This is to ensure a smooth transition (little errors as possible) in compliance between the two levels (phases). This continues until there is 75% compliance across two consecutive sessions (Ducharme et al., 2007). A transition phase is followed by the next phase where the next level of requests is introduced. This process is followed over all four phases.

Generalisation is the occurrence of behaviour in a context (e.g. settings, situations, and individuals) different to those in which the behaviour was learnt in (Reeve, Reeve, Townsend, & Poulson. 2007). It is important that behaviour generalises to novel contexts and that it does not occur only in the context in which it was learnt. Generalisation is tested in ECT by using

some Level 3 requests and Level 4 requests that were not used in the treatment phases. These are presented after all the treatment phases are completed (Ducharme, Sanjuan, & Drain. 2007).

Research on Errorless Compliance Training

Children with intellectual disabilities / developmental delays.

Ducharme et al. (2007) evaluated errorless compliance training with three boys aged 4, 6 and 10 diagnosed with Asperger's Syndrome. In this study the interventions were carried out by the parents of the participants, in the participants home using the same method described above. The parents were taught the procedure during four workshops, conducted during the course of the baseline and treatment phases. The results showed that all three participants had substantial improvements in compliance during and following the intervention, the overall mean percentage of compliance for all the participants was 52% for Level 3 and 26% for Level 4 requests in the baseline. This increased to an overall mean compliance percentage of 76% for the Level 3 requests and 80% for Level 4 requests after treatment. Compliance also generalised to commands not used in the intervention.

Ducharme et al. (1996) obtained similar results to those of Ducharme et al. (2007), with five children, four boys and one girl, all aged four or five years old, all children had developmental delays and oppositional behaviour. Parents were trained to implement the intervention and to collect the data in the family home. All children demonstrated "high levels of compliance" during the treatment, with an overall mean increase in compliance to 84% for the Level 4 request compared to an overall mean compliance of 26% in the

baseline. Compliance continued at high rates at a long term follow up assessment.

ECT has also been demonstrated to increase compliance in a classroom setting by Ducharme and DiAdamo (2005). These researchers evaluated its effectiveness in a classroom of a special education setting with two five year old girls diagnosed with Down Syndrome. The intervention followed the previously outlined method, with the exception that the Compliance Probability Checklist was modified to include commonly used classroom requests. The teacher used this modified version to rate the likelihood of the children's compliance to requests in the classroom. In this study a graduate student implemented the intervention in the classroom, with the teacher only delivering requests in probe sessions. The results showed a significant increase in compliance by participants. During baseline Child 1 had a mean compliance for Level 4 requests of 26%, while Child 2 had 17%. These increased to 88% and 72% compliance, respectively. Once the treatment had finished these results generalised to requests made by the teacher.

Typical developing Children. ECT has been used by parents with disabilities associated with brain injuries, who had either typical developing children or children with oppositional behaviour, who displayed non-compliant behaviour. For example, Ducharme, Spencer, Davidson and Rushford (2002) used ECT implemented by parents with disabilities. Twelve parents with cognitive deficits, impulsivity and / or emotional instability were taught to implement the treatment procedure with their children in the family home.

This training took place before the data collection sessions began. The results showed improvements in the compliance with the mean improvements being more than 40% for all 12 children, the mean probability of compliance across all the participants was 25% for Level 4 requests in the baseline, this increased to 79% after treatment (p.592). The follow up assessment showed compliance levels were maintained and generalised to requests not in the treatment.

ECT has been used to teach parents who have used aversive consequences (physical abuse) an alternative method to help them to increase their children's compliance in a non coercive manner. For example, Ducharme, Atkinson and Poulton (2001) taught ECT to two mothers using physical abuse with children, who displayed severe behavioural problems and non-compliance, to increase the children's compliance in the children's homes. Results showed that the two children's compliance significantly increased, the mean percentage of compliance across the two children showed 27% compliance to Level 4 requests during baseline, increasing to 75% compliance after treatment. These results were maintained and generalised to requests not part of the treatment at the six month follow up (pp.864).

ECT has been demonstrated to be successful in improving children's compliance, with both typical developing children along with children with intellectual disabilities and oppositional behaviour. It has been successfully used in the home and school and has been successfully implemented by teachers, professionals and parents, this includes parents that have cognitive

and physical disabilities associated with brain injuries and parents that have previously used physical abuse to try to increase compliance.

EXPERIMENT 1

To the researcher's knowledge there have been no independent replications of Ducharme's Errorless Compliance Training with children under the age of five years old in home setting, and no studies using ECT in an early education setting to increase compliance. The aim of the present study was to attempt to replicate results of using ECT with children under the age of five, with the treatment taking place in the family home or in the child's early education setting. The study took place in New Zealand and the procedures followed those of Ducharme and DiAdamo (2005)

METHOD

Participant Selection

Potential participants were referred by an Hamilton early intervention centre for children with special needs. Children under the age of six, who have delays in their development or are at risk of having delays in their development, attend the centre. Conditions for entry to the study were:

- Children whose parents/caregivers consented for them to be in the study and
- Children at or above the age of three years (to ensure requests might be understood) but less than five years old.

- Children who displayed non-compliant behaviour. The level of non-compliance required in this study was at least 2 requests which are not complied with 75 – 100% of the time.

The early intervention centre discussed the possibility of participating in the study with parents whose children have compliance issues, giving them the information sheet (appendix 1) which the researcher supplied the early intervention centre, outlining what the study was about and what was required in the study. Teachers then gave the researcher's contact details to parents who wanted further information. From this the researcher gathered initial information about the children to ensure they met the conditions for entry. The researcher then discussed the study with the parents again, outlining what it was about and gave them an opportunity to ask questions and organise a time to meet.

Description of the Participants

Three children entered the study. Child 1 is a boy, who was four years old at the start of the study. His mother reported that he had been diagnosed with Global Developmental Delay, he also had some gross motor difficulties. The child lives with his mother and father and has a younger brother. He attends an early education setting and attends the early intervention centre one day a week. The main concern of his parents was his non-compliance towards them in the home around dressing in the morning and some general requests made. Therefore the home was selected as the setting in which the intervention took place. One potential issue was the child's hearing, he has some hearing difficulties and received grommets during the middle of the

baseline data collection. Another possible issue was the lack of availability of the child and his parents, with there only being one day the child was available. This made the intervention a long process.

Child 2 is a boy, four years old at the start of the study. His mother reported he had a diagnosis on the autism spectrum. The child lives at home with his mother and father and has a younger sister. He attends an early education centre four times a week, where he has an education support worker for six hours. He also attends the early intervention centre one morning a week. The parents' main concern was the child's non-compliance in the early education setting, with the child not participating in a lot of the structured activities when requested to and also not complying with some of the general requests. As the main compliance concern of Child 2 was at the early education setting this was where the intervention took place. One possible issue with Child 2 was that he changed early education settings, from a centre which was play based to a more structured curriculum early education setting, during the baseline data collection.

Child 3 is a girl, four years old at the start of the study, with no diagnosis. She had been referred to the early intervention centre by her early education centre where she showed some aggressive behaviours and non-compliant behaviour, she also displayed some learning and social delays. She lives with both parents and a younger sibling, the main area of concern of the parents is her non-compliance to their general requests and also around her behaviour around her younger sister, such as putting her down when told and to leave her alone. Therefore the intervention took place in the

home, at times when she was able to interact with her sibling. Again a possible problem for Child 3 was the lack of the families' availability; with there only being one morning a week the child or parents were available. This made the intervention a long process.

Setting

The setting for the treatment of Child 1 and Child 3 was in their home and for Child 2 in his early education setting. The session length ranged between 1 and 2 hours long, and took place when the child was engaged in their normal activities in the classroom or home.

Dependent Measure

The dependent measure in this study was the percentage of compliance to requests in the home or early education setting. The percentage of compliance to classroom requests and common requests in the home were determined through the use of event recording. Compliance was defined as, when a one step request (verbal instruction) is given the child will initiate a motor response to this request within 10s and will complete this request within 40s or without inappropriate pausing. Thus the definition of compliance is;

> The child starts to respond appropriately to a request within 10s of the requests (verbal instructions) being given and completes it within 40s or without inappropriate pausing.

When a request was given and whether or not the response was complied with (initiate a motor response to the request within 10s and will complete the

request within 40s) was recorded by the researcher as compliance or non-compliance.

Inter-observer Agreement

An independent observer was used to assess the accuracy of the data collected. This was done through live observations of request delivery and child compliance in their education and home setting. This is particularly important as the main collector of data was also the same individual who implemented the intervention.

For each participant, inter-observer agreement was obtained and calculated where possible for 25% of all the sessions. Inter-observer agreement sessions were determined by the availability of another observer. If another observer was available at a time that a session was scheduled with a child, the other observer also attended that session. The method used to calculate the inter-observer agreement was the number of agreements divided by the number of disagreements and multipled by 100 to get the percentage of agreements. Inter-observers recorded compliance and non-compliance (appendix 2) following the above compliance definition. Inter-observers also recorded important components of ECT on an integrity checklist (appendix 3), including request delivery, praise delivery and ignoring non-compliance. The list of components included in the integrity checklist were attention and eye contact gained prior to request , use of firm but polite voice, requests presented naturally, praise enthusiastic and varied, praise occurring within 2s, no repetition of request, no prompting and the use of imperative requests. For each request delivery inter-observers recorded if the

components were followed. Parents or teachers also completed an integrity checklist where possible once every three sessions. Here they observed five request deliveries (where possible) and recorded if the components were followed.

Materials

Compliance Probability Checklist. The Compliance Probability Checklist (appendix 4) consists of 100 commonly used requests in the home, these were broken down into sections of dressing, hygiene, play, academic, social, mealtime, clean up, transport and general requests. This Compliance Probability Checklist was used for Child 1 and Child 3, with the treatment being done in the home. For Child 2 a modified version of the Compliance Probability Checklist (appendix 5) as used by Ducharme and DiAdamo (2005) was used for the education setting. Because both the original and modified probability checklist was based on USA schools and designed for primary school age not preschool age children some of the requests were not applicable to the children in this study and study setting, so modifications were required for this study. These were the addition of a column that allowed for an indication that the request is not applicable on the checklist and some changes from USA terms to terms more commonly used in New Zealand schools (e.g. knapsack to school bag, boots to shoes and somersault to roly-poly) for both versions of the Compliance Probability Checklist. With both checklists there were four levels, Level 1 being always complied with, Level 2 usually complied with, Level 3 occasionally complied with and Level 4 being rarely complied with.

Research Design

The design is a reversal design (ABA) for each participant. In this design observation data on the child's compliance to requests made by the researcher was collected regularly. Assessment of compliance probabilities, began at approximately the same time for all of the children.

Procedure

Questionnaire Assessment of Compliance Probabilities. As part of this assessment parents and education support workers filled out a classroom modified version of the Compliance Probability Checklist for Child 3, this was to rate the likelihood of the child complying to the common classroom requests. Child 1 and Child 2's parents also filled out the Compliance Probability Checklist and rated the likelihood compliance to common requests in the home. Also for each request it was indicated whether the child had learnt the skills needed to complete the request, requests that the child was not able to complete were not included in the treatment. Where there was a difference between the ratings of the parent and the education support worker for Child 2's compliance to a request, these requests were not included in the study. The responses on the checklist were the basis for deciding on the requests to be included in the Observational Probability Analysis.

Observational Probability Analysis. A list of requests was developed for each child. The number of requests in the levels varied due to the level of compliance to requests, based on the parents and education support workers ratings for the requests on the Compliance Probability Checklist. For Child 2, requests chosen were those that had the same ratings in the Compliance

Probability Checklist from both the parent and the education support worker. For all the children, requests that were indicated as being important by both the parent and education support worker were used in the study. Also included were specific requests the parent asked for, as these were the requests they were having particular problems with. For example, Child 1's parents wanted to include particular dressing requests, such as "Put on your pants" and Child 3's parents wanted to include requests to stop her hurting her younger sibling such as "Put your sister down." The other requests were then chosen where the request could be delivered naturally within the session. For example, if sessions occurred during the day, requests involving eating the evening meal or dressing, which are behaviours that typically occur at night and morning, were not chosen. Where possible the requests that were chosen were those that it was possible to ignore and give no consequences for if they were not complied with. This was however difficult with Child 3 as, at her parents request, her Level 4 requests involved her not hurting her younger sister. If the request was not complied with the behaviour could not be ignored, if her parent was not available the researcher had to step in and remove the sister. The rest of the requests chosen were ones that could be delivered easily in the session, where the items needed to complete the request were readily available and the requests did not take too much time to complete. Child 1 had eight Level 1 requests, eight Level 2 requests, no Level 3 requests and six Level 4 requests; a total of 22 requests. Child 2 had eight Level 1 requests, eight Level 2 requests, six Level 3 requests and two Level 4 requests; a total of 24 requests. Child 3 had eight

Level 1 requests, eight Level 2 requests, six Level 3 requests and two Level 4 requests; a total of 23 requests.

Once the requests to be used in the study were chosen from the Compliance Probability Checklist, they were placed into their levels. The researcher then presented each child their selected requests once per session over eight different days (appendix 6). The requests were delivered to the child following the rules below;

- Request only delivered once, this means that the requests were not repeated if the child did not respond.
- No prompts given while / after request was made, so no further discussion or prompts are made once the request is delivered.
- Use of imperative requests, so requests were not given in a question format (interrogative request), such as “Can you go do ….” or “Could you pick up your…” Imperative requests are phrased as a command, such as “Go do….” or “Pick up your....”
- Attention and eye contact was gained before the request was made.
- Use of a firm but polite voice when delivering requests.
- Request presented naturally, so requests are delivered at times that are appropriate for that specific request to be made.

The requests delivered during the Observational Probability Analysis were given during usually occurring activities so the children were engaged in their usual activities at that time.

In these sessions no consequences were given for compliance and non-compliance, so all behaviour following a request was ignored. A session

was approximately two hours long. When the request was given and whether or not the response was complied with (initiate a motor response to the request within 10s and will complete the request within 40s) was recorded by the researcher and inter-observer also recorded compliance where possible for 25% of the days.

Hierarchical Categorisation of Requests. From the data obtained in the Observational Probability Analysis, the requests were categorised into the final four levels, Level 1 was requests that are “almost always” complied with (76 – 100%), Level 2 was requests that are “usually” complied with (51 – 75%), Level 3 was “occasionally complies” (26 – 50%) and Level 4 was “rarely complies” (0 – 25%). Of these requests, where possible six requests from all the levels were used in the treatment phases. Requests were dropped if there were too many in a level. At least one request in Level 3 and Level 4 was not used in the treatment sessions but was used for the generalisation sessions only.

Baseline and Reversal Phases. Once the hierarchical categorisation of request was completed the baseline assessments followed. In the baseline there were alternating sessions with Level 4 and Level 1 requests. There were two sessions with Level 4 requests and two with Level 1 requests completed by the researcher. There were also two probe sessions undertaken by the parent with the Level 4 requests. For Child 1, Level 3 and Level 4 requests were both asked as there were not enough Level 4 requests to be asked alone. In a session each request was delivered once and no consequences was given for compliance and non-compliance. These

sessions were approximately one hour long. The researcher recorded (appendix 7) when a request was given and whether or not it was complied with. Once these phases and the probe sessions were competed the treatment started.

Compliance Training Phase 1 - Level 1 Requests Only. In this initial phase, sessions were conducted once or twice per week at approximately an hour long each. In these sessions each of the Level 1 requests were delivered by the researcher or, if it was a probe session, by a parent or teacher once per session and recorded (appendix 8) by the researcher and by another observer when possible for 25% of the days. Requests were delivered once because the requests that were used in this study were often not able to be delivered more than once in an hour session naturally, for example it is rarely expected that a child washes their hands three times in an hour, or will need to put their pants on three times in an hour. No response was provided for non-compliant behaviour other than continuing with ongoing activities or moving on to another request. For compliant behaviour, the behaviour was followed immediately (within 2s) by social attention from the person delivering the request, for example enthusiastic praise (with the social attention being varied) or physical affection, for example high fives. Other than the treatment sessions, no modification was made to the delivery of the requests by the parents / teachers or to what requests were made to the child outside of the treatment sessions.

Compliance Training Transition Phase 1. This transition phase occurred when there was 75% compliance across three consecutive sessions

with Level 1 requests. Here the requests from the current level and requests from the level above were both presented in the session to ensure a smooth transition in compliance between the two levels (phases). Therefore, in the transition phase, two requests from the current phase and two requests from the next phase were delivered, making four requests in total. These requests were chosen by the researcher at random from the two request levels. Compliance was recorded by the researcher and another observer for at least 25% of the sessions. These transition sessions continued until there was at least 75% compliance across all the requests for two consecutive sessions. Transition phases also occurred for the change from Level 2 to Level 3 (Transition Phase 2) and from Level 3 to Level 4 (Transition Phase 3) requests.

Compliance Training Phases 2, 3 and 4 - Level 2, 3 and 4 Requests. Level 2, 3 and 4 requests were introduced in separate phases following Phase 1. When the Level 2, 3 and 4 requests were introduced, the procedures including request delivery and the consequences for compliant and non compliant behaviour were exactly the same as those used in Phase 1. There was a transition phase before each new phase. For Child 3 after Phase 2 (P2), reinforcement was changed to a combination of social praise and access to a tangible reinforcer. The tangible reinforcer for Child 3 was the choice of a lolly from six types of lollies. The lollies were chosen from parental reports of preferences. If she complied with a request the researcher placed the different lollies in front of her and let her choose one. Child 2 did not complete all the phases and only reached Phase 3 of the treatment. The

reason he did not complete all phases was unrelated to the programme, it was that he turned five and started school.

Teacher / Parent Probe Sessions. There were probes sessions throughout, there were two of these during the alternating baseline phase and then there was one probe session in each of Phases1, 2, 3 and 4. Requests that were to be presented to the child in the classroom / home were given to the teachers / parents prior to the probe session. These requests were then delivered by the teacher / parent while the child was engaged in normal activities and each request was given once per probe session. The requests used were the same requests as those being used in phase concurrent with the probe. The teacher / parent was instructed to deliver the requests the same way as they were implemented in the baseline and treatment. The teacher / parent was also instructed how to respond to the compliant or the non-compliant behaviour. How they were to respond depended on whether the probe was during the baseline and reversal phase or during a treatment phase. The procedure during the alternating baseline phase and all phases for Child 2, was that the teacher / parent was given a piece of paper with the requests that were to be presented to the child in the classroom / home for the probe sessions and the researcher was present during the probe session to do the observations and to collect the data.

This procedure was changed after the alternating baseline for Child 1 and Child 3, instead the parents conducted the probe sessions when the researcher was not present. The parents were given the information on how to deliver the requests, how to determine if the request was complied with or

not, how to record this and how to praise / ignore the child's response (appendix 9). For Child 3 her parents were also told how to deliver the tangible reinforcer (appendix 10). This change was made for two main reasons. One reason was that the parents and teachers were not always able to be present to do the probe sessions when the researcher was present and the second was that the parents appeared very nervous and anxious when they were asked to do the probe sessions in the presence of the researcher. They also continually looked at and referred to the researcher for reassurance, which interrupted the process.

Generalisation Test Sessions. One request, or two requests where possible from Level 3 and Level 4, were selected at random from the request at the different levels after the hierarchical categorisation. These were used for the assessment of generalisation of compliance to requests that had not been used in the treatment. There were two generalisation sessions for each participant conducted after all of the treatment phases were completed.

RESULTS

Observational Probability Analysis

The data collected in the Observational Probability Analysis provided a comparison to the ratings of the requests given on the Compliance Probability Checklist and the Modified Compliance Probability Checklist. There were eight sessions for the Observational Probability Analysis, each request was delivered once per session, when possible, and whether the child complied or

not was recorded. Tables 1 to 3 show the requests that were selected for each participant for the treatment, the predicted level in which the initial ratings of compliance from the Compliance Probability Checklist placed each request, the percentage of compliance observed across the eight sessions and the levels this placed the request in after the Observational Probability Analysis was completed.

The requests used for Child 1 showed some variability between the final level they were placed in after the Observational Probability Analysis and the predicted level from the Modified Compliance Checklist, with the level for 9 out of the 18 requests (50%) being predicted incorrectly. From the six final Level 1 requests, two of these had been predicted to be Level 1. Of the final Level 2 requests, two had been predicted as being Level 1. There were no requests predicted to be in Level 3, but the final Level 3 requests had been predicted either to be Level 2 or Level 4. Lastly, out of the two final Level 4 requests the level of only one had been predicted incorrectly, with this being predicted as being in Level 2.

For Child 2 there was again some variability between the final level the requests were placed in and their predicted levels, with the levels for 10 out of the 20 requests (50%) being predicted incorrectly. Of the final Level 1 requests, two had been predicted as being Level 2. Of the final Level 2 requests, again two had been predicted as being Level 1 and Level 3. For

Table 1

Requests that were selected for Child 1 for the treatment, the predicted level in which the initial ratings of compliance from the Compliance Probability Checklist, the percentage of compliance observed across the eight sessions and the levels this placed the request in after the Observational Probability Analysis was completed.

Request	Predicted Level	Percentage of compliance in Observational Probability Analysis	Final Level
Sit down	Level 2	89	Level 1
Push the car / train	Level 1	100	Level 1
Open the book	Level 1	89	Level 1
Blow some bubbles	Level 1	100	Level 1
Come to the table	Level 1	78	Level 1
Look at me	Level 2	100	Level 1
Turn on the tap	Level 1	75	Level 2
Go to the bathroom	Level 1	55	Level 2
Get your shoes	Level 2	55	Level 2
Wash your hands	Level 2	55	Level 2
Sit beside me	Level 2	66	Level 2
Go to ___ (particular place)	Level 2	55	Level 2
Pull down your pants	Level 1	38	Level 3
Come here	Level 2	33	Level 3
Put on your undies	Level 4	38	Level 3
Put on your socks	Level 2	10	Level 4
Put on your top	Level 4	43	Level 3 – Generalisation
Shut the cupboard	Level 4	0	Level 4 – Generalisation

Note: For the final Level 3 and 4, there were not six requests that met the requirements, so rather than the usual six only three requests were in Level 3 and one in Level 4.

Table 2

Requests that were selected for Child 2 for the treatment, the predicted level in which the initial ratings of compliance from the Compliance Probability Checklist, the percentage of compliance observed across the eight sessions and the levels this placed the request in after the Observational Probability Analysis was completed.

Request	Predicted Level	Percentage of compliance in Observational Probability Analysis	Final Level
Catch the ball	Level 1	100	Level 1
Point to the _____	Level 1	100	Level 1
Turn the page	Level 1	100	Level 1
Give me a high five	Level 2	88	Level 1
Open the book	Level 1	100	Level 1
Put the sticker on the sheet	Level 2	100	Level 1
Throw the ball	Level 1	75	Level 2
Sit beside me	Level 2	75	Level 2
Look at me	Level 2	75	Level 2
Draw me a picture	Level 3	63	Level 2
Follow me	Level 2	38	Level 3
Put the piece in the puzzle	Level 3	50	Level 3
Come to the table	Level 3	38	Level 3
Get your _____	Level 2	50	Level 3 – Generalisation
Come inside	Level 2	85	Level 4
Put away your toys	Level 3	0	Level 4
Put away the pencil / pen	Level 4	25	Level 4
Sit on the mat	Level 4	13	Level 4
Play some music	Level 3	0	Level 4 – Generalisation
Pick up your_____	Level 3	13	Level 4 – Generalisation

Note: For Level 2, 3 and 4 there were not six requests that met the requirements, so rather than the usual six only four requests were in Level 2, three in Level 3 and four in Level 4.

Table 3

Requests that were selected for Child 3 for the treatment, the predicted level in which the initial ratings of compliance from the Compliance Probability Checklist, the percentage of compliance observed across the eight sessions and the levels this placed the request in after the Observational Probability Analysis was completed.

Request	Predicted Level	Percentage of compliance in Observational Probability Analysis	Final Level
Throw the ball	Level 1	100%	Level 1
Catch the ball	Level 1	100%	Level 1
Play some music	Level 1	88%	Level 1
Blow some bubbles	Level 1	100%	Level 1
Open the book	Level 1	88%	Level 1
Put the sticker on the sheet	Level 2	100%	Level 1
Come here	Level 2	75%	Level 2
Sit down	Level 2	75%	Level 2
Go to ___	Level 2	63%	Level 2
Brush your hair	Level 2	63%	Level 2
Sit in the chair	Level 3	75%	Level 2
Give me the___	Level 2	38%	Level 3
Pick up your ___	Level 3	38%	Level 3
Give me a high five	Level 2	0%	Level 4
Tell me your name	Level 3	13%	Level 4
Put away your toys	Level 3	25%	Level 4
Put away your book	Level 3	13%	Level 4
Put your sister down	Level 4	0%	Level 4
Leave your sister alone	Level 4	0%	Level 4
Close the door	Level 2	25%	Level 4- Generalisation
Get out of the cupboard	Level 4	0%	Level 4 – Generalisation

Note: For Level 2 and 3 there were not six requests that met the requirements, so rather than the usual six only five requests were in Level 2 and two in Level 3.

the four final Level 3 requests, one had been predicted as being in Level 2 and another as being in Level 3. Lastly, of the final six Level 4 requests, three had been predicted as being in Level 3 and one had been predicted to be a Level 2 request.

The least amount of discrepancy between the predicted level and the final levels of request was seen in the data of Child 3. The levels of only eight out of the 21 requests were predicted incorrectly (i.e. 62% correct prediction). There was only one incorrect prediction for the final Level 1, 2 and 3 requests. Most of the differences occurred for the final Level 4 requests, where the level of five out of eight requests were predicted incorrectly, two were predicted to be Level 2 and the rest were predicted to be Level 3.

Overall, across all three of the participants, an average of 46% of the levels of requests was predicted incorrectly from the data in the Compliance Checklist and Modified Compliance Checklist data when compared to Observational Probability Analysis.

Observational Probability Analysis

Child 1 had the following mean percentage of compliance during the Observational Probability Analysis, for Level 1 requests this was 91%, for Level 2 it was 60%, for Level 3 it was 31% and for Level 4 it was 21%. The final levels in which the requests were placed for treatment resulted from this Observational Probability Analysis. Child 1 had six requests in both of Levels 1 and 2, however Level 3 and 4 requests were combined together as there was only one Level 4 request. The requests used are shown in Table 1.

For Child 2 the mean percentages of compliance for Level 1 requests was 96%, for Level 2 it was 72%, for Level 3 it was 41% and for Level 4 it was 16%. Child 2 had six Level 1 requests for treatment. However, there were not six requests for each of Levels 2, 3 and 4 that met the selection requirements and so Level 2 had only four requests, Level 3 had three requests and Level 4 had five requests. The requests used are shown in Table 2.

The mean percentages of compliance at each level for Child 3 were Level 1 – 95%, Level 2 – 70%, Level 3 - 39.5% and Level 4 – 8%. Child 3 finally had six requests in each of Levels 1 and 4. However there were not enough requests that met the selection requirements for Levels 2 and 3, there were five requests for Level 2 and two requests for Level 3. The requests used are shown in Table 3.

Alternating Baseline and Treatment

Figure 1 shows the percentage of compliance to requests throughout all of the phases and probe session for all the participants. The vertical lines separate the data from the various phases. The filled squares are the data from the baseline and training sessions, the filled circles show probe session data and the asterisks show the generalisation test data. The dashed vertical lines show changes in the level of requests over the conditions of the baseline phase. L1 and L4 indicate the sessions with Level 1 and Level 4 requests during this baseline. The horizontal lines shown in each treatment phase (P1, P2, P3 and P4) indicate the mean percentage compliance obtained in the Observational Probability Analysis for that child and for the

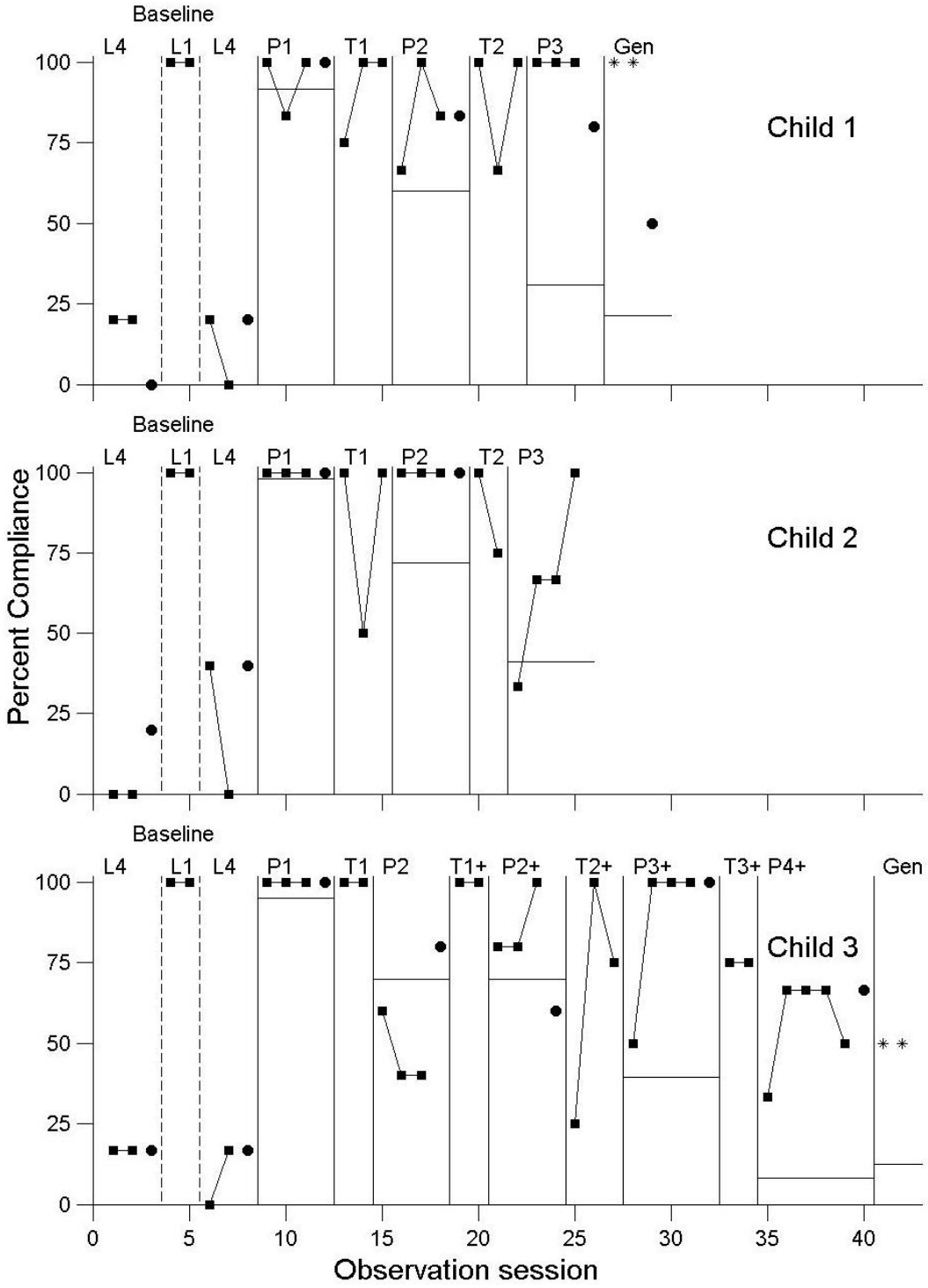
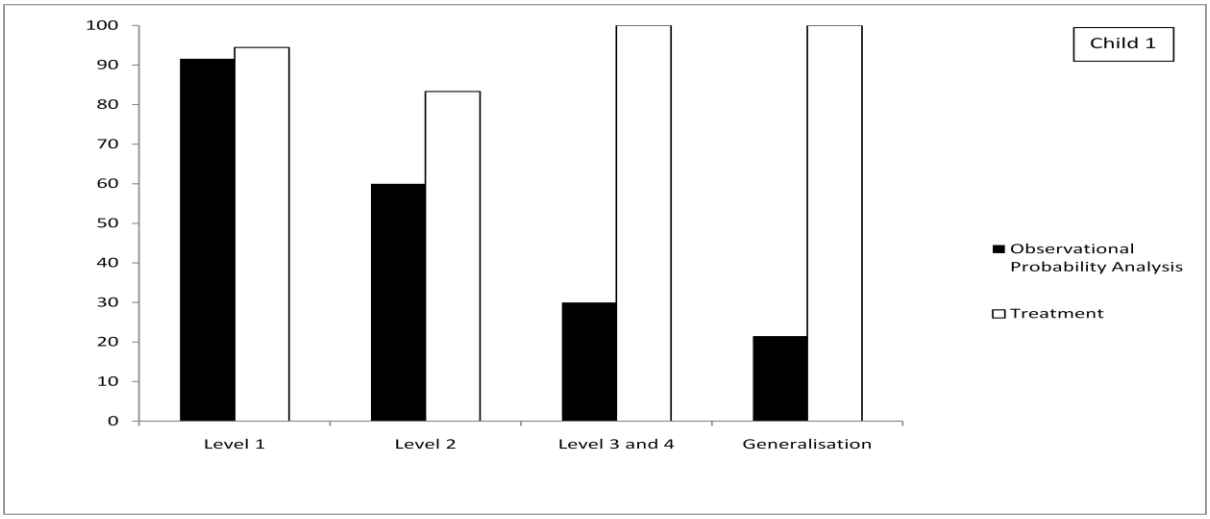
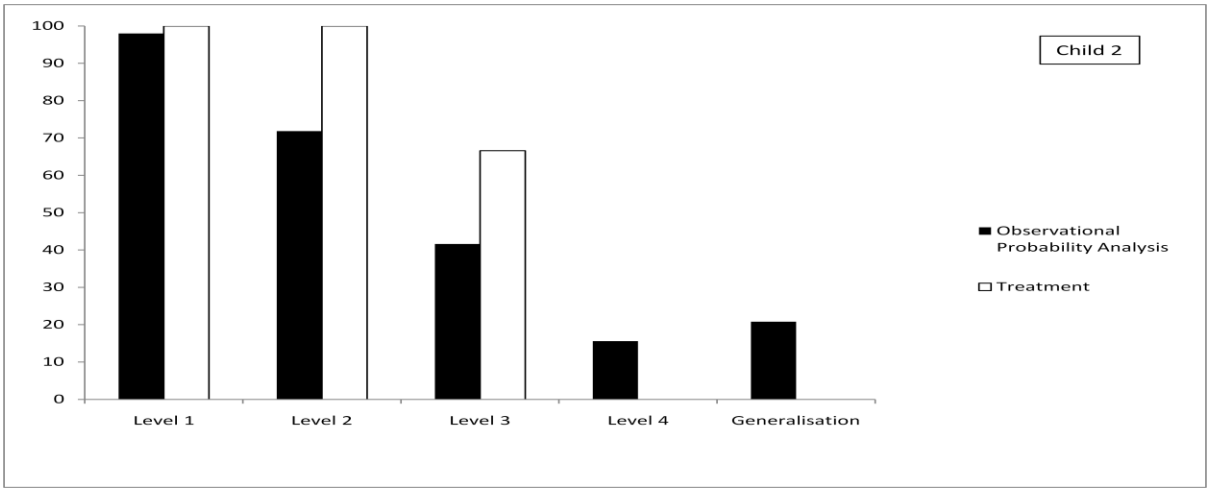


Figure 1: the percentage of compliance to requests throughout all of the phases and probe session for all the participants. The filled squares are the data from the baseline and training sessions, the filled circles show probe session data and the asterisks show the generalisation test data. The dashed vertical lines show changes in the level of requests over the conditions of the baseline phase.

level of request being trained in that phase. P1, P2, P3 and P4 indicate the four treatment phases and T1, T2 and T3 indicate the transition phases. The + signs for Child 3 indicate phases in which tangible reinforcers were used during training sessions. Figure 2 gives the average percent compliance for each phase, together with the average from the Observational Probability Analysis for that same phase for each child.

Child 1's data is shown in the top graph in Figure 1. In the baseline phases with Level 4 (L4) requests (which for this child were a combination of Level 3 and Level 4 requests) compliance was 20%, in the first probe session it was 0%. During the next phase (L1) compliance was 100%. When Level 3 and 4 were reintroduced, compliance was again low. The second baseline probe session showed compliance of 20%. During Phase 1 (P1) compliance was high (average 94%). There was 100% compliance in the probe session. In the first transition phase (T1) compliance remained high but it decreased slightly in Phase 2 (P2), there was an increase in the mean compliance in the next Transition Phase (T2). Figure 2 shows this changed from a mean of 82% to a mean of 88%. Phase 3 (P3) involved both Level 3 and 4 requests and there was 100% compliance across all the three sessions. There was 80% compliance in the probe sessions that followed. Figure 2 shows that the Observational Probability Analysis data were at 31% for these final phase requests and that there was an increase to 100% after training. In the Generalisation Phase (Gen), it also showed that compliance increased from 22% to 100%.





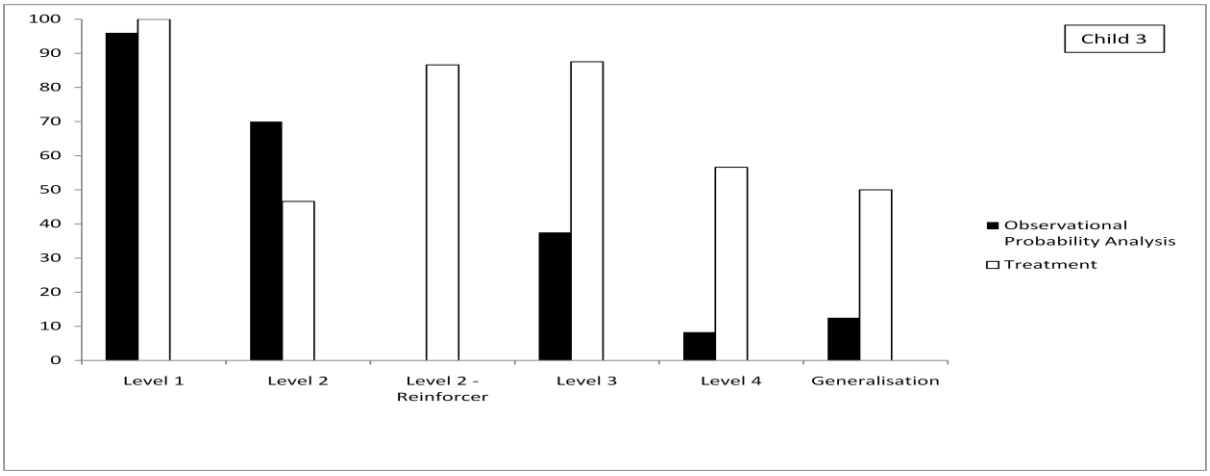


Figure 2. The mean average of compliance from the observational probability analysis and the mean average of compliance from during the treatment.

For Child 2, the percentage of compliance throughout all of the phases is seen in Figure 1. In the alternating baseline, when Level 4 (L4) requests were introduced, compliance was 0% across both the sessions and 20% in the probe session. Level 1(L1) requests were introduced, where compliance was 100% across both of the session. Lastly when Level 4 (L4) requests were reintroduced again, compliance was 40% and 0% in the two sessions and 40% in the probe session.

Child 2 during Phase 1 (P1) of treatment compliance was 100%, compliance then decreased in the first Transition Phase (T1) to an average of 83%. Compliance then increased again to be at 100% in Phase 2 (P2) of the treatment. There was however a decrease again in Transition Phase 2 (T2) with compliance on average being 88%, there was then a further decrease in Phase 3 (P3) of treatment with the compliance at an average of 67%. This was still a significant improvement from an average of 42% compliance during the Observational Probability Analysis. This difference can be seen in Figure 2.

For Child 3, in the alternating baseline, the Level 4 (L4) requests were introduced where compliance was 16.6% across the two sessions and the probe session. Following this, Level 1 (L1) requests were introduced, here compliance was 100% in the two sessions, as seen in Figure 1. Compliance decreased when Level 4 (L4) requests were reintroduced, compliance was 0% and 17% for the two sessions and 17% in the probe session.

Child 3 again, as expected, had 100% compliance in Phase 1 (P1) of treatment, with compliance continuing at 100% in Transition Phase 1 (T1). There was however a significant decrease to 46.6% in Phase 2 (P2) of the treatment, this being lower than the average compliance in the Observational Probability Analysis of 70%. After Phase 2 (P2) the change from reinforcement being only social praise, to a combination of social praise and access to a tangible reinforcer, saw an increase to an average of 100% compliance in the repeated Transition Phase 1 (T1+) and an average of 87% compliance for the repeated Phase 2 (P2+) of treatment. There was again a decrease in compliance in the Transition Phase 2 (T2+), where there was an average of 66% compliance. There was an increase in the average percentage of compliance in Phase 3 (P3+) of treatment, with this being 88%, this is a significant improvement to the average in the baseline of 40% compliance as seen in Figure 2. There was again a decrease in the Transition Phase 3 (T3+), where compliance dropped to an average of 75% compliance. In Phase 4 (P4+) of treatment there was again a decrease in compliance to an average of 57%, even though this is below the level of compliance required in the programme this was still a significant increase from the baseline data. Figure 2 shows an average of compliance in the Observational Probability Analysis was 8.3%, an increase of 48.3% in compliance. For the Generalisation Phase (Gen), there was an increase from 12.5% compliance in the Observational Probability Analysis to 50% compliance in treatment.

Inter-observer Agreement

Mean percentages of inter-observer agreement across all sessions is shown in Table 4. For Child 1 this was 99%, for Child 2 it was 100% and for Child 3 it was 100%

Table 4

Mean percentage of inter-observer agreement across all children and sessions

Child	Sessions								
	1	2	3	4	5	6	7	8	Total
Child 1	95%	100%	100%	100%	100%	100%			99%
Child 2	100%	100%	100%	100%	100%	100%	100%		100%
Child 3	100%	100%	100%	100%	100%	100%	100%	100%	100%

Integrity Checklist

The list of components included in the integrity checklist and the mean percentage of each component across all sessions collected by inter-observer and parent or teacher is also shown in Table 5. Of the components; attention and eye contact gained prior to request, use of firm but polite voice, requests presented naturally, praise enthusiastic and varied and praise occurring within 2s, they were all 100% in agreement. For the components; no repetition of request, no prompting and the use of imperative requests, were between 93 and 99%.

Table 5

Mean percentage of no repetition of requests (NR), no prompts (NP), use of imperative requests (I), attention and eye contact gained prior to request (AG), use of firm voice (FV), request presented naturally (RN), praise enthusiastic and varied (P), praise occurs within 2s (T) and non-compliance ignored (IG) in the integrity checklist across all children and sessions by inter-observer and parent or teacher.

Child		NR	NP	I	AG	FV	RN	P	T	IG
Child 1	Inter-observer	98%	93%	100 %	100 %	100 %	100 %	100 %	100 %	99%
	Parent	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Child 2	Inter-observer	100 %	96%	96%	100 %	100 %	100 %	100 %	100 %	100 %
	Teacher	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Child 3	Inter-observer	100 %	97%	96%	100 %	100 %	100 %	100 %	100 %	90%
	Parent	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Total		99.6 %	97.6 %	98.6 %	100 %	100 %	100 %	100 %	100 %	98.2 %

DISCUSSION

The aim of the present study was to investigate whether ECT could be used to increase compliance of three children under the age of five, for two of the participants treatment took place in their family homes and for one it took place in an early education setting. Results showed that all participants had increases in the degree of compliance to specific requests that they previously tended not to comply with. Both Child 1 and Child 3, who completed all phases, showed significant increases in compliance to Level 4 requests compared to that seen in the baseline data. Child 2 did not

complete all the phases, reaching only Phase 3, however he still had significant increases in compliance in Phase 2 and Phase 3 of the treatment. Results also showed for Child 1 and Child 3 that the increase of compliance generalised to new requests not used in treatment in Generalisation Phases.

Results also showed the individual nature of each child and the individual effects the treatment had on their levels of compliance. Child 3 did not reach the criterion of the 75% across three sessions in Phase 4 of treatment so after five sessions treatment was stopped, however her compliance to the Phase 4 requests still increased by 48.3% after the treatment compared to her baseline. Child 2 did not complete all the phases and only reached Phase 3 of the treatment. The reason he did not complete all phases was unrelated to the programme it was that he turned five and started school. However, his data suggests that the treatment still had a positive effect on compliance, with significant increases in compliance in Phase 2 and Phase 3 of the treatment.

All participants had different diagnoses, Child 1 had a diagnosis of Global Developmental Delay, Child 2 was diagnosed on the Autism Spectrum and Child 3 had no diagnosis. It does not appear that diagnoses of participants had an effect on the results of the treatment. This is consistent with other studies on ECT. Ducharme et al. (1996), Ducharme et al. (2002) and Ducharme et al. (2007) all showed ECT to be successful in increasing compliance with each study having participants with different diagnoses or no diagnosis.

The treatment took place in two different types of setting. For Child 1 and Child 3 the setting was the home and for Child 2 it was an early education centre. Results gathered from the participants, particularly Child 1 in the home setting, were similar to those of other studies of ECT completed in the home setting, however the previous studies using ECT which took place in the home setting were conducted by the parents of the participants (Ducharme et al., 1996; Ducharme et al., 2007; Ducharme et al., 2001). The present results suggest that this treatment is successful in increasing compliance not only when it is conducted by parents in the home setting, but also when a researcher conducts the treatment in the home.

In Ducharme et al. (2005), treatment took place in an education setting, in the present study Child 2's treatment also took place in an education setting. The present study used an early education setting for children under the age of five years old, where learning was based around play activities. In contrast Ducharme et al. used a special education school with children over the age of five with a structured learning environment. In both studies the treatment was conducted by the researcher. As mentioned above, Child 2 increased in compliance in Phases 2 and 3, similar to the results of Ducharme et al. (2005). The present study, to the researcher's knowledge, is the first to use ECT in an early education setting and the results suggest that ECT is successful in this new setting.

Apart from the study by Ducharme et al. (2003), in which two out of the four participants were under the age of five years old, other studies of ECT have used participants between five and 15 years old. In the present study

all three participants were four years of age when treatment began and completed except for Child 2 who turned five. Both this study and that of Ducharme et al. (2003) suggest that ECT is effective in increasing compliance in this younger age group, with substantial improvements in compliance.

In the present study requests that the parents selected as being important to them were included in the treatment, these were in areas where the parents were having trouble with compliance. These requests were added to the Compliance Probability Checklist for the child. This was done to help ensure that the treatment was relevant to the participants and to increase parents' willingness to be part of the study. This differed from other studies using ECT (e.g., Ducharme et al., 2003; Ducharme et al., 2005; Ducharme et al., 2001) which selected requests from the Compliance Probability Checklist. However, some of the parent-added requests resulted in some difficulties in the treatment.

One of the difficulties for Child 3 was that the Level 4 requests that were important to the parents involved requests to stop hurting or picking up her younger sibling. If the request to stop was not complied with, the problem could not be totally ignored. Either the parent had to physically remove the sibling or, if a parent was not available, the researcher had to do this. Thus if the child did not comply with these specific requests to stop her behaviour it had an effect on the people around her as they had to act and non-compliance could not be totally ignored and placed under extinction.

Another issue with some of these added requests was that for the request to be delivered, specific other behaviours had to occur. In other

studies of ECT, such as Ducharme et al. (2005), Ducharme et al. (2003) and Ducharme et al. (2007), requests could be delivered three times a session. However, some of these parent-added requests could only be delivered if a specific behaviour occurred first. For example Child 3 had to start hurting or to start picking up her young sister for it to be meaningful to request that she stop this. This was also a problem for some of Child 2's parent-selected requests, for example the request 'come inside' could not be given sensibly unless the child was outside. This problem meant that in many sessions this request could not be given three times and, in some sessions, it could not be given at all. Therefore requests that require a previous behaviour may not be able to be used in ECT. The main concern of Child 1's parents was his non-compliance with requests around dressing in the morning. This meant that the sessions were restricted to mornings and that some of the requests could only be presented 'naturally' once per session. This participant was available only a few mornings a week and so the restriction to the mornings (to ensure that the requests were delivered naturally) reduced the frequency of sessions and the type of request meant some requests could be given only once per session.

For the above reasons, it was decided to only deliver all requests once per session for all participants. However, this meant that the data may not show as reliable assessment of compliance, as might be derived when the request can be repeated several times per session. This is because when a request is delivered more than once in the session there is more opportunity for either compliance or non-compliance to occur to that request. Further

research is required to examine the effects of this change. It may be that it is not sensible to include requests that require the behaviour to occur before a request can be delivered or requests that cannot be presented naturally more than once a session in ECT. On the other hand the present data suggests the intervention was effective even with this limitation on the request delivery.

In the present study, the nature of working with children and families and in these environments made data collection difficult at times. For example, finding session times that fitted in with the families' lives was difficult at times. Child 2's treatment took place at his early education setting, which he only attended three afternoons a week. One of these afternoons was taken up with activities and he was therefore unavailable for these sessions, leaving only time for two sessions a week. Child 3's treatment took place in her home. She attended an early childhood centre every afternoon and was only available two mornings a week for sessions to take place. Child 1, as mentioned above, was restricted to the mornings the family was available when requests involved dressing etc (baseline, alternating baseline and Phase 4). In addition to these restrictions, the participants were also unavailable due to other factors such as sickness, holidays and appointments throughout the study. Being able to complete only one or two sessions a week with the participants meant that the length of time it took to complete the treatment was much longer than that seen in other studies on ECT (Ducharme et al., 2005; Ducharme et al., 2003; Ducharme et al., 2007) where there were at least three to four sessions a week. However results suggest that ECT was still effective when the treatment was implemented over a

longer period of time. Further research investigating whether the time of which the treatment is implemented across affects the results of ECT to increase compliance.

For Child 1 and Child 3, there were some differences between the researcher's data and the probe data collected by the parents. The probe data showed lower levels of compliance than did the researcher's data. One difficulty that was faced in the study was with the probe sessions, in Ducharme et al. (2005) the classroom teacher gave the requests in the probe sessions. The teacher was taught how to deliver the requests and how to respond to the compliance or non-compliance, but the data was collected by the researcher. However, in the present study there were some problems with these parent / teacher probe sessions, thus a change was made and the parents or teachers conducted the probe sessions when the researcher was not present. This change was made as the parents were not always able to be present when the researcher was present to do the probe session. Similarly, the teachers at the early education centre were not able to be removed from the other children and tasks that needed to be completed at the particular times that the sessions took place and the probe sessions had to be done in the times they were free. However, the researcher could not always make these times. Another reason for the change was that parents appeared very nervous and anxious when they were asked to do the probe sessions in the presence of the researcher and continually referred to the researcher for reassurance, which interrupted the process. The change meant that during the probe sessions the parents and the teachers were both

giving the request and collecting the data with no inter-observer agreement checks. Thus there was no way to ensure the accuracy of the data collected and no way to ensure that the requests were being delivered correctly and that praise / ignoring of compliance or non-compliance occurred and within the appropriate time. Therefore this was not an effective method for collecting probe data and another method needs to be developed to collect probe data to ensure the accuracy of the data. Future research on methods to collect probe data is needed.

As in the study by Ducharme et al. (2005) treatment was conducted and data was gathered by the researcher. This meant that the treatment was not implemented by individuals that were naturally in the settings.

Time and logistics prevented follow up sessions to determine whether gains in compliance were maintained after the treatment. One problem was that the participants were not available for this. Child 1 and Child 3 were starting at an early childhood centre full time and were not available outside these hours for the researcher and Child 2 had not finished the treatment due to starting school before the treatment was completed. It is not known if the gains in compliance seen in the present study continued once the treatment was completed. Future research is needed to evaluate whether increases of compliance are maintained once treatment is completed.

Lastly another limitation of the present study was the small sample size. This reduces the extent to which meaningful conclusions can be drawn about ECT for the population and about the settings which were investigated in the study.

EXPERIMENT 2

ECT has been taught to parents to implement with their children, this ensures that the treatment is implemented by someone that is a natural element of the home. Ducharme (1996) outlines the procedure for teaching parents with non compliant children how to implement ECT in the home. Ducharme states that it has been shown that ECT can be taught effectively to parents in a group format and also points to several advantages of using a group format. Firstly, teaching to a group is more efficient than teaching individuals. This is because the time that it takes to train individual participants is approximately the same as that required to train a group which has up to six sets of parents. Secondly, it allows parents to offer support to each other throughout the process, giving the opportunity to share problems and solutions. Lastly, as the training involves practising the relevant skills and role play, others can benefit for not only participating in practicing the skills but also the modelling and feedback of others.

Ducharme (1996) outlined the procedures he has used in several of his studies (Durcharme et al., 1996; Ducharme et al., 2007). In his procedure there are five sessions. Session 1 begins with a general discussion on problem behaviours and the difficulties of their children, followed by the trainer discussing what ECT is and the rationale behind it. The remaining time in the session is used to complete the Compliance Probability Checklist which is collected at the end of the session.

In Session 2, data sheets are given out with the request that they be used in the treatment. The requests on these sheets are selected by the trainer from the Compliance Probability Checklist. After this the parents are taught how to conduct the Observation Probability Analysis. Here the trainer uses a combination of training techniques such as modelling, role play and performance feedback to teach the parents how to deliver the requests. Parents are also taught how to collect data on child compliance to requests using the operational definition of compliance, again techniques such as modelling, role play and feedback are used.

Before Session 3 parents complete the Observational Probability Analysis, with the trainer free to be contacted throughout this time it was being completed. In Session 3, parents are taught how to initiate and complete treatment, being taught skills such as delivering effective praise, and ignoring non-compliance. They are also taught the criterion for changing between the phases of the treatment. After this session parents begin treatment, the trainer makes regular contacted throughout this time and is available to be contacted throughout this time.

Session 4 is held towards the end of the treatment and is used to refresh the key skills of the programme to the parents as well as discuss the progress of the programme and any problems encountered.

Session 5 is held once the treatment is completed and is a discussion on the overall programme and progress made and if there are any issues on child management.

The training techniques used, such as role play and modelling, have been shown to be effective methods for teaching skills. The use of these techniques has been supported by a number of other studies (e.g., Adams, Tallon & Rimell, 1980; Gardner, 1972; Ducharme & Feldman, 1992; Jones & Eimers, 1975; Hudson, 1982). Adams et al. (1980), for example, compared the effects of role play with those of a lecture on reinforcing appropriate behaviour. A follow up observation of the staff involved showed that the performance of those in the lecture group was stable or declined after an initial improvement, while those in the role play group performance continued to improve.

Hudson (1982) evaluated different group training formats used in teaching parents how to become effective teachers to their developmentally disabled children. There were four treatment groups; verbal instruction, verbal instruction plus teaching behavioural principles, verbal instruction plus role play and modelling and a control group. Results showed that teaching behavioural principles alone did not improve the performance of parents and that it was necessary to use modelling and role play for the parents to become effective in teaching methods.

To this researcher's knowledge, in other ECT research either the researchers implemented the treatment or the parents were taught to implement it. No studies have tried to teach other 'professionals' to implement ECT. As most studies have taught ECT to parents, it has mainly been used in a home setting. The aim of the second experiment here was to replicate Ducharme's ECT procedures, to increase compliance in children in a

primary school setting, by teaching the children's teacher aides ECT. The intention was to follow Ducharme's (1996) procedure - teaching ECT to a group.

METHOD

Participant selection

Schools and early education settings were contacted via email by the researcher, they were given information (appendix 11) outlining what the study was about and what would be required in the study. The researcher gave contact details if there were any teachers, teacher aides or education support workers who may be interested in using ECT or if further information was wanted.

Two Hamilton primary schools contacted the researcher displaying an interest and requesting further information. From this the researcher organised a meeting time with the two schools. School 1; a meeting was organised with the principal of the school. School 2; a meeting was organised with the Assistive Learning Leader, who was responsible for the teacher aides in the school. In these initial meetings information on ECT was outlined, the procedure and where and how ECT had previously been used (appendix 12 & 13). The researcher then informed them of what was required for the study, this being;

- Teacher aide / aides who worked with a child in the classroom that displayed non-complaint behaviour.

- The level of non-compliance required in this study was at least two requests which were not complied with 75 – 100% of the time.
- And the child had at least three different times a week where they had a teacher aide.

These requirements were discussed and the possibility of using this programme at the school. Both schools met the requirements of the study that were discussed. The next step for School 1 was a meeting with the staff member that was responsible for the teacher aides, in this meeting the information on ECT was again outlined, along with the procedure and where and how ECT had previously been used and what was required for the study. After this meeting another meeting was organised with all the teacher aides to introduce ECT to them and to see whether they had any child that displayed non-complaint behaviour and may benefit from the programme. During this meeting, several teacher aides mentioned children that fitted the requirements for the study and that they would be interested in doing the programme. After this meeting with the teacher aides, a time was selected for the first group teaching session, this was at the weekly teacher aide meeting time with all teacher aides being present so they were familiar with what other teacher aides were doing. However due to staffing numbers and the number of children requiring teacher aides, there was not enough time for the programme, so the school was not able to continue with the programme.

For School 2; at the initial meeting with the Assistive Learning teacher she indicated she had already shown several of the teacher aides the information the researcher had sent by email and they had expressed their

interest in the programme, so during this meeting a time was organised to do the first group teaching session. This was organised at the time of the teacher aides' weekly meeting, as she wanted all her teacher aides to attend the session so they would also be familiar with the programme.

Description of the participants

Two teacher aides from a Hamilton primary school were selected to participate in the study as they worked with a child who displayed non-compliance in the classroom, they worked with a number of children in the school and were assigned to specific classrooms and/or children throughout the day. Teacher Aide 1 implemented ECT with an eight year old boy, with no diagnosis (Child 4) and Teacher Aide 2 implemented ECT with a seven year old girl, with no diagnosis (Child 5). Both children were reported as being very non-compliant in the classroom and disrupting theirs and others learning in the classroom. Teacher Aide 1 spent two and a half hours in the classroom of Child 4 a day, four days a week, she however worked with two children in the classroom during this period. Teacher Aide 2, spent two and a half hours in the classroom of Child 5 a day, five days a week, she also worked with two children in the classroom during this period.

Setting

The setting for the programme was the Hamilton primary school. The sessions ranged between one and two hours long and took place when the child was engaged in their normal activities in the classroom.

Dependent measure

The dependent measure was the same as in Experiment 1, this being:

The child starts to respond appropriately to a request within 10s of the request (verbal instruction) being given and completes it within 40s or without inappropriate pausing.

The percentage of compliance to requests was determined through the use of event recording. When a request was given and whether or not the response was complied with was recorded by the teacher aide as compliance or non-compliance (appendix 7).

Inter-observer Agreement

The researcher assessed the accuracy of the data collected. This was done through observations of request delivery by the teacher aides and of the children's responses in their education setting.

For each participant inter-observer agreement checks were carried out. The aim was for 25% of all the sessions to be observed by the researcher. These observations occurred once a week when possible, when the researcher was in the school and the teacher aide was working with the particular child.

The method used to calculate the inter-observer agreement as a percentage was the same as the one in Experiment 1.

Materials

The modified version of the Compliance Probability Checklist (appendix 5) was used, along with further modifications (non applicable column and changing some of USA terms to ones more commonly used in New Zealand).

Procedure

The ECT procedure was similar to that used in Experiment 1, however the alternating baseline was not completed. The first treatment phase was started straight after the assessment of compliance probabilities, this was due to time restrictions and the extra work load that is required.

Group Session 1. The first session began with a discussion of ECT, briefly describing what it is, how it works and where and how it has been used successfully so far. Once this was done, an outline of the procedure was given to the teacher aides, explaining each step of the programme. The teacher aides were then taught how to deliver the requests using mainly modelling. In this the researcher demonstrated correct and incorrect request delivery and the teacher aides decided if the demonstrated request delivery was appropriate or not. There was also some rehearsal of request delivery by the teacher aides and the researcher and other teacher aides gave feedback on the performance. These methods were used to ensure the teacher aides had sufficient practice at using the request delivery procedures during the session. The teacher aides were then taught how to collect data on child compliance to requests, this being how to record compliance and non-compliance using the operational definition of compliance. As above, techniques such as modelling, rehearsal and performance feedback were used to let the teacher aides practice data collect. (Presentation outline appendix 14)

The Modified Compliance Probability Questionnaire was then given out and how to complete it was explained. During the remaining time in the

session the teacher aides filled out the questionnaire, this was so questions could be asked and forms could be completed correctly. However, they were not able to complete the form in the sessions and the forms were not collected in until the following week in Group Session 2, giving them time to fill them out.

Group Session 2. In the second session the researcher talked individually with each of the teacher aides that were going to use ECT. In these meetings the requests that were going to be used were discussed and selected, this was to ensure that the requests were appropriate for the particular child and for that child's classroom. Whether or not there were any other requests that were a specific problem for that child that were not in the checklist and that they thought should be added in, was also discussed. The key skills were covered with the teacher aides again, ensuring they knew what they were meant to be doing. An information sheet with the key skills was also given to them to refer to if needed, this included how to deliver the requests, what the operational definition of a request is and examples of compliance and non-compliance.

Once the requests were selected, information was gathered about types of reinforcement that might be appropriate for that child, if there was reinforcers already being used with the child and if there was a method for reinforcement already set up in the classroom. The researcher then discussed with the teacher aides the reinforcer options that could be used in the classroom with the child, if it was believed social reinforcement alone was not going to be enough.

After Group Session 2, teacher aides completed the assessment of compliance probabilities with their children in their education setting. Contact was maintained with the teacher aides to make sure all questions were answered and that the data collection sessions were being conducted correctly. This contact was through weekly visits and the researcher being available to be contacted through email and phone. Once the teacher aides collected the data each week the data sheets were collected.

The remainder of the procedure was not completed as the procedure was stopped after Group Session 2. The reason the programme was stopped was due to the school term ending. Therefore the outline below is the proposed method. The alternating baseline data would have been collected prior to the first intervention phase had it been possible.

Group Session 3. This session was to begin with a discussion of any problems experienced throughout the assessment of compliance, as this is a difficult part of the programme with high levels of non-compliance seen before the actual treatment begins. After the discussion, the teacher aides were to be taught methods for delivering effective praise for compliance and for ignoring non-compliance. This was to be done through mainly modelling by the researcher along with rehearsal and performance feedback. They were also to be given a handout of '100 ways to say very good' (appendix 15) to supplement what they have been taught. The data sheets made specifically for each child were to be given out to the teacher aides for Phase 1 of the treatment. They were to be taught how to fill these out, how to calculate the percentage of compliance to the requests delivered each day would have

been explained. The criterion for changing from one probability level to another one and the transition phases was also to be taught to the teacher aides so they would be able to change from one level to another correctly. The criteria for the changing of levels was also to be calculated by the researcher on the weekly visits, this was to ensure it was done correctly and to ensure also that the teacher aides were given the data sheets they would need for the next level when they required them.

After Group Session 3 the teacher aides were to begin the treatment. Again the researcher was to be accessible through this whole time to answer questions and provide feedback on the way the treatment was going, give information on the changing of the levels and discuss the treatment progress. During these times the researcher was also to refresh key ideas such as the delivery of the request and effective praise for compliance.

Group Session 4. Group Session 4 was to start with a discussion of the whole treatment procedure, any issues that had arisen, what was liked about the treatment and the results of the treatment. After this, data sheets made specifically for each child were to be given out to the teacher aides for the follow up sessions, along with the dates to complete these follow up sessions. Once completed, the data sheets were to be collected by the researcher.

Teacher Probe

There were also to be probe sessions with the teacher during each treatment phase. The teacher was to make the requests to the child in the classroom, the requests were to be the same requests as those used in the

current phase. The data sheets were to indicate when the probe sessions were to occur so the teacher aides could arrange for one to happen. The teacher aides were to give the teacher a list of the requests that they were to deliver, prepared by the researcher. They were also to give the teacher the information sheet covering request delivery, effective praise and appropriate reactions to compliance and non-compliance. They would explain the key skills to the teacher, demonstrating where necessary. The researcher was to be available during these times, in case further information was needed or teaching of the key skills to the teacher. Data was to be collected by the teacher aide, following the operational definition used throughout the programme. In addition the researcher was to collect inter-observer agreement data and undertake treatment integrity checks.

RESULTS

Observational Probability Analysis

As part of the Observational Probability Analysis, eight sessions were meant to be completed and the data was to provide a comparison to the ratings given to the requests in Modified Compliance Probability Checklist. However, in this experiment the Observational Probability Analysis was not completed, meaning there were not enough requests given and those that were given were not given often enough to allow comparisons. Thus the comparisons that can be made are based on fewer sessions than the desired eight. Tables 6 and Table 7 show the requests that were selected for each participant for the treatment, the predicted level in which the initial ratings of

Table 6

Requests that were selected for Child 4 for the treatment, the predicted level in which the initial ratings of compliance from the Compliance Probability Checklist, the percentage of compliance observed across the his five sessions.

Request	Predicted Level	Number of times request was delivered in the Observational Probability Analysis	Number of times Complied	Percentage of compliance
Play on the computer	1	0	-	-
Pick a activity (at the start of free time)	1	0	-	-
Tell me about ___ (preferred activity / game)	1	1	1	100%
Choose which ___you want (choice between two pref options)	1	0	-	-
Build something with ___(items to construct)	1	0	-	-
Do this worksheet (maths)	1	2	0	0%
Follow me	2	0	-	-
Look at ___	2	0	-	-
Read a book	2	1	1	100%
Jump up and down	3	0	-	-
Wash your hands	3	0	-	-
Write your name	3	1	0	0%
Give me a high five	3	0	-	-
Count the ___	3	0	-	-
Keep your hands to yourself	4	0	-	-
Sit up properly	4	4	3	25%
Look at me	4	0	-	-
Pack up the equipment	4	0	-	-
Get a pencil / pen	4	1	0	0%
Point to the ___	4	0	-	-
Do your work	4	3	0	0%

Table 7

Requests that were selected for Child 5 for the treatment, the predicted level in which the initial ratings of compliance from the Compliance Probability Checklist, the percentage of compliance observed across the her six sessions.

Request	Predicted Level	Number of times request was delivered in the Observational Probability Analysis	Number of times complied	Percentage of compliance
Choose which__you want (choice between two)	1	2	1	50
Put the sticker on ___	1	4	4	100
Pick an ___ (activity/ game)	1	0	-	-
Follow me	2	0	-	-
Look at ___	2	4	4	100
Read a book	2	2	1	50
Count the ___	3	1	1	100
Wash your hands	3	2	2	100
Dry your hands	3	0	-	-
Give me the___	3	1	1	100
Tell me where your ___is	3	2	2	100
Point to the ___	3	4	4	100
Show me the ___	3	5	5	100
Stand / Sit in line	4	6	5	83
Speak quietly	4	0	-	-
Come here	4	5	5	100
Go inside	4	4	4	100
Get your ___	4	3	3	100
Sit in your chair	4	3	3	100
Put your book away	4	6	6	100
Pick up your / the ___	4	5	5	100

compliance from the Modified Compliance Probability Checklist placed each request, the number of times the request was delivered and the percentage of compliance.

For Child 4, there were five sessions completed, within these five sessions there were only 13 request deliveries in total, so only a few requests were asked in each session. Of the requests initially rated as Level 4 that were delivered, “Do your work” was requested three times with 0% compliance to this request, “Sit up properly” was requested four times with 25% compliance. Also initially rated as Level 4, “Get a pencil” was delivered once and was not complied with. Therefore from the data collected, these were placed in similar levels by both methods. Two requests, one request from each of Level 2 and Level 3, were made once and two Level 1 requests were made, one once and the other twice. These do not give enough data to give a comparison between the ratings and the Modified Compliance Probability Checklist.

For Child 5, there were six sessions completed, within these sessions there were 59 requests made. Three requests initially classed as Level 1 were given. The request “Put the sticker on __” was delivered four times with 100% compliance to this request. This suggests this request was initially rated correctly. One Level 1 request was delivered twice, it was “Choose which ___ you want” (choice between two preferred options), this was

complied with once and not complied with once (an average compliance of 50%) suggesting this may have been initially rated incorrectly. All the requests initially rated as Level 2 and Level 3 made to Child 5 had 100% compliance. For the Level 4 requests that were made, compliance was 100% except for one request where the average compliance to the request was 83%. This data shows that the initial ratings of all the Level 2, 3 and 4 requests did not match the actual in-class behaviour.

Inter-observer Reliability

For Child 4 there was no inter-observer reliability data collected. For Child 5, there were two sessions where inter-observer data was collected, in the first sessions five requests were observed, in the second session two requests were observed. The inter-observer agreements for both of these sessions were 100%.

DISCUSSION

The aim of the present experiment was to replicate Ducharme's ECT procedures to increase compliance of children in a primary school setting by teaching the children's teacher aides ECT. The replication was not completed because the treatment was not started as a result of the Observational Probability Analysis not being completed for a range of reasons.

Failure to complete the Observational Probability Analysis was the result of a number of factors and difficulties experienced. The first factor that created difficulties in data collection and treatment implementation was that

both teacher aides were responsible for more than just the child participating in the study in that classroom. This meant that when they were in the classroom, not all the time was spent with the child participating in the study. Adding to this was the fact that the teacher aides only worked between one and one and a half hours with the children per day. Although this was initially seen as enough time for the intervention and data collection it did not turn out to be long enough. Very few data points were collected for Child 4 because his teacher aide focussed on another child that was displaying very challenging behaviour during the time she was in the class. This did not allow her the time to deliver the requests required for the Observational Probability Analysis. Similar problems occurred for Child 5, there was not enough time when the teacher aide was working in the classroom with Child 5 for her to make all the requests and also to fulfil her duties with the other child in the classroom. Thus data collection was much slower than expected and the study then had to stop due to the school term ending. It was not possible for these teacher aides to carry out the Observation Probability Analysis, which takes approximately two hours when all requests are delivered to a single child, within these classrooms within a reasonable time. As the Observation Probability Analysis gives data which is vital to both setting up the ECT procedure (i.e. to selecting true high probability of compliance requests etc) and for ensuring the effectiveness of ECT can be measured, the treatment cannot be completed without this data. Given this, ECT appears not to be a treatment that can easily be implemented by teacher aides as part of their normal duties in this school setting. Further research is needed to

investigate whether ECT can be taught to and implemented by teachers and teacher aides working with children in education settings to increase compliance.

There were other issues that contributed to the very slow data collection. Data collection was difficult at times due to school activities that the children and / or teacher aides needed to participate in. For example, during the time of the study there was a school sports day which meant the treatment was not able to be delivered to the participants as the teacher aides were not working directly with the children. Also there was a zoo trip that the teacher aides went on with other children they work with and were not available. Sickness of the teacher aides, the children and of other teacher aides within the school (the teacher aides in the study covered their work as well) also meant days treatment was not able to be delivered. Again this suggests that ECT may not be an appropriate treatment to be delivered by teacher aides within this school setting as part of their normal duties. The Observation Probability Analysis takes time and it needs to be implemented on a daily basis, making it challenging when activities and sickness interfere.

Results from the data that were collected in the Observational Probability Analysis for Child 5 showed high levels of compliance to all requests regardless of the initial level. This was very different from the information initially reported by the teacher and teacher aide that the child was very non-compliant in the classroom. The initial ratings on the Modified Compliance Checklist reflect this. There were no requests reported as being at Level 1 (76 – 100% compliance) and only three requests were rated as

Level 2 request. After further discussion with the researcher, the teacher aide came up with three requests she thought might be Level 1 and Level 2 to be used in the treatment. Results from the sessions that were completed in the Observational Probability Analysis showed that there was 100% compliance with all the Level 2 and Level 3 requests that were delivered and compliance was 100% except for one request, where the average compliance was 83%, for the Level 4 requests that were delivered. The difference between the initial ratings and the data collected may be because the teacher aide had incorrect recall of the child's classroom behaviour. Alternatively, teaching of the teacher aides how to deliver requests and them using these techniques in the Observation Probability Analysis. This might have been enough to change the degree of compliance to the requests. A number of studies (e.g., Ford et al., 2001; Mandal, Olmi, Fdwards, Tingstrom, & Benoit, 2000; Benoit et al., 2001) have shown that changing the form of request delivery alone can change the level of compliance. Therefore ECT may not have been needed to increase compliance and effective request delivery alone might have been enough to increase compliance. The alternating baseline used in ECT may have helped clarify this as it should show clear differentiation in compliance between Level 1 and Level 4 requests. However, this phase of the ECT was not reached given the probability analysis was not completed. This is an area that more research is needed to compare ECT and effective request delivery alone, also to investigate whether teaching effective request delivery is the component of ECT that increases compliance and if effective request delivery is enough to change compliance without implementing the ECT treatment.

At the start of this study there were recruitment difficulties, only two schools showed an interest in the programme out of the many schools that were contacted. One of these schools did not start because of the amount of time the teacher aides needed to spend with specific children and in training. It may be non-compliance was not an issue that these schools required help with, or it may be that the time requirements could not be met. Thus ECT may not be a treatment that can be delivered within these school settings by support staff.

Inter-observer reliability data was not collected for Child 4 and only a few requests were able to be observed by the researcher for Child 5. This was due to the teacher aides not delivering more than a couple of requests (or any at all) as they were working with other children, or because of sickness and school trips happening when the researcher organised the inter-observer sessions. This meant that the teacher aides were both giving the requests and collecting the data with no inter-observer agreement checks. Thus there is no way to ensure the accuracy of the data collected and no way to ensure that the requests were being delivered correctly.

Lastly, a further limitation of the present study was the small sample size. It was not intended that only two children should be included but this was the result of the recruitment problems. This reduces the extent to which meaningful conclusions and generalisation can be made from this attempt to teach ECT to education support workers. Future studies on ECT using larger sample size to evaluate the effectiveness are needed.

SUMMARY AND CONCLUSIONS

The aim of Experiment 1 was to increase the compliance of children under the age of five using ECT. Two of the participant's treatment took place in the family home and one participant's treatment took place in an early education setting. Results showed that all participants had increases in the level of compliance to specific requests. Both Child 1 and Child 3 completed all phases and showed significant increases in compliance to Level 4 requests compared to that seen in the baseline data. Child 2 did not complete all the phases and only reached Phase 3, however he still had significant increases in compliance in Phase 2 and Phase 3 of the treatment. The results from Experiment 1 suggest that ECT is successful in increasing compliance with participants with different diagnoses or no diagnosis, with children four years of age and in both an early education setting and the home setting. Compliance also generalised to new requests not used in the treatment.

Unlike other ECT studies, requests expressed as being important to the parents were included in the treatment. Some of these requests resulted in some difficulties in the treatment. For some requests non-compliance could not be ignored, for others specific behaviours had to occur for the request to be made naturally and others could not be delivered three times in a session. In spite of these limitations ECT was still successfully implemented.

The nature of working with children and families made data collection difficult at times. One issue that was experienced was finding session times

that fitted in with the families and the requests. This meant that there were often only one to two sessions a week with the participants and it took a longer time than expected to complete the treatment. There were differences between the researcher's data and the probe data collected by the parents. Given there were no inter-observer agreement checks on the parent's data collection there is no check on the accuracy of the data the parents collected. The study would have been improved had follow up sessions to determine whether gains in compliance after the treatment were maintained been conducted. Also the study included three children only, which reduces the extent to which meaningful generalisations can be drawn.

The aim of Experiment 2 was to increase compliance of children in a primary school setting by teaching the children's teacher aides ECT following Ducharme (1996) procedure. Replication of Ducharme's ECT procedures to increased compliance was not completed, this was because the intervention was not started as the Observational Probability Analyses were not completed. Results that were gained suggest that ECT could not easily be implemented within this school setting by these teacher aides. The main reason was that the Observation Probability Analysis was very time consuming and was not completed as a result of the time restraints on the teacher aides and of the restraints of the school year. The Observation Probability Analysis is a vital component and treatment cannot begin without this data. The data that was collected in the Observational Probability Analysis for Child 5 showed high levels of compliance to requests across all the levels. This was different from the information initially reported by the

teacher and teacher aide and from the initial rating on the Modified Compliance Checklist. This difference may be a result of teaching the teacher aide how to deliver requests and the use of these techniques in the Observation Probability Analysis, this may have been enough to change compliance levels to the requests.

Overall, ECT was found to be effective in increasing compliance in the home and early education setting when implemented by the researcher with three four year old children. However, whether or not it would be useful and successful if implemented by teacher aides in a primary school setting remains to be seen.

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APPENDIX 1
INFORMATION SHEET

Study On the Effectiveness Of Errorless Compliance Training

My name is Jana Noorland, I am a student at Waikato University and am doing my masters of applied psychology, for this I am doing a study on the effectiveness of an intervention called Errorless Compliance Training, which is used to increase child compliance in a non-aversive manner.

Compliance or instruction following by a child is important as high levels of non-compliance or ignoring of instructions can have negative effects on their learning. Instructions / requests are an important tool in teaching and non-compliance with these can limit their access to learning opportunities.

Errorless compliance training is a process where children are taught to comply with requests gradually. Initially the child's likelihood of following various types of requests is established. Then the child is given a series of requests that they have a high likelihood of following. When the child complies with a request this will be followed by social reinforcers such as praise, high fives etc, and when a request is not followed this behaviour is just ignored. Once they are following these initial requests most times, requests that they have, in the past, followed less often are introduced gradually. This can result in the child complying with these less likely requests. It seems that this is because of the reinforcement received for complying with the earlier requests. This intervention has been shown to be successful with children with developmental disabilities and over a range of ages, in both education and home settings. My research is to initially replicate this procedure with children under the age of five, to test the effectiveness of Errorless compliance training with this age group.

The study can take place in the child's early education setting, the family home or at the early intervention Centre. The study will occur while the child participates in their normal activities, with the researcher implementing the programme alongside the normal activities, with the session length ranging between approximately one and two hours long. With the compliance training taking place when the children are engaged in their normal activities, the child will not miss out on any learning opportunities or activities of the classroom if this is where the Errorless compliance training will be taking place. The study will take around a couple of weeks to complete (depending on the child's speed of progress). You will be given information on your child's results at the end of the intervention if you would like it or at any time through it if you so request.

This study only requires parents/guardian of the child to complete an initial interview, where information will be gathered about the child's likes and dislikes, and what requests the child is likely to comply and not comply with. The rest of the study will be completed by the researcher, however parents/guardians are welcome to observe and receive information on the child's progress. At the end of the study information about how to implement Errorless compliance training can be taught to parents/guardians.

No names will be used in reporting this research, however, the teachers in the classroom and support workers will know who is participating in the study,

and my supervisor will also have access to the data. The data will be kept anonymous and kept at the University of Waikato in a locked filing cabinet.
It is important that you understand that you have the right to withdraw your child from the research at any stage, for any reason, without penalty or loss of any kind.
Further information can be given on Errorless Compliance Training if required. My supervisor for this study is Prof Mary Foster who can be contacted with any questions.

My contact details are:

Home phone: 8568939
Mobile: 0273085343
Email: jmn16@waikato.ac.nz

Prof Mary Foster contact details:

Phone: 8384466 Ext 8400
Email: m.foster@waikato.ac.nz

APPENDIX 2
INTER-OBSERVER DATA SHEET

Requests:	Request delivery						outcome		consequences			
									Complied			Non complied
1.	NR	NP	I	AG	FV	RN	C	NC	P	PA	T	IG
2.												
3.												
4.												
5.												
6.												
7.												
8.												

Request Delivery:

NR- No repetition of request

NP- No prompts given while / after request is made

I – Imperative requests

AG – Attention gained before request is made

FV – firm voice

RN – request presented naturally

Outcome:

C – compliance (initiate motor response within 10 seconds of the request and will complete this request within 40sec or within inappropriate pausing)

NC – Non compliance (if compliance definition not met then record as non compliance

Consequences:

If request complied with:

P – Praise (varied and enthusiastic)

PA – physical affection (e.g. high fives)

T – consequence occurred with 2 seconds after compliance

If request not complied with

IG - ignored

APPENDIX 3
INTEGRITY CHECKLIST

Child:

Date:

Session:

Completed by:

FOR 5 REQUESTS THE FOLLOWING WERE OBSERVED:	
No consequences given for compliance /non compliance	Y / N
No repetition of request	Y / N
No prompts given while / after request is made	Y / N
Use of imperative requests	Y / N
Attention and eye contact gained before request is made	Y / N
Use of firm but polite voice	Y / N
Request presented naturally	Y / N
Praise enthusiastic and varied	Y / N
Praise occurs within 2 s of compliance	Y / N
Non compliance ignored	Y / N

APPENDIX 4
COMPLIANCE PROBABILITY CHECKLIST

HOME COMPLIANCE PROBABILITY QUESTONNAIRE

CHILDS NAME:_____
DATE:_____
COMPLETED BY:_____

	ALMOST AWAYS 76-100%	USUALLY 51-75%	OCCASSIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNED	N/A	THIS REQUEST IS IMPORTANT
DRESSING							
Get your coat							
Get your shoes							
Put your socks							
Put on your coat							
Put your shoes on							
Fasten your buttons							
Fasten or tie the laces							
Do up your zip							
Hang up your coat							
Take off your coat							
Undo your coat							
HYGIENE							
Wash your hands							
Brush your hair							
Wash your face							
Turn on the tap							
Turn off the tap							
Flush the toilet							
Use the soap							
Dry your hands							
Dry your face							
Go to the bathroom							
Close the door							

	ALMOST AWAYS 76-100%	USUALLY 51-75%	OCCASSIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNED	N/A	THIS REQUEST IS IMPORTANT
Pull your pants down							
Wet your toothbrush							
Put toothpaste on your toothbrush							
Brush your teeth							
Spit the toothpaste into the sink							
Rinse your mouth							
Put the cap on the toothpaste							
Put the toothbrush away							
Put the toothpaste away							
PLAY							
Go get your (play item)							
Play with your toys							
Do the puzzle							
Put this piece in the puzzle							
Throw me the ball							
Catch the ball							
Play some music (instruments)							
Sing to the music							
Dance to the music							
Jump up and down							

	ALMOST AWAYS 76-100%	USUALLY 51-75%	OCCASSIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNED	N/A	THIS REQUEST IS IMPORTANT
Ride your (individual item)							
Draw me a picture							
Colour the picture							
Turn on the music							
Turn up/down the volume							
Turn on the TV/ computer							
Turn off the TV/ computer							
Put your hands up in the air							
Stamp your feet							
Play patty cakes with me							
Stack the blocks							
Push the toy car							
Hug the doll/stuffed toy							
Pick a toy/activity							
Blow bubbles							
ACADEMIC							
Trace the (particular objects)							
Draw a (particular object							
Draw a line							

	ALMOST AWAYS 76-100%	USUALLY 51-75%	OCCASSIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNED	N/A	THIS REQUEST IS IMPORTANT
Cut out the picture							
Point to the							
Find me a picture of _____							
Print your name							
Tell me your name							
Show me the _____							
Give me the _____							
Tell me where your _____ is							
Count for me							
Count the _____							
Open the book							
Read this to me							
Turn the page							
Bring me the_____							
Touch your _____							
Place the sticker on the sheet							
SOCIAL							
Give me a hug							
Give me five							
Shake my hand							
Clap your hands							
Hold my hand							

	ALMOST AWAYS 76-100%	USUAL LY 51-75%	OCCASSIO NALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNED	N/A	THIS REQUEST IS IMPORTANT
Sit beside me							
Smile							
Talk on the phone							
MEALTIME							
Set the table							
Put the ____ on the table							
Come to the table							
Eat your (particular food item)							
Pass the (particular food item)							
Use your (particular utensil)							
Sit in your chair							
Drink your (particular drink)							
Pour yourself a drink of							
Wipe your mouth							
Go get a (particular treat)							
CLEAN UP							
Put away your toys							
Put away your book							

	ALMOST AWAYS 76-100%	USUAL LY 51-75%	OCCASSIO NALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNED	N/A	THIS REQUEST IS IMPORTANT
Pick up your							
Put your dish in the sink							
Wash the dish/cup							
Dry the dish/cup							
Clear the table							
Sweep the floor							
Fold the blanket/towel							
Put this in the rubbish							
TRANSPORT							
Get into the car / bus							
Put on your seatbelt							
Get out of the car / bus							
GENERAL							
Follow me							
Look at me							
Come here							
Hold this							
Stand up							
Sit down							
Close the door							
Go to (particular place)							

	ALMOST AWAYS 76-100%	USUAL LY 51-75%	OCCASSIO NALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNED	N/A	THIS REQUEST IS IMPORTANT
Bring me your chair							
Bring me (non-play item)							
Tell me your address							
Tell me your phone number							
Come inside							
Do this (particular thing)							
Get your							
OTHERS							

APPENDIX 5
MODIFIED COMPLIANCE PROBABILITY CHECKLIST

SCHOOL COMPLIANCE PROBABILITY QUESTONNAIRE

CHILDS NAME:_____

DATE:_____

COMPLETED BY:_____

	ALMOST ALWAYS 76-100%	USUALLY 51-75%	OCCASIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNT	N/A	THIS REQUEST IS IMPORTANT
DRESSING							
Get your coat							
Get your shoes							
Put your socks							
Put on your coat							
Put your shoes on							
Fasten your buttons							
Fasten or tie the laces							
Do up your zip							
Hang up your coat							
Take off your coat							
Undo your coat							
Put your school bag (somewhere)							
Put your shoes (somewhere)							
HYGIENE							
Wash your hands							
Brush your hair							
Wash your face							
Turn on the tap							
Turn off the tap							
Flush the toilet							
Use the soap							
Dry your hands							
Dry your face							

	ALMOST ALWAYS 76-100%	USUALLY 51-75%	OCCASIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNT	N/A	THIS REQUEST IS IMPORTANT
PLAY							
Go get your (play item)							
Play with your toys							
Do the puzzle							
Put this piece in the puzzle							
Throw me the ball							
Catch the ball							
Play some music (instruments)							
Sing to the music							
Dance to the music							
Jump up and down							
Ride your (individual item)							
Draw me a picture							
Colour the picture							
Turn on the music							
Turn up/down the volume							
Put your hands up in the air							
Stamp your feet							
Play patty cakes with me							
Stack the blocks							
Do a rolly polly							
Sing the song							
Push the toy car							
Hug the doll/stuffed toy							
Blow bubbles							

	ALMOST ALWAYS 76-100%	USUALLY 51-75%	OCCASIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNT	N/A	THIS REQUEST IS IMPORTANT
ACADEMIC							
Trace the (particular objects)							
Draw a (particular object)							
Draw a line							
Cut out the picture							
Point to the _____							
Find me a picture of _____							
Print your name							
Tell me your name							
Show me the _____							
Give me the _____							
Tell me where your _____ is							
Count for me							
Count the _____							
Open the book							
Take the book out of your desk							
Put your book away							
Get a pencil							
Put your pencil away							
Read this to me							
Turn the page							
Touch your _____							
Place the sticker on the sheet							

	ALMOST ALWAYS 76-100%	USUALLY 51-75%	OCCASIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNT	N/A	THIS REQUEST IS IMPORTANT
SOCIAL							
Give me a hug							
Give me five							
Shake my hand							
Clap your hands							
Hold my hand							
Sit beside me							
Smile							
MEALTIME							
Set the table							
Put the ____ on the table							
Come to the table							
Eat your (particular food item)							
Pass the (particular food item)							
Use your (particular utensil)							
Sit in your chair							
Drink your (particular drink)							
Pour yourself a drink of _____							
Wipe your mouth							
Go get a (particular treat)							

	ALMOST ALWAYS 76-100%	USUALLY 51-75%	OCCASIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNT	N/A	THIS REQUEST IS IMPORTANT
CLEAN UP							
Put away your toys							
Pick up your _____							
Put your dish in the sink							
TRANSPORT							
Get into the car / bus							
Put on your seatbelt							
Get out of the car / bus							
GENERAL							
Follow me							
Look at me							
Come here							
Hold this							
Stand up							
Sit down							
Close the door							
Stand in line							
Line up for recess							
Go to (particular place)							
Turn off the music							
Push your chair in							
Bring me (non-play item)							
Tell me your address							
Tell me your phone number							

	ALMOST ALWAYS 76-100%	USUALLY 51-75%	OCCASIONALLY 26-50%	RARELY 0-25%	SKILL NOT LEARNT	N/A	THIS REQUEST IS IMPORTANT
Come inside							
Bring me your chair							
Do this (particular thing)							
Get your _____							
Speak quietly							
OTHERS							

APPENDIX 6
BASELINE DATA SHEET

REQUESTS	LEVEL	1	2	3	4	5	6	7	8
1	1								
2	1								
3	1								
4	1								
5	1								
6	1								
7	1								
8	1								
9	2								
10	2								
11	2								
12	2								
13	2								
14	2								
15	2								
16	2								
17	3								
18	3								
19	3								
20	3								
21	3								
22	3								
23	3								
24	3								
25	4								
26	4								
27	4								
28	4								

Key C= Compliance NC= Non-compliance

APPENDIX 7
ALTERNATING BASELINE DATA SHEET

Baseline and Reversal Phases

Child:

Level 4 requests	**Session 1 Date:**	**Session 2 Date:**	**Probe Date:**	**Level 1 requests**	**Session 3 Date:**	**Session 4 Date:**	**Level 4 requests**	**Session 5 Date:**	**Session 6 Date:**	**Probe Date:**

Key:
C= complied
NC= non-complied

APPENDIX 8
TREATMENT DATA SHEET

Child :
Treatment –Phase 1

REQUESTS	SESSION : DATE:	SESSION : DATE:	SESSION: DATE:	SESSION: DATE
1.				
2.				
3.				
4.				
5.				
6.				

Key
C – Complied
NC – Non-complied

APPENDIX 9
PROBE DATA SHEET

Probe session

Child:

Date:

Request given by:

What to do:

Below is a list of requests, these requests just need to be asked once (using the exact wording), and then recorded next to them if it was complied with or not complied with. Compliance is, once the request is given, the child will respond appropriately within 10seconds of the request being given and completes the request within 40 seconds or without inappropriate pausing, such as doing something on the way to completing the request.

If the request is complied with, then **enthusiastic** and varied praise should be given, such as "awesome job", "that's such great work give me a high five", "I love the way you listened then, good work". If non compliance occurs after the request is given then, non compliance is ignored, so no reaction given.

How to deliver the request:

- Only give the request once so no repetition of the request
- No prompts given while / after request is made, such as helping with the request
- Attention is gained before request is made
- Use of a firm voice, but still polite voice
- Request presented naturally, and presented when it would likely occur

Request	Compliance	Non compliance
1.		
2.		
3.		
4.		
5.		
6.		

APPENDIX 10
CHILD 3 PROBE DATA SHEET

Probe session

Child:

Date:

Request given by:

What to do:

Below is a list of requests, these requests just need to be asked once (using the exact wording), and then recorded next to them if it was complied with or not complied with. Compliance is, once the request is given, the child will respond appropriately within 10seconds of the request being given and completes the request within 40 seconds or without inappropriate pausing, such as doing something on the way to completing the request.

If the request is complied with, then **enthusiastic** and varied praise should be given, such as "awesome job", "that's such great work give me a high five" along with the lollie she chooses out of the 6 I have supplied, this should be done straight away so reinforces need to handy. If non compliance occurs after the request is given then, non compliance is ignored, so no reaction given.

How to deliver the request:

- Only give the request once so no repetition of the request
- No prompts given while / after request is made, such as helping with the request
- Attention is gained before request is made
- Use of a firm voice, but still polite voice
- Request presented naturally, and presented when it would likely occur

Request	Compliance	Non compliance
1.		
2.		
3.		
4.		
5.		
6.		

APPENDIX 11
INFORMATIONSHEET SENT TO SCHOOLS

Study On the Effectiveness Of Errorless Compliance Training

My name is Jana Noorland, I am a student at Waikato University and am doing my masters of applied psychology. For this I am doing a study on the effectiveness of an intervention called Errorless Compliance Training, which is used to increase child compliance in a non-aversive manner.

Errorless compliance training is a process where children are taught to comply with requests gradually. Initially the child's likelihood of following various types of requests is established. Then the child is given a series of requests that they have a high likelihood of following. When the child complies with a request this will be followed by social reinforcers such as praise, high fives etc, and when a request is not followed this behaviour is just ignored. Once they are following these initial requests consistently, requests that they have, in the past, followed less often are introduced gradually. This can result in the child complying with these less likely requests. It seems that this is because of the reinforcement received for complying with the earlier requests. This intervention has been shown to be successful with children with developmental disabilities over a range of ages, in both education and home settings. This procedure requires about 3 sessions a week, with the sessions lasting approximately 30 mins.

My research is to replicate this procedure with children, to test the effectiveness of Errorless compliance training with this age group, and to also test whether this procedure is an effective method to teach those that work with children who display non compliant behaviour. So for this part of the study I am looking for teachers, teacher aides or education support workers who I can teach the Errorless compliance training procedure to, so they are able to implement the procedure with child who display noncompliant behaviour under my supervision. All data sheets and requests that are needed to be asked at specific sessions will be given and organised by myself. So this will only require an initial session to teach the procedure, then 30 mins, three times a week to ask the requests, and record whether the request was complied with or not.

Some requirements for this study is that the child is able to follow some requests consistently when asked, and that there is some requests that they are able to comply with when asked, but choose not to. Also that the teachers, teacher aides or education support workers, works with the child for at least the three sessions a week.

If this is a programme that may benefit some staff and children at your school and you would like some further information please do not hesitate to contact me or my supervisor Prof Mary Foster on:

Jana Noorland
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Jmn16@waikato.ac.nz

Mary Foster
8384466 Ext 8400
m.foster@waikato.ac.nz

APPENDIX 12
ECT OUTLINE

Errorless Compliance Training (ECT) was developed by Ducharme and Worling (1994) as an alternative to traditional compliance training methods such as aversive consequences (time out). Errorless compliance training is a process where children are gradually and systematically taught to comply with requests.

Errorless compliance training involves the use of behavioural momentum and errorless learning. Behavioural momentum is a series of requests that the child has a high probability of complying with (high probability requests) are followed by a request that the child previously has complied with less (a low probability request) and this can result in the child complying with the low probability request. It is said that the high probability requests result in what is termed a momentum of compliance and this leads to the compliance with the low probability request.

Errorless learning, is where the number of low probability requests is gradually faded, in an attempt to maintain high rates of correct responses, that is trying to make sure compliance continues.

Another aspect that is part of ECT is requests delivered appropriately. Those who implement errorless compliance training are taught how to give requests, such as to use a firm voice, to avoid repeating the request immediately and to use 'stating' rather than 'asking', gaining the child's attention before giving the request.

<u>What is Errorless Compliance Training</u>

Errorless compliance training begins with an observational assessment, used to determine the probability of compliance to a range of requests. As part of the assessment parents or teachers fill out a Modified Compliance Probability Checklist, where they rate the likelihood of children complying to common requests. Level one being always and level four being rarely. The responses from the checklist are the basis for deciding on the requests to include in the Observational Probability Analysis. In the Observational Probability Analysis requests from each of the four levels are presented to the child a specific number of times. Whether each of the requests is complied with or not is recorded, with no consequences being

given. From this observational assessment, the requests are categorised into the four levels, level one is requests that are “almost always” complied with (76 – 100%) , level 2 is requests that are “usually” complied with (51 – 75%), level 3 “occasionally complies” (26 - 50%) and level four being “rarely complies” (0- 25%)

During the early stages of errorless compliance training a high number of level one requests are given, social attention is given for compliance, with noncompliance being placed under extinction, i.e., no consequences. Lower probability requests are slowly and gradually faded in, this is done at a rate which ensures compliance continues. So when compliance reaches 75% of the current level’s (phase) requests, over three consecutive sessions, a transition phase occur. A transition phase is where the requests from the current level and requests from the level above are both presented alongside each other, to ensure a smooth transition in compliance between the two levels (phases). This continues until there is 75% compliance across two consecutive sessions. After a transition phase the next phase with the next level of requests is introduced and this process continues for all four phases.

Where it has been effective

Children with intellectual disabilities / developmental delays

Ducharme, Snajuan and Drain (2007) evaluated errorless compliance training with three boys diagnosed with Asperger’s syndrome, with the interventions carried out by the parents of the participants, in the participants’ homes. The results showed that all three participants had substantial improvements in compliance during and following the intervention, with compliance generalising to commands not used in the intervention (pp.341).

Ducharme, Popynick, Pontes and Steele (1996) showed similar results, with five children with developmental delays and oppositional behaviour. Parents were again trained to implement the intervention, all children demonstrated “high levels of compliance” during the treatment and at a long term follow up assessment.

Errorless compliance training has also been demonstrated to increase compliance in a classroom setting by Ducharme and DiAdamo (2005).

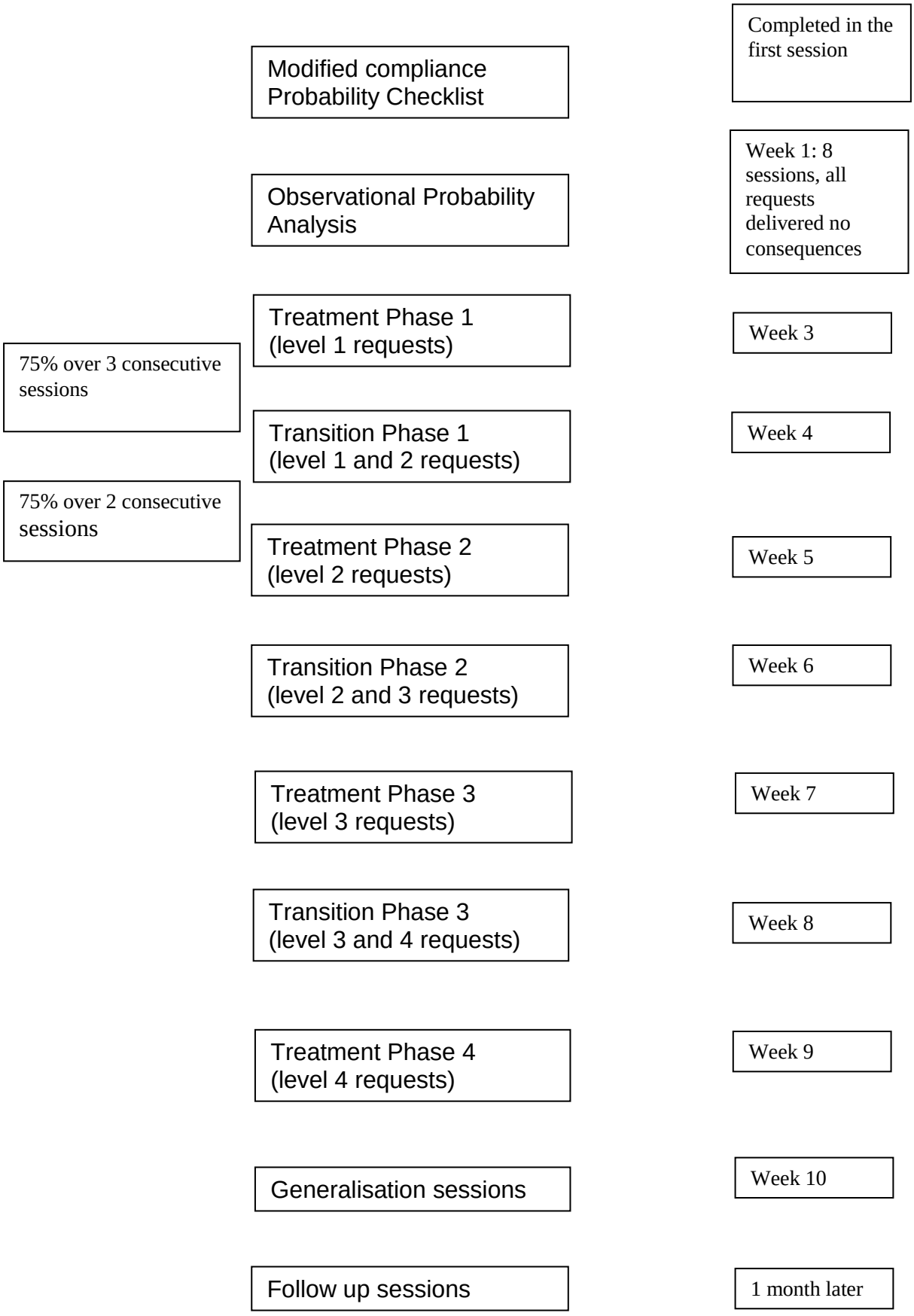
These researchers evaluated its effectiveness in a classroom of a special education setting with two 5 year old girls diagnosed with Down Syndrome. In this study a graduate student implemented the intervention in the classroom. The results showed a significant increase in compliance by both of the participants, with these results generalising to requests made by the teacher after treatment had finished.

Typical developing children

Errorless compliance training has been used by parents suffering from disabilities associated with brain injuries, who had either typical developing children or children with oppositional behaviour. Ducharme, Spencer, Davidson and Rushford (2002) used errorless compliance training implemented by parents with disabilities. Twelve parents suffering from cognitive deficits, impulsivity and / or emotional instability were taught to implement the treatment procedure with their oppositional children. The results showed improvements in the compliance with the mean improvements being more then 40% for all 12 children, and follow up assessment showed compliance levels were maintained and generalised to requests not in the treatment.

Errorless Compliance Training has been used to teach abusive parents an alternative method to help them to increase their children's' compliance in a non coercive manner. Ducharme, Atkinson and Poulton (2001) taught errorless compliance training to two physically abusive mothers with children that displayed severe behavioural problems, including non compliance, to increase the children's compliance. Results showed that the two participant's compliance significantly increased throughout the treatment, with these results being maintained and generalising to requests not part of the treatment in the 6 month follow up.

APPENDIX 13
METHOD STEPS



APPENDIX 14
PRESENTION OUTLINE

Errorless Compliance Training

What we are going to cover today:

- What is non compliance and why is it a problem
- What is Errorless Compliance Training
- The procedure of Errorless Compliance Training
- How to complete the Compliance Probability Checklist
- The definition of compliance and examples
- How to deliver the requests
- How to record the data

What is non compliance and why is it a problem

- Forehand and McMahon (2003) define non-compliance as being the "refusal to initiate or complete" an instruction given by another person
- Non-compliance in school settings can interfer with the child's learning and that if non-compliance is at a level of over 40% then this may damage a child's education by limiting the number of instructional opportunities followed by the child. Not only does the child who is being noncompliant miss out on learning opportunities, other children may also be affected. (Rhode, Jenson and Reavis, 1993)

What is Errorless Compliance Training

- ECT was developed by Ducharme as an alternative to traditional compliance training methods, like aversive consequence such as time out.
- ECT is a process where children are gradually and systematically taught to comply with requests
- Errorless Compliance Training involves the use of behavioural momentum, errorless learning and appropriate request delivery.

Procedure

Step 1
Compliance Probability Checklist

- Begins with completing the Modified Compliance Probability Checklist, this is :
- 100 commonly used requests in the classroom are broken down into sections of requests. Teacher aides and / or teachers rate the likelihood of compliance to common requests in the classroom, 1 to 4. 1 being almost always complies, 4 being rarely complies. So requests are placed into four groups :

1= Almost always complies
2 = Usually complies
3 = Occasionally complies
4 = Rarely complies

- The responses from the checklist are the base for deciding on the requests included in the Observational Probability Analysis

Step 2

Observation Probability Analysis

- In the Observational Probability Analysis, requests from each of the four levels are presented to the child at least eight times.
- Whether each of the requests are complied with or not is recorded. Consequences for compliance and non-compliance are the same as what you would normally do with the child.
- From this observational assessment, the requests are categorised into the final four levels.

Step 3

Begin the programme

- During the early stages of Errorless Compliance Training level one requests are given, social attention or a specific reinforcer is given for compliance. Noncompliance is ignored, so no consequences. When compliance reaches 75% of the current levels requests, over three consecutive sessions, a transition phase occurs.

Step 4

Transition phase

- A transition phase is where the requests from the current level and requests from the level above are both presented alongside each other to ensure a smooth transition in compliance between the two levels. In the transition phase, two requests from the current phase and two requests from the next phase are given. This continues until there is 75% compliance across two consecutive sessions.

Step 5

- After a transition phase the next level of requests is introduced, and this process continues for all four phases.

Step 6

Generalisation

- Generalisation is the occurrence of behaviour in a context (e.g. settings, situations, and individuals) different to those in which the behaviour was learnt in. It is important that behaviour generalises to novel contexts and that it does not occur only in the context in which it was learnt. Generalisation is tested in Errorless Compliance Training by using some level three requests and level four requests that were not used in the treatment phases. These are presented after all the treatment phases are completed.

Inter-observer Agreement

- In order to ensure the validity of the data, I am also required to come in and collect data on compliance / non compliance of sessions throughout the programme. This will happen every week or two. During this time I will be available for questions and will give more resources when required.

Compliance Probability Checklist

- I will supply you with a checklist to fill out, rating the requests 1 to 4, following the definition of compliance which I will explain soon.
- Some of the requests may not be applicable or learnt, so in these cases tick the column that indicates this.
- From each level we need 6 requests, so there will be 6 level 1's etc. If there are certain requests you would like in each of the levels please also tick the box saying the request is important.
- Lastly there is room at the end to write some requests that are a particular problem for the child that you would like to be added into the programme, or if there is a certain request that the child will always follow that is not included in the checklist.

How to do the Observation Probability Analysis

- Give each request once a day, in any order, while you are involved in normal classroom activities.
- Record if the request was complied with or not on the data sheet.
- Consequences for compliance and non-compliance are the same as what you would normally do with the child.
- Do this on eight different days.

Delivering the requests naturally

- Even though requests can be delivered in any order at anytime of the day, they do need to be delivered naturally. This means, asking the request when they are likely to normally occur, for example if the children have to put shoes on before going outside, then this request should only be made then, not in the middle of an inside activity.

What is compliance and non-compliance

- Compliance is defined as; when a one step request (verbal instruction) is given, the child will initiate a response to this request within 10 seconds and will complete this request within 40 seconds, or without inappropriate pausing.

Examples of compliance

- When asked to come here, will stop what they are doing and follow the request.
- When asked to put away their books, the child will pick up and take the books to the bookshelf to put them away. If this took 2 minutes to complete, this is still compliance even though the time it took to

complete the task was longer than 40 seconds and there was no time spent pausing such as playing with other objects or doing something else.

Examples on Non-compliance

- When asked to wash hands, will walk slowly, pausing, and playing with objects on the way.

- When asked to come here, the child will wait for a minute before coming.

- When asked to put something away, the child will continue to play with it for awhile before putting it away.

- When asked to put a sock on, will play with it, flicking it, before putting it on.

How to deliver requests

- Request only delivered once, this means that the request is not repeated several times when the child does not respond.
- No prompts given while / after request is made, so no further discussion or prompts are made once the request is delivered.
- Requests are not given as a question, such as “Can you go do ….” Or “Could you pick up your…” The request needs to be phrased as a command, such as “Give me ...” or “Pick up your”
- Ensure attention and eye contact gained before request is made
- Use a firm but polite tone of voice when delivering requests
- Request is presented naturally, so requests are delivered at times that are appropriate for that specific request to be made.

APPENDIX 15

100 Ways to Say 'Very Good'

If there is any single bit of advice to give parents to improve child behaviour, it is positive reinforcement. In order to never run short of appropriate words for this purpose, use this list.

1. You're on the right track now!
2. You're doing a good job!
3. You did a lot of work today!
4. Wow, you've figured it out.
5. That's RIGHT!
6. Now you have the hang of it!
7. That's the way!
8. You're really trying.
9. You're doing fine
10. Now you have it.
11. Nice going.
12. That's coming along nicely.
13. That's great.
14. You did it that time!
15. Great!
16. FANTASTIC!
17. TERRIFIC!
18. TREMENDOUS!
19. You outdid yourself today.
20. How did you do that?
21. That's better
22. EXCELLENT!
23. That's a good (boy/girl).
24. Good job (name).
25. That's the best you've ever done.
26. Good going.
27. Keep it up.
28. That's really nice.
29. WOW!
30. Keep it up!
31. Much better!
32. Good for you!
33. That's very much better!
34. Good thinking.
35. Exactly right!
36. SUPER!
37. Nice going.
38. You make it look easy.
39. I've never seen anyone do it better.
40. You're doing much better today.
41. You must be pleased with that effort.
42. Not bad.
43. Superb!
44. You're getting better every day.
45. WONDERFUL!
46. I knew you could do it.
47. Keep on working on it, you're getting better.
48. You're doing beautifully.
49. That's the way to do it.
50. Keep on trying.
51. I like the way you handled that.
52. You're the best.
53. Nothing can stop you now.
54. You've got it now!
55. You're very good at it.
56. You certainly did well today.
57. I'm very proud of you.
58. You're learning fast.
59. You've just about got it.
60. That's good!
61. I'm proud of the way you worked today.
62. I'm happy to see you working like that.
63. That's the right way to do it.
64. You're really learning a lot.
65. That's better than ever.
66. That's quite an improvement.
67. That kind of work makes me happy
68. MARVELLOUS
69. Now you've got it figured out.
70. PERFECT!
71. Fabulous!
72. FINE!
73. You're really thinking.
74. That's it.
75. You worked it out fast.
76. You remember!
77. You're really improving.
78. I think you've got it now.
79. Well, look at you!
80. You're really learning now.
81. Good work!
82. Outstanding!
83. I like that.
84. Couldn't have done a better job myself.
85. Now that's what I call a fine job.
86. You did that very well.
87. Congratulations!
88. That was first class work.
89. SPLENDID!
90. SENSATIONAL!
91. That's the best ever.
92. Good remembering.
93. You haven't missed a thing.
94. It's a pleasure to teach you when you work like that.
95. You really are a pleasure to be with.
96. Congratulations. You got (number of behaviours) right.
97. You've just about mastered it.
98. One more time and you'll have it.
99. You have been practising.
100. Good one.