Cardiff Metropolitan University
Prifysgol Fetropolitan Caerdydd

B.Sc.(Hons) Speech and Language Therapy

The views of Speech and Language Therapists regarding the approaches to, and issues surrounding the diagnosis and treatment of Developmental Verbal Dyspraxia

April 2018
Acknowledgements

Hoffwn ddiolch o galon i fy nhiwtor, Rhonwen, am ei chefnogaeth, nid yn unig yn ystod y cyfnod o ysgrifennu’r prosiect, ond dros y bedair blwyddyn diwethaf.

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To the lifelong friends I have been so lucky to make throughout my time at university, and my fantastic friends back home - thank you for all for making sure I remember how to have fun in what's been the best four years of my life.

To my family, especially my Mam and Dad, thank you for the love and support you've given me from day one, and to my brother for sparking my interest in dyspraxia.

And lastly, a special thanks to Oli, you have never once lost faith in me, and have been nothing but supportive during my toughest times at university. Thank you for everything.
DECLARATION

I hereby declare that this dissertation is the result of my own independent investigation under the supervision of my tutor. The various sources to which I am indebted are clearly indicated. This dissertation has not been accepted in substance for any other degree and is not being submitted concurrently for any other degree.

Candidate's signature: ____________________

RESEARCH DATA PRIVACY

I acknowledge the issue of research data privacy and undertake not to share research data in any form without the explicit approval of their supervisor.

Candidate's signature: ____________________
Abstract

Background: There is currently no validated list of diagnostic features to determine the differential diagnosis of Developmental Verbal Dyspraxia (DVD), nor has there been any optimum assessment and management approaches recommended with this client group. Yet, the term DVD seems to provide clinicians with a category for children whose profiles differ from those with a speech delay or disorder, and who produce atypical and inconsistent speech patterns. In an online debate posted by Afasic, the validity of DVD as a childhood speech disorder is being questioned. Its surface phonological error patterns are similar to an Inconsistent Phonological Disorder, which makes the differential diagnosis difficult. Care pathways for these subcategories of speech impairment are the same, and therefore the question has been raised as to whether there is need for separate diagnoses, if the outcome for management is the same.

Aims: To explore Speech and Language Therapists’ (SLTs’) typical practice when working with a child with suspected DVD, and secondly, to explore SLTs’ perspective on the process of diagnosis, and reflect on their practice.

Methods and Procedure: Semi-structured interviews were carried out with 5 SLTs. The interviews were transcribed and later analysed using thematic analysis, where themes were discovered and later discussed.

Outcomes and Results: The participants demonstrated their knowledge surrounding the characteristics of DVD, and discussed how they would approach diagnosis, assessment, and management. Despite the controversy surrounding its diagnosis, the SLTs interviewed felt able to manage DVD, and were comfortable in their ability to make the diagnosis, however there were other factors that contributed to the implications and motivations of labelling DVD. Participants were motivated to provide a diagnosis of DVD if the child would receive adequate service provision. Implications to providing a diagnosis included the impact of the diagnosis on the child, parent, and teachers, in terms of it being a lifelong difficulty, and the expectations imposed post diagnosis, and also service constraints.

Conclusion: Finding it difficult to arrive at a diagnosis could be attributed to a lack of validated list of diagnostic features for DVD, however this did not seem to be the case for the SLTs interviewed in this particular study. Concern was raised over the lack of validated list of diagnostic features and optimum assessment and management strategies for DVD, with the reliance to guide clinical decision being influenced by literature, suggesting the need for further research and clarification of DVD. Service constraints in relation to DVD raise the question as to whether SLTs’ perspectives and behaviours towards diagnosis would change, given the availability of adequate service delivery models.

(In the style of The International Journal of Speech, Language and Communication Disorders)
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Introduction

Speech and Language Therapists (SLTs) have a role to play at the universal, targeted and specialist levels of need, in collaboration with the multi-disciplinary team. Dodd (2014) proposed that speech impairments could be categorised in terms of surface phonological error patterns. Subgroups of the umbrella term ‘speech impairment’ include: articulation disorder, phonological delay, consistent phonological disorder (CPD), inconsistent phonological disorder (IPD), and developmental verbal dyspraxia (DVD). DVD, also referred to as Childhood Apraxia of Speech (CAS) and Developmental Apraxia of Speech (DAS) in American literature, is a pervasive disorder that reflects impairment in articulation and prosody, which in turn leads to communication breakdown and social and emotional issues that surround this. This research will refer to the term DVD, in line with UK research. The use of the word ‘verbal’, reflects the impact not only on speech and prosody, but also considers the potential impact on language and other communicative elements (RCSLT, 2011). The term ‘developmental’ specifies a pattern of development that is different from the 'normal' pattern of development, in relation to chronological age (Grunwell, 1987).

There has been little success in determining the incidence or prevalence of DVD, however Shriberg, Aram and Kwiatkowski (1997) estimated from clinical referral data that CAS [DVD] may occur in 0.1-0.2% of children. DVD is therefore a rare disorder. Nonetheless, this disorder can have detrimental,
pervasive consequences that can carry into adulthood, thus lifelong provision and support from social, health and education sectors may be necessary (RCSLT, 2011). As with all forms of dyspraxia, the cause of DVD is unknown, however there is speculation that it could be due to a specific small birth injury, or a brief oxygen starvation, or a minute difference in the structure of the speech centre in the brain (Brookes, 2007).

The validity of DVD as a childhood speech disorder is a largely debateable topic in speech and language therapy (Shriberg et al., 1997). Despite the term DVD being used widely, there is currently no validated list of diagnostic features that must be present in order to diagnose a child with DVD. However, it offers clinicians a category for children whose speech profiles differ from those with a speech delay or disorder, and who produce atypical and inconsistent speech patterns. Yet, this differential diagnosis is not clear-cut, and in April 2017, Afasic, a UK charity establishment that represents children and young people who have speech, language and communication needs, posted an online debate regarding DVD and its surrounding issues: is it an appropriate term to use for children? Is it an accurate diagnosis? Does it exist?

A position paper was written by RCSLT in 2011, which also discusses some of the controversies surrounding the diagnosis of DVD, stating that there is no single approach that is identified as optimum in the differential diagnosis and overall management of DVD. These issues associated with the assessment and management of DVD impedes problems on planning individualised
intervention to children with suspected DVD, and research, making the role of an SLT, undoubtedly, very difficult.

This research aims to explore SLTs’ typical practice when working with a child with suspected DVD, and secondly, to explore SLTs’ perspective on the process of diagnosis and reflect on their own practice.

Literature Review

1.1 Classification of DVD

Childhood language disorders have received far less recognition than other neurodevelopmental conditions such Autistic Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), and developmental dyslexia, all of which have a defined set of characteristics that can be observed in order to make a more reliable diagnosis.

Although there is no specific definition nor agreed set of diagnostic characteristics, there is general agreement regarding the types of characteristics that contribute to the diagnosis of DVD. Some segmental and suprasegmental features have gained some consensus among researchers in defining the term. These include; (1) inconsistent errors on phonemes in repeated productions of words or syllables, (2) lengthened and disrupted co-articulatory transitions between sounds and syllables, and (3) inappropriate prosody (ASHA, 2007). Additional identified speech characteristics that
children with DVD may present with include: difficulty with isolated consonant production, vowel distortion, and imitation being worse than spontaneous output (Davis & Valleman, 2000); increase of errors with word length and phonological complexity (Ozanne, 2005); metathesis and trial-and-error behaviour (Rosenbek & Werts, 1972); and poor intelligibility (Williams & Stephens, 2004). Moreover, although there is often a focus on the speech difficulties that children with DVD present with, other associated non-speech characteristics include: delayed language development, gross/fine-motor coordination (Ozanne, 2005), and slow progress in treatment (Pollock & Hall, 1991).

Thus, SLTs have a role in identifying these characteristics in a child and providing a diagnosis if appropriate. Diagnostic labelling is used as a means of communication between health professionals, and is particularly important in speech and language therapy as they ensure children receive suitable intervention that targets their specific needs. Knowing a disorder by name and associated functions allows an SLT to plan the most relevant and advantageous therapeutic strategies to support the child, and a diagnosis can result in an advancement in additional support and provisions (Dittrich & Tutt, 2008). For example, having a diagnosis of DVD may allow placement within a language unit, or a dedicated amount of hours of 1:1 support from a teaching assistant. Diagnoses are also used to indicate incidence and prevalence rates, and when increases in such data occur, they can be used as an advocate for improved access and availability of treatment resources, and also emphasises the need for research and further training for professionals.
Diagnostic labels increase our knowledge of the nature and causes of such problems, and by defining a problem with a diagnostic label, this can allow for greater understanding, not only for professionals, but for the individual and their parents also.

However, having a diagnostic label can be problematic if the label is taken to mean that the child has a definite disorder with distinctive characteristics or ‘symptoms’, which can be distinguished from both typical development and other developmental disorders (Bishop, 2017). DVD has a wide range of symptoms associated with it that are due to the cumulative effect of multiple levels of impairment (Stackhouse, 1992). A single diagnostic marker remains elusive in the diagnosis of DVD. In describing DVD, reference is often made to a ‘symptom cluster’. Research tends to focus on individuals that display ‘characteristics of DVD’ as opposed to being diagnosed with DVD itself. Diagnosing a child with ‘characteristics of DVD’ may be seen as safer option, due to the uncertainty and confusion over diagnosis. On the other hand, others argue that a symptom cluster can be applied clinically without concern over whether children meet the exact criteria, as the presence of these features informs intervention (McCabe, Rosenthal & McLeod, 1998).

Terminology presents a major challenge to the field of speech and language therapy, and has been described as ‘inconsistent, variable, inadequate, and in a state of chaos and bottleneck’ (Speech Pathology Australia, 2008). As shown with the Specific Language Impairment (SLI) debate over terminology and classification of childhood language difficulties, diagnosis in the field of
paediatric speech and language therapy can be a problematic issue. The term Developmental Language Disorder (DLD) has recently replaced the previously used term SLI after a consensus exercise that was carried out in 2016 (Bishop, Snowling, Thompson & Greenhalgh, 2016). The diagnosis of SLI had no agreement on the criteria for the label, and was based on a number of exclusionary criteria, i.e. children with SLI have persisting atypical language development that affects one or more areas of language, which is not associated with any other developmental disorder, acquired neurological problem, sensory impairment, or cognitive delay (Leonard, 1998). This definition meant excluding children from the category when they may in fact have the same difficulties, or benefit from the same interventions as the children who do meet the criteria for SLI. Thus, the term SLI seemed not to reflect clinical realities and excluded many children from services (Ebbels, 2014).

Another issue of debate was the use of the label ‘disorder’. This highlighted a particular concern with the potential of labels to stigmatize, as they may be associated with negative stereotypes created by the public that arises from their social environment (Bishop, 2017). Historic studies have shown the detrimental effect a label can have on the perception and treatment of a person, e.g. Rosenhan’s revolutionary study, ‘On Bringing Sane in Insane Places’ (1973), which showed how a diagnosis of schizophrenia can cause others to interpret one’s behaviours in accordance with their diagnostic label. Families may thus be discouraged to seek a diagnosis of developmental
disorders, due to the potential subsequent stigma that is attached (Kinnear, Link, Ballan & Fischbach, 2015).

However, having a diagnosis can also legitimise characteristic behaviours, and can thus be advantageous as it can mean that parents can acquire knowledge and justify actions to better the situation. Diagnostic labels can allow for teachers and parents to judge the appropriate and necessary steps in managing behaviours that are associated with disorders (Mueller, Fuermaier, Koerts, & Tucha, 2012). Thus, despite the potential cause of stigma, diagnostic labels could also ensure language problems are not underestimated, and could help avoid stigma by providing an explanation for behaviours that might otherwise be disapproved of (Bishop, 2017).

The movement in terminology from SLI to DLD was important for epidemiological purposes, for clarity in individual research studies so that participants could meet specific criteria that were consistent across different studies, and for policy makers and service providers to gain a clearer understanding of what DLD is. It is important that SLTs reach a consensus on the terminology, so that service provision can move forward and these children and their families can be recognised (Bishop, 2017). This statement can undoubtedly apply to DVD, also.

1.2 **Identifying the underlying deficit**

Close collaboration between health and education services, and the family is deemed to be the best standard to obtain the most accurate and thorough profile of a child who has communication needs (RCSLT, 2006). Children
acquiring spoken language vary in terms of age of onset, rate of development and types of developmental errors made (Dodd, Holm, Crosbie & Hua, 2010). SLTs are responsible for determining whether identified speech processes reflect delayed or disordered acquisition, or whether they are age appropriate. Developmental norms can be used as a reference for SLTs, teachers, and parents, to determine whether a child requires intervention. However, in order to prevent misidentification of children’s speech abilities/disabilities, norms must be used alongside clinical judgement of qualified specialists (RCSLT, 2011).

The psycholinguistic framework (Stackhouse & Wells, 1997) was designed to identify underling deficits in speech processing, which subsequently inform management. Deficits can occur in peripheral hearing, phoneme discrimination, the store of accurate phonological representations, and phonological planning and/or execution. DVD can present with multiple deficits affecting phonological and phonetic planning, as well as motor programming (Dodd, 2014), therefore making a reliable identification clinically challenging.

1.3 **Differential diagnosis: Inconsistent phonological disorder (IPD) vs DVD**

It is recommended that the differential diagnosis and overall management of a patient that exhibits characteristics associated with DVD is led by a specialist SLT with expertise in the field of speech impairment (RCSLT, 2006). This is a challenging procedure due to many overlapping features between different
types of speech impairment, and lack of validated features that determine a diagnosis of DVD.

In response to the debate posted by Afasic, Pert (2017) argues that in most cases, the term IPD more accurately describes children's difficulties. Children with IPD produce at least 40% of their words inconsistently (Holm, Crosbie & Dodd, 2007). ‘Token-to-token inconsistency’ is the defining characteristic of IPD however it is also one of the characteristics of CAS [DVD] (Bowen, 2011). Further common characteristics of DVD and IPD include: missing vowels, consonants, and syllable structures, omissions of segments and structures, segmental errors, altered prosody, increased errors with sentence length and/or complexity, and weak syllable deletion/cluster reduction (Bowen, 2011). Thus, none of the three key characteristics of DVD cited by ASHA (2007) are specifically and solely associated with the diagnostic features of DVD. Despite ASHA’s extensive literature review, it was concluded that there is no validated list of diagnostic features that differentiates DVD from other types of speech impairment, including IPD.

In the Speech Sound Pathway for Children, devised by Wales Speech and Language Therapy Advisory Forum (WSLTAF) (2013), a child with suspected IPD or DVD follows the same pathway. It is recommended that both subgroups of a speech disorder require intensive 1:1 therapy, which is ongoing rather than consolidation breaks. Children who present with a speech impairment, which includes IPD and DVD, may be unintelligible, even to familiar listeners. This impairs their means to communicate, which is stated as
one of the three fundamentals to functional communication, along with reasons to communicate, and the opportunities that arise (Money & Thurman, 1994). Therefore, support is required from a social perspective, allowing the child to communicate and interact with those around them, as well as requiring remediation of their specific difficulty. This raises the question as to whether there is need for separate diagnoses for IPD and DVD, if the outcome for intervention is the same (Pert, 2017).

In an opposing article, Williams and Stephens (2017) argue for the existence of DVD as a separate and distinguishable speech disorder from IPD. Both ASHA (2007) and RCSLT (2011) acknowledge that DVD exists as a subtype of speech impairment. The RCSLT policy statement (2011) recognises that it is important for SLTs to distinguish between DVD and IPD. In doing so, one must carry out detailed assessments of speech, oral motor, language, voice and prosody, rather than focusing exclusively on the inconsistency of errors. The differential diagnostic descriptors of DVD and IPD have been summarised in Table 1. However, it must be noted that these descriptors are not definitive; they have been summarised in attempt to provide clarity for clinicians, however research into the differential diagnosis continues, and these descriptors are still being questioned.

<table>
<thead>
<tr>
<th>Inconsistent Phonological Disorder</th>
<th>Developmental Verbal Dyspraxia</th>
</tr>
</thead>
<tbody>
<tr>
<td>No feeding difficulties</td>
<td>Feeding difficulties</td>
</tr>
<tr>
<td>No oro-motor difficulties</td>
<td>Oro-motor difficulties</td>
</tr>
<tr>
<td>Low level of awareness</td>
<td>High level of awareness</td>
</tr>
<tr>
<td>Expressive language not reduced</td>
<td>Expressive language reduced</td>
</tr>
<tr>
<td>Good articulatory precision</td>
<td>Poor articulatory precision</td>
</tr>
<tr>
<td>----------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>No groping</td>
<td>Groping</td>
</tr>
<tr>
<td>Imitation better than spontaneous production</td>
<td>Spontaneous production better than imitation</td>
</tr>
<tr>
<td>Absent rules</td>
<td>Intact rules</td>
</tr>
<tr>
<td>Only have deviant patterns</td>
<td>A range of error patterns</td>
</tr>
</tbody>
</table>

*Table 1: Differential Diagnostic Descriptors by WSLTAF (2013)*

Moreover, DVD and IPD can be distinguished by their underlying deficit. Stackhouse (1992) proposed that the speech and language difficulties associated with the diagnosis of DVD could be the result of a single deficit or a combination of 3 levels of breakdown: phonological misrepresentations in the lexicon, inability to plan the speech output, and vocal tract incoordination. Ozanne (2005) agrees with this, and suggests that DVD should be considered as a symptom cluster involving the three output levels outlined in Stackhouse’s (1992) research. In comparison, IPD presents with suspected impairments in assembling phonological components of speech, but intact phonological representation, motor programming, and motor planning (Dodd et al., 2006).

Dodd, Holm, Crosbie, & McIntosh (2006) carried out a case study on a child with inconsistent speech patterns, and used the model of speech processing chain to identify the level of breakdown related to disordered speech. This subsequently helped with the differential diagnosis between DVD and IPD. Dodd et al. concluded that in this case, CAS [DVD] could be ruled out,
because despite inconsistent speech errors, the participant’s word production was better in imitation than in spontaneous speech. Further evidence against the diagnosis of DVD included adequate phone repertoire, absence of articulatory groping, use of a range of syllable shapes, fluent connected speech, appropriate prosody, and adequate speech motor control shown by oro-motor assessment, thus observing underlying deficits and surface patterns. Although it is not vital for all of these characteristics to be present when diagnosing DVD, ASHA (2007) and RCSLT (2011) acknowledge that this is what is typically observed in the speech of a child with DVD.

1.4 **Approaches to Assessment and Management of DVD**

There is no single assessment that can be used to give an accurate diagnosis of DVD; a profile of the child’s abilities should be built, which considers investigation into play, social skills, communication skills, verbal comprehension, expressive language, oral examination, phonology, articulation, voice, prosody, auditory skills, gross and fine motor skills, visual/tactile skills, non-verbal skills and emotional well-being (Williams & Stephens, 2004).

The diagnosis of DVD is based on ‘expert judgement of perceptual features’ (Murray, McCabe, Heard, & Ballard, 2015b), and therefore a definite diagnosis of DVD cannot be made in very young children, or children who are using very few words as assessment involves eliciting individual phonemes, and simple and more complex words, phrases and conversational speech from a child, depending on the child’s expressive language capabilities (Williams & Stephens, 2017). This will be done using a range of informal and
formal assessments. Phonological analysis is typically adopted by SLTs to reveal the child’s phonetic inventory, what phonemes the child can and cannot produce, and the relationship between the target sound and what the child produces.

Evidence-based research suggested that children with DVD require on-going, intensive input, as intervention entails repetitive planning, programming and production practice, with the overall goal being to re-learn motor sequences. ASHA (2007) recommend that children with DVD require individual, as opposed to group therapy, intensive intervention (i.e. 3-5 treatment sessions per week with an SLT). Sessions should be short and frequent, and practice between sessions, in addition to sessions with the SLT should occur. Frequent speech and language therapy sessions are essential to allow motor learning to take place (Caruso & Strand, 1999).

What distinguishes each therapeutic approach towards DVD is based on the clinician/researcher’s theoretical understanding of the condition. The literature has been dominated by two theoretical approaches: DVD can be understood as a motor planning/programming disorder, or as a linguistic/phonological impairment. However, more recent research has suggested that both approaches should be considered when identifying and treating symptoms of DVD. The Nuffield Dyspraxia Programme (NDP) adopts viewpoints from both theoretical perspectives, recognising both motoric and linguistic deficits (Williams & Stephens, 2004). Frequent and systemic practice is executed, with principles taken from motor learning theories, i.e. improving timing and
placement of articulatory movements through modelling, positioning, repetition, and the use of feedback. Integral stimulation is a popular method adopted with children with DVD, which involves emphasising the importance of listening carefully to speech sounds and watching the clinician’s articulatory movements (Caruso & Strand, 1999). The success of this form of intervention has been demonstrated in a randomised controlled trial, where NDP was compared with Rapid Syllable Transition intervention, which requires a child to match adult model on sounds, beats, and smoothness in order to be correct. Both of these interventions showed large treatment effects and significant generalisation to untreated stimuli (Murray, McCabe & Ballard, 2015a).

In contrast to NDP’s bottom-up approach, core vocabulary focuses on production of words that are deemed functional to the child, and words that are frequently used. This approach focuses on planning whole words rather than specific sound features. A list of these words can be developed based on informal observation, or by liaising with parents and teachers to determine what words are most functional to the child. Words are practised until they are produced consistently, rather than accurately (Dodd et al., 2006). This approach is typically adopted with children diagnosed with IPD.

1.5 **Aims of the study**
The role of an SLT in diagnosing and managing characteristics of DVD presents with a number of challenges and barriers. There may be perceived difficulties in diagnosing DVD due to lack of research and data, and its similarities to IPD. Moreover, there are factors such as stigma and service provision to consider when making the diagnosis. This study aims to explore...
the SLTs’ typical practice when working with a child with suspected DVD, and to explore the SLTs’ perspectives on the process of diagnosis by reflecting on their own practice.
Methodology

2.1 Introduction
There is currently no validated list of characteristics for the diagnosis of DVD. Optimal management strategies for this patient group are not standardised. In addition, there is confusion over the differential diagnosis of DVD and IPD. The aim of this study was to explore SLTs’ typical practice when working with children with suspected DVD, and to explore their perspective on the process of diagnosis and reflect on their own practice. A qualitative approach was adopted to fulfil these aims.

2.2 Design
A qualitative approach allowed for a richer and more detailed exploration of the SLTs’ views and opinions on the subject matter, which would not have been possible to achieve using quantitative methods. Qualitative research intends to generate knowledge grounded in human experience (Sandelowski, 2004). Semi-structured interviews were used as the source of data collection.

2.3 Participants
SLTs play an important and central role in the identification and management of children with DVD (RCSLT, 2011), and thus it was deemed appropriate to use SLTs as participants in this study. A purposive sampling technique was employed in order to represent SLTs with knowledge of and interest in DVD. Inclusion criteria for selection were that the participants were qualified SLTs with experience in childhood speech disorders or DVD. Participants
were recruited through therapists who have links to the SLT department at Cardiff Metropolitan University. All participants were female, and were working in South Wales. Their level of experience ranged from 2 years to 15 years and more.

<table>
<thead>
<tr>
<th>Participant No.</th>
<th>*Level of Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Recently qualified</td>
</tr>
<tr>
<td>2</td>
<td>Highly experienced</td>
</tr>
<tr>
<td>3</td>
<td>Highly experienced</td>
</tr>
<tr>
<td></td>
<td>Specialism: DLD</td>
</tr>
<tr>
<td>4</td>
<td>Highly experienced</td>
</tr>
<tr>
<td></td>
<td>Specialism: speech</td>
</tr>
<tr>
<td>5</td>
<td>Highly experienced</td>
</tr>
<tr>
<td></td>
<td>Specialism: speech</td>
</tr>
</tbody>
</table>

*Table 2: Participant Information*

*Recently qualified: qualified within the last 5 years

*Experienced: 5-15 years experience working as an SLT

*Highly experienced: over 15 years experience working as an SLT

*Specialism specified if applicable

### 2.4 Materials

An interview schedule (Appendix 3) was utilized, which was designed to address key themes within the interview. These themes are summarised in Table 3, and are discussed in turn within the interview schedule. The majority
of the questions within the interview schedule were open-ended. Probes and prompts were used to encourage topic expansion when required. The use of open-ended questions allowed the participants to share their responses in the least restrictive manner possible (Coolican, 2013). The order in which the questions were asked were subject to change during each interview, depending on answers given and how the conversation naturally flowed.

The semi-structured interviews were conducted face-to-face, and recorded using a Zoom H4N Audio Recorder. Semi-structured interviews allow for more leeway in following up on answers given, on whichever angle deemed important by the interviewee. This allowed for expansion on points made, which in turn helped gain a deeper understanding and exploration of the SLTs’ views and opinions. Semi-structured interviews are also said to have the most resemblance to naturalistic conversation (Brinkmann, 2013).

<table>
<thead>
<tr>
<th>Themes to address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostic criteria of DVD</td>
</tr>
<tr>
<td>Feelings surrounding uncertainty of diagnosis</td>
</tr>
<tr>
<td>How the SLT would assess DVD</td>
</tr>
<tr>
<td>SLT’s perceived confidence in making a diagnosis of DVD independently</td>
</tr>
<tr>
<td>Different management strategies/programmes adopted by SLT with children with DVD, and how this is administered (intensity)</td>
</tr>
</tbody>
</table>
Differential diagnosis: IPD vs DVD

How management differs in a child with DVD in comparison to a child with IPD

Table 3: Themes addressed within semi-structured interview schedule

2.5 Procedure

Participants were contacted by email (Appendix 1) where an information sheet (Appendix 2) was attached. SLTs were then chosen on the basis of who expressed interest in participating. A convenient time and location for the interview to take place was arranged. Interviews took place either in the participants’ workplace, or in a public meeting point. During the briefing prior to the interview, it was confirmed that participants were clear about the aims of the study. A period of 30-45 minutes had been set aside for the interviews but the actual time taken ranged from 18-30 minutes.

The verbal recordings were transcribed in order for data analysis to take place. Each interview transcription was assigned an interview number, ensuring the anonymity of each participant.

2.6 Analysis

Symbols from the Jefferson Transcription System were utilised during the transcription process (Jefferson, 2004). Data was transcribed flexibly as opposed to detailed coding line by line, as it was felt that a detailed level of breakdown was not needed to identify themes central to the focus of the research.
The interviews were analysed using thematic analysis. Thematic analysis is a widely used method for identifying, analysing, and reporting themes within qualitative data. This approach is flexible, and can be modified to meet the needs of a study (Braun & Clarke, 2006). Thematic analysis was deemed appropriate to suit the objectives of this research, as themes could be drawn from the data and collated in order to fully explore and decipher SLTs’ views on the assessment, management and differential diagnosis of DVD.

Nowell, Norris, White, & Moules (2017) suggest the following six stages in thematic analysis, in order to systematically analyse and increase the verification of the results. The first stage of thematic analysis involved identifying patterns of meaning from the data, by reading and familiarising with the transcripts. Next, coding the data helps focus on specific characteristics of the data. It is during this stage that important sections of the data are identified, and are labelled in accordance to a theme or issue (King, 2004). These themes were colour coded, and a key specifying which colours correlate to which theme is summarised in Appendix 4. The themes noted in Appendix 4 do not represent the finalised four key themes that are discussed in the text, as the themes were refined further in the following stages. In the third stage, potential themes are collated, and in the fourth stage, the coded data is organised into relevant themes. In stage five, these themes are refined and reviewed in order to determine whether the themes accurately represent what the participants meant. Finally, the sixth stage involves writing the report that contains an account of the data and its associated themes (Braun & Clarke, 2006).
2.7 Ethical Considerations

Ethical approval was granted by Cardiff Metropolitan University School of Health Sciences Ethics Committee (Appendix 8).

Verbal and written consent was gained, and participants signed a consent form which confirmed they understood that the interview was to be recorded, they could be directly quoted in the report, the information gathered would be anonymous at all times, and their entitlement to withdraw from the study (Appendix 7).

Careful consideration was put into designing the interview schedule, so that it contained questions that were non-invasive and non-threatening. Participants were reminded at the beginning of the interview that they were under no obligation to answer questions that they felt uncomfortable with, and that they could withdraw their information at any time during data collection, and up to two weeks after the interview had taken place.

All data was stored securely on a password protected laptop, and the consent forms that included personal details of the participants were stored separately from the data and are not included in any outputs arising from the research. The consent forms were retained in accordance with University regulations.
Results

3.1 Introduction

Despite the lack of research and validated list of diagnostic features, the term DVD continues to be used by SLTs. There are barriers and motivators to providing a diagnosis. The aim of this study was to explore SLT’s’ typical practice when working with a child with suspected DVD, and secondly, to explore SLTs’ perceptions on the process of making the diagnosis of DVD.

Five paediatric SLTs participated in this study. All participants were female, and were currently working in South Wales. Participants had a range of experience in working in this field, from 2 years to more than 15 years.

This section provides a discussion of the most significant themes that arose from the interviews. Through thematic analysis, four main themes were identified and colour-coded within the transcriptions. Within this, subordinate themes were acknowledged. This is demonstrated in Table 4 below. Each theme will be discussed in further detail in the report. Each participant is referred to by a number, and line numbers of their quotes have been included for reference purposes.

<table>
<thead>
<tr>
<th>Main Themes</th>
<th>Subordinate Themes</th>
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### 3.2 Making the Diagnosis of DVD

#### 3.2.1 Differential Diagnosis

Overall, the most commonly noted characteristic of DVD was disordered speech production, including consonants and vowels. These complexities with speech sounds become more profound in multisyllabic words, and are less evident in spontaneous speech as opposed to imitation. ‘Groping for sounds’ (P1/L4), and ‘difficulties with oral motor movements’ (P1/L6) were also considered important characteristics of DVD. Emphasis was put on the
‘prolonged nature of the difficulties’, which also applied to children with IPD (P3/L119).

Inconsistency of speech errors was deemed a differential diagnostic marker. P4 believes that in a child with IPD, there is ‘no way you could phonologically explain’ the child’s inconsistent errors. In the errors made by a child with DVD, ‘you’d often be able to find a pattern’ (P4/L210). In contrast, four participants said that inconsistent speech errors were also a characteristic associated with DVD and IPD, thus disallowing this feature from standing as a differential diagnostic characteristic.

Characteristics were not limited to expressive difficulties. P2 stated that ‘dyspraxic children are more aware and have more insight into their difficulties’ (P2/L297). This is demonstrated through observing ‘certain social communication issues’ and ‘a level of frustration’ (P2/L307), which is not apparent in children with IPD. In addition, P2 states ‘children who have got inconsistent speech can have poor phonological awareness and not have dyspraxia’ (P2/L92).

A ‘period of diagnostic therapy’ was considered beneficial, highlighting the need to assess the child’s presentation over a period of time (P5/L146). All participants agreed on this. Furthermore, P2 states that children who are ‘just inconsistent with their phonology’ progress quicker through therapy (P2/243), and although ‘if you were to listen to the two children (.) they’d sound the same […] the process is really really different’ (P2/L246). This emphasises the
differing underlying difficulty of the two speech impairments, despite being perceptually similar.

3.2.2 Assessments used

P5 said she would ‘initially assess [children with DVD and children with IPD] both the same way’ (P5/L141). However, P1 put more emphasis on administering ‘oro-motor assessments’ to determine any motor planning/programming difficulties that are a characteristic of DVD (P1/L52). In addition, gaining valuable information from ‘discussion with parents […] to find out if they have any spontaneous movements they can do when they’re not asked to imitate it’ (P1/L53) was deemed important.

A number of formal assessments were named, including NDP, CLEAR, STAP, and DEAP, all of which look at the perceptual features of a child’s speech in order to assess the types of speech errors one presents with. Two participants said they would use DEAP due to it containing a section that allows you to calculate the percentage of inconsistent speech errors made.

However, the decision to elicit a formal over an informal assessment was influenced by a number of factors. P4 said she would administer ‘informal assessment’ for children with suspected IPD, and with DVD ‘you tend to do a more formal assessment’ (P4/L220). P1 states she is more likely to elicit formal assessment ‘to provide a report’ (P1/L45). P4 and P5’s choice of assessment was based on what facilities were available within the
department. P4 also notes that due to time constraints, the administrations of formal assessments such as the DEAP are not appropriate: ‘I don’t have the time or the facilities to do PCC [percentage of consonants correct] type formal assessment’ (P4/L84). Informal assessments were found to be more popular with younger children, as certain formal assessments, such as the DEAP were perceived as ‘intense’ and ‘lengthy’ (P2/L216).

Another consideration in the assessment of children with DVD was the impact on the child. P4 states that ‘I do repetition of words if need be, but I wouldn’t do it normally (2) I think it’s soul destroying for the child having to say the same word over and over and not get it right’ (P4/L94).

3.3 The Implications of Diagnosis

3.3.1 Impact on the child, the parents and school

P4 conveyed her reluctance to give a diagnosis due to the ‘long term implications’ of DVD (P4/L12). DVD was described as a ‘difficulty that is lifelong’, thus P4 believes that ‘you shouldn’t be giving that diagnosis too early’ (P4/L30). The implications of giving a diagnosis too early ‘gives false representations to the family (.) or education (.) or you are implying that a child is never going to improve’ (P4/L31), which is inevitably difficult for a parent to hear.
Having a diagnosis of DVD may also give parents and professionals within education certain expectations ‘as to what the label will mean for that child (. ) both in terms of the level of impairment (. ) the impact of that (. ) and really how we would fulfil our provision to that child’ (P5/L65).

3.3.2 Service provision

Diagnosing a child with DVD can help ‘prioritise those children’ (P5/L173). Children with DVD are entitled to intervention from SLT at the specialist level of provision, and their statement is likely to include entitlement to a number of hours per week to be seen by an SLT. This data provides ‘more evidence […] to support the need for SLT’ (P3/L139). If continuous, intensive input from an SLT is ‘advised as part of the statement of educational needs’, it is an SLT’s role to cooperate with this recommendation and provide their duty of care to that child (P5/L118).

3.3.3 Service constraints

Those who are proximal to the child may have ‘certain expectations on how much provision a child would need in order to overcome that impairment’ (P5/L68). ‘It could potentially be that [the SLT] has to go to that school 3 times a week’ (P2/L122). Despite this being a benefit to the child that gets the provision they require to improve, this brings ‘a lot of constrain on a number of resources’ (P3/L138). SLTs dedicating a high proportion of time to children with DVD may be ‘reinforcing the wrong message (. ) in that we are the only
ones that can improve their system’. The importance of parental and educational input into speech and language therapy practice is therefore crucial, and SLTs have a role to ‘up-skill those proximal to [the child]’ (P4/L91).

3.4 SLT’s feelings surrounding the diagnosis of DVD

3.4.1 Perceived confidence in making the diagnosis independently

P3 states, ‘as an experienced therapist I would feel quite confident in seeing a child with a speech disorder (.) and be able to diagnose them with DVD’ (P3/L48), compared to P1 who stated she felt less confident due to the experience she has had. All participants valued support and second opinions from colleagues, and P4 stated that she has previously ‘gone outside to the Nuffield and done some work with them’, thus contacting SLTs external to the department if a second opinion regarding a child is required (P4/L23).

The confidence of the participants’ ability to diagnose DVD was also dependent on how severe/complex the child’s difficulties are; ‘he is a tricky child so I am getting a second opinion on him’ (P1/L59). Moreover, P5 states that if a young child was presenting with characteristics of DVD, she would ‘either consult with or ask a second opinion’ (P5/L54), suggesting the higher difficulty in diagnosing young children with DVD. Despite this perceived difficulty in diagnosis, three participants stated they would feel confident independently diagnosing DVD.
3.4.2 Feelings surrounding the uncertainty of the label

P2 expressed concern in the lack of clarity in diagnosing DVD, stating ‘I think it is very worrying’, and that she is more likely to ‘put down features of DVD’ as opposed to DVD itself, ‘because it isn’t clear (.) there is no diagnostic criteria’. P3 also stated, ‘It’s a bit concerning that we don’t have something we can rely upon (.) with no evidence base to use either (.) I think a lot of therapists use their judgement or they follow on from papers that they’ve read’ (P3/L27). P5 also confirmed her reliance upon literature and published data ‘to help guide [her] clinical decisions’ (P5/L21).

On the other hand, P4 states, ‘there will always be environmental factors that will impact on our ability to either diagnose or not diagnose […] our children are not black and white (.) therefore having a characteristic list (.) even if we get one and it’s agreed by ASHA and RCSLT (.) I still don’t know whether or not it will be easy to utilise that (.) because there will be so much cross over with phonological delay and a phonological disorder’ (P4/L61). Thus suggesting, that even if there was a published list of diagnostic criteria that could determine whether a child had DVD or not, this would not necessarily be beneficial as there are a number of considerations to be made.

P4 stated ‘we clinically will deal with what’s presenting’ (P4/L85), and P3 said, ‘I would treat the difficulties presented rather than the child’s diagnosis as such’ (P3/116). This implies that a label does not necessarily change the way
an SLT would manage a patient, and so the lack of diagnostic label in some cases, is not an issue.

3.5 Management of DVD

3.5.1 Specific approaches

Each participant mentioned the use of the NDP in their management of children with DVD. This approach encompasses a strategical hierarchy of tasks, designed to help with the articulation of sounds in an intensive and repetitive manner. In comparison, most participants said they would use a core vocabulary approach with a child with IPD, to promote consistency of production, as opposed to accuracy. Once consistent processes have been achieved in a child with IPD, P4 states ‘you do the same’ in terms of therapy (P4/L228).

Strategies used by the participants included; ‘cued articulation’ (P2/L151), a set of hand gestures used alongside speech to represent how and where a sound is produced, ‘different articulation exercises and oro-motor exercises’ (P1/L70), and drilling (P1/L75), a strategy whereby one goes over a specific sound with the child repeatedly until it is produced correctly.

Strategies from this approach were also deemed appropriate to give to parents and education services, ensuring the child is getting optimal opportunities to practise; ‘It is quite simple (.) and so it’s easy for parents to
kind of (.) pick up tips’ (P1/L72); ‘it’s a really good strategy that teachers can use in class’ (P2/L154).

The child’s input system was also considered in the SLTs’ management, using strategies such as ‘silent sorting (.) so you’re understanding that they are identifying sounds’ (P2/L160). This procedure requires a child to sort pictures containing one of two target sounds into the correct category, and assesses a child’s processing of the sounds in a word.

AAC was considered advantageous to specific children as it is ‘motivating’ (P1/L86), and can be particularly beneficial to children with ‘extremely limited attention skills’ (P5/L103). P4 emphasised the benefits of using Makaton, which encompasses signs and symbols to help with communication, providing ‘more therapy through language’ (P4/L162).

Intervention targeting language was deemed important in generalising speech skills. P4 accentuated the importance of children having a ‘robust expressive language system’ (P4/L168), thus ensuring the child’s language skills are appropriate before beginning intervention that targets speech production.

3.5.2 Intensity
All SLTs favoured ‘on-going blocks of therapy’ that is ‘consistent’ (P1/L97), and was carried out ‘little and often’ (P2/L204). It was found that ‘a problem is the summer holidays […] because often you do see a fair bit of regression in that time’ (P2/L183). P3 states, ‘we no longer provide breaks for children who
are receiving phonological therapy (. ) because we don’t see the effectiveness of treatment’ (P3/L73). P2 states, ‘I think the biggest thing is that there needs to be consistency (. ) between what you’re doing at school and that Mum is doing it at home’ (P2/L198).

3.5.3 Factors that influence management

Factors that were deemed influential in informing management include ‘whether [the child is] motivated (. ) whether the parent is taking them to speech therapy (. ) and what their needs are’ (P1/L119). In order for the child to receive the input needed for improvement in speech, ‘parental involvement is crucial’ (P3/L97). In addition, the child’s ‘severity (. ) and how frustrated they were by their difficulties’ (P3/L66) were deemed to influence management. This suggests the importance of viewing the child holistically. P1 mentioned ‘using the Malcomess outcome measures’ (P1/L118), which is a person-centred approach that provides a strategy that helps manage a service.

AAC was influenced by the severity of the child’s phonological disorder, ‘whether speech output is an aim’, and ‘their abilities’ (P1/L87). In addition, P2 states if a child’s ‘understanding [is] way better than what he [can] express’ (P2/L165), this would favour her decision to implement AAC.
3.6 Summary

Thematic analysis of the five transcripts revealed four main themes, which have been discussed in turn. There was general agreement upon the types of characteristics one would associate with DVD, and all SLTs agreed that the diagnosis was to be made over time, when sufficient observations and data has been collected through both formal and informal assessments. Differential diagnosis received mixed feedback, whilst some perceived them as fairly similar, adopting similar assessment and management for both patient groups, others noted specific distinguishable characteristics and approaches that were appropriate for one group and not the other.

The debate over providing a diagnosis of DVD highlighted a number of topic areas. There was concern raised over the impact of the child, seeing that it’s a long-term diagnosis; on the parents in terms of emotional impact; and on education in terms of expectations. In addition, having a diagnosis of DVD may impede constraints on the SLT service due to the high level of provision they require. However, it was expressed that a diagnosis could benefit a child, by allowing appropriate service provision.

The biggest factor that appeared to influence the SLTs’ confidence in diagnosing DVD independently was their experience. Nonetheless, all SLTs felt they were able to diagnose DVD, whether that is independently or after gaining a second opinion from work colleagues or from the Nuffield Centre.
Some SLTs expressed concern regarding the uncertainty of the label, and their reliance on research to guide their clinical decisions. However, it was stated that management should be based on the perceptual features of a child as opposed to their diagnostic label. Factors such as service provision, service constraints and the long-term impact on the child were deemed more influential in the process of diagnosis, as opposed to the lack of list of validated diagnostic features.

The most common management programme used by the five participants for children with DVD was the NDP, as opposed to IDP, where a core vocabulary approach was deemed more suitable. All participants said they would use various strategies and AAC with children with DVD. The importance of having holistic views and individualised management plans were highlighted, and all participants perceived continuous and intensive practice to be optimal for children with DVD, in line with RCSLT recommendations (2011).
4.1 Introduction

As highlighted by Shriberg, et al (1997), the validity of DVD as a childhood speech disorder is a largely debatable topic in speech and language therapy, and currently, there have been no successful efforts in defining a validated list of diagnostic features, nor optimum approach to take in the differential diagnosis and overall management of DVD (RCSLT, 2011; ASHA, 2007).

The aims of this study were to explore SLTs’ typical practice when working with a child with suspected DVD, and secondly, to explore SLTs’ perspective on the process of diagnosis, and reflect on their practice. This study provides insight into the approaches to DVD’s differential diagnosis, assessment and intervention, and also provides insights into how SLTs feel about the uncertainty of the diagnosis, and the arguments for and against providing a diagnosis of DVD. Semi-structured interviews were conducted with five SLTs, and thematic analysis was used to analyse the data gathered. SLTs are central to the diagnosis of DVD, and are responsible for the identification and management of this client group. It was thus deemed appropriate to specifically interview SLTs to fulfil the aim of this study. However, it may have also been interesting to explore parents, teachers, and the general public’s views on the process of diagnosis, to gauge their feelings and opinions.
The conclusions drawn from this study should not be generalised to a whole population of SLTs, due to the limited sample size and geographical area considered. The number of respondents was sufficient, however they were not equally distributed across the years of experience they had. Further research would need to be conducted to establish whether these results reflect the views and opinions of SLTs in the wider population of other regions and different levels of experience.

4.2 Diagnosis based on surface characteristics

There are a number of different classification systems proposed for classifying speech impairments, however there is yet universal agreement on the optimal system to use. Dodd’s (2005) classification system is based upon judgements made on surface phonological error patterns. The process of observing certain characteristics in the diagnostic process seemed to be adopted by all SLTs that participated in this study.

This study concluded the main perceptual characteristics that SLTs believed to be pertinent to the diagnosis of DVD. All characteristics that were mentioned in the interviews have been summarised in ASHA (2007) and RCSLT’s (2011) policy statements. Characteristics noted by participants included disordered speech production, inconsistent speech errors, errors being more profound in multisyllabic words and complex sentences, articulatory groping, difficulties with oral motor movements, and awareness of difficulties, shown by a level of frustration in the child. There was also
particular emphasis on observing slow/little progress in treatment in children with DVD, as noted by Pollock and Hall (1991), which contributed to the importance of building a profile of the child over time to make an accurate and reliable diagnosis of DVD.

4.3 Diagnosis based on underlying deficit

The RCSLT policy statement (2011) states the importance of distinguishing IPD and DVD through detailed assessment of speech, oral motor, language, voice and prosody, rather than focussing exclusively on the inconsistency of errors. Research and literature show that inconsistency of speech errors is a characteristic associated with both IPD and DVD, and therefore cannot be used as a means of distinguishing the two subtypes of speech impairment. To accurately differentially diagnose speech impairments, an SLT must consider the underlying deficit, as well as observing surface phonological patterns. As opposed to Dodd’s classification system for speech impairment, the psycholinguistic approach emphasises the importance of finding the underlying deficit in defining and specifying the type of speech impairment.

The differential diagnosis of DVD and other speech impairments may be a challenging procedure for SLTs, as there are many overlapping surface features, particularly between IPD and DVD. As agreed upon by participants in this study, IPD and DVD present similarly on the surface, however when considered using a psycholinguistic approach, one will notice that the underlying deficits are different. Models such as Stackhouse and Wells’
Speech Processing Model (1978) can be used to facilitate diagnosis of DVD by determining the level of breakdown.

Recalling from section 1.3, speech impairment can be caused by breakdown in one or multiple of the following areas: peripheral hearing, phoneme discrimination, the store of accurate phonological representations, and phonological planning and/or execution (Stackhouse & Wells, 1978). Ozanne (2005) suggests that the underlying nature of DVD is motoric, as opposed to IPD where the underlying deficit is of phonologic/linguistic nature.

Participants in this study suggested targeting the child’s input system in management, to increase awareness of phonemes and their properties. There was also emphasis on ensuring the child’s language skills were appropriate before targeting speech production. In terms of the Speech Processing Model (Stackhouse & Wells, 1978), this would mean ensuring the child has intact semantic representation and vocabulary.

4.4 Insights into Management

The most popular management approach to DVD was NDP (Williams & Stephens, 2004). NDP cannot be used alone in order to provide an accurate diagnosis of DVD, nor have optimal management strategies for children with DVD been identified, however, NDP has been shown to be effective in studies, including a randomised controlled trial that showed positive therapy outcomes for NDP (Murray et al., 2015a).
All participants stated that in general, a child with DVD would follow the NDP approach, and a child with IPD would follow the Core Vocabulary approach with the aim to produce consistent speech errors, before beginning with the NDP approach. If a child with DVD has inconsistent production of speech errors, a Core Vocabulary approach is also recommended. This is in line with the Speech Sound Pathway (WSLTAf, 2013).

The importance of including those who are most proximal to the child, such as teachers and parents, in assessment and intervention plans, was highlighted in the interviews. Co-production of outcomes is an important aspect of speech and language therapy, ensuring the child and the parents are involved in the process of their management, moving towards doing things ‘with children’ as opposed to ‘to children’ (Commissioning Support Programme, 2011). In addition, having education services and family involved in the child’s speech and language progress will help that child receive more intensive and consistent input. All participants agreed that they would adopt an intensive approach to therapy with a child with DVD that was on-going. Intervention for children with DVD may entail repetitive planning, programming and production practice, with the overall goal being to re-learn motor sequences. Intensive input is thus deemed most effective for children with DVD (RCSLT, 2011).
4.5 Factors that Affect Choice of Assessment

Formal and informal assessments were suggested by the participants, which are used in the process of making a diagnosis of DVD. Each approach to assessment was justified, particularly the decision to choose informal over formal assessment. Age of the child was seen as a factor that influenced the type of assessment used, with informal assessment being more popular. One participant said she is more likely to gain a second opinion on a diagnosis of DVD on a younger child, suggesting that there is increased difficulty in providing a diagnosis to DVD to a child that is young. It has been stated by the authors of the NDP, that a definite diagnosis of DVD cannot be made in very young children, as an assessment for DVD will require the child to elicit an array of sounds, starting with single phonemes, and building up to complex words, phrases and conversational speech, depending on the child’s expressive language abilities (Williams & Stephens, 2017).

4.6 Feelings surrounding lack of clarity

It should be noted that interviews were not analysed in depth, as it was felt that a detailed level of analysis was not needed in order to identify the main themes. This raises concerns over the validity of the results. Furthermore, thematic analysis was used to identify, analyse, and report on themes that were apparent from the transcription (Braun & Clarke, 2006). Another approach that could have been taken in analysing the data would have been Interpretative Phenomenological Analysis (IPA). IPA allows for exploration of
personal experience, and is concerned with an individual’s personal perception (Eatough & Smith, 2006). This would have been an appropriate method of analysis to adopt in order to explore the participants’ feelings surrounding the lack of clarity of the diagnosis of DVD.

As noted, there has been controversy over the clarity of DVD, and its existence is being questioned. Participants expressed concern over the lack of research into DVD, which has resulted in confusion and imprecise definitions that are not consistent across literature. DVD is inevitably difficult for SLTs to diagnose, which could be attributed to the wide range of symptoms associated with it, due to its cumulative effect of multiple levels of impairment, as discussed in section 4.3 (Stackhouse, 1992).

The value of documents such as policy statements, and literature on DVD was said to be crucial in guiding clinical decisions, thus suggesting the need for further research to clarify aspects of DVD that are under researched. Due to the inconsistency of criteria that should be included for a child to be diagnosed with DVD, research tends to focus on individuals that display ‘characteristics of DVD’, as opposed to DVD itself.

On the other hand, participants noted that although the diagnosis is not clear, intervention is informed by how the child presents, and thus regardless of whether the child is given a diagnosis of DVD or not, the SLTs agreed that they would deal with what is clinically presenting. Despite not meeting exact criteria, symptom clusters can be applied clinically without concern over
whether children meet the exact criteria for diagnosis, as the presence of these characteristics informs intervention (McCabe et al., 1998).

4.7 Why provide a diagnosis?

Children who are given a diagnosis of DVD are entitled to speech and language therapy support, and a higher level of provision that enables them access into a language unit and 1:1 support in school to ensure they receive intensive and consistent practice of speech and language (Dittrich & Tutt, 2008). Participants in this study considered this a motivator into providing a diagnosis. A diagnosis can also help legitimise behaviours, and allows for better understanding of the presenting behaviours, which in turn helps manage the behaviours that are associated with the disorder (Mueller et al., 2012).

However, despite the benefits of providing a diagnosis in terms of service provision, a diagnosis of DVD can also bring constrain on speech and language therapy resources. RCSLT (2011) recommend that children with DVD receive intensive and on-going treatment to allow for best progression in speech skills. Some children with DVD are seen up to 3 times per week by an SLT, which may be difficult to peruse due to caseload management and time constraints. Thus, suggesting a correlation between diagnosis and an inability to provide the appropriate service if the diagnosis is given.
On the other hand, DVD is considered a disorder that is long term. Participants stated that this has an impact on the child and those who are proximal to him/her, such as parents and teachers. Diagnostic labels can be problematic if the label is taken to mean that the child has a definite disorder with distinctive characteristics (Bishop, 2017), which has wider implications, including the emotional impact on parents. Furthermore, this impedes on speech and language therapy, and wider multi-disciplinary team’s input resources, as lifelong provision and support from social, health, and education sectors may be necessary (RCSLT, 2011).

Moreover, according to the Speech Sound Pathway, a child with suspected IPD and DVD follow the same pathway, beginning with assessment that involves observing certain speech characteristics that may or may not constitute a more specific diagnosis under the umbrella term ‘speech impairment’ (WSLTAF, 2013). Pert (2017) argues that if the approaches to management of the perceptual features of DVD and IPD are the same, as stated in the pathway, then is there need for separate diagnoses? All participants stated the importance of using the child’s presenting characteristics to guide intervention, over giving a diagnosis, demeaning the importance of giving a diagnosis in the first place, Thus, clinicians are more inclined to base their clinical judgement on presenting characteristics over the importance of providing a label, as noted above.
4.8 Conclusion

This study succeeded in its aim to explore SLTs’ typical practice when working with children with suspected DVD, and their perspective on the process of diagnosis.

Finding it difficult to arrive at a diagnosis could be attributed to a lack of validated list of diagnostic features for DVD, however this did not seem to be the case for the SLTs interviewed in this particular study. Despite lack of research into DVD and its optimal approaches to assessment and management, the participants felt able and confident in providing a diagnosis of DVD and formulated approaches they would take in the management of this client group that were in line with recommendations from RCSLT (2011) and WSLTAF (2013). Although the existence of DVD was questioned in an online debate posted by Afasic (2017), DVD was acknowledged as a distinct childhood speech disorder.

Factors such as the impact of labelling on the child, parents, and the school, given the long-term nature of the disorder, and issues surrounding service constraints, were considered influential in the decision to provide a diagnosis. This leads to the question as to whether SLTs’ perspectives and behaviours towards diagnosis would change, given the availability of adequate service delivery models.
On the other hand, participants stated they would feel motivated to provide a diagnosis if it meant that the child was receiving the adequate service provision, which is recommended to be intensive and continuous.

In terms of support for the SLTs in making a diagnosis of DVD, it seemed that second opinions were gained from other SLTs within the department. Unlike ASD, where the diagnosis involves collaboration between a number of professionals within the MDT in order to make the diagnosis, SLTs are central to the diagnosis of DVD, with difficulties usually being predominantly communication-centred. It may be of use to have more specialist centres, such as Nuffield, that are available to provide SLTs with the support they need in specialist areas such as DVD, which may in turn take the pressure off of the expectations imposed on SLTs when making such diagnoses. Further research would need to be conducted in order to establish this.

Although the majority of the participants felt able and confident in their ability to diagnose DVD, concern was raised over the lack of validated list of diagnostic features and literature reporting on DVD was evident. Participants stated their reliance on such literature to guide their clinical decisions, emphasising the need for further research, and clarification and guidance into the differential diagnosis and management of DVD. Nonetheless, anecdotal evidence gained from experience in clinic was also shown to guide clinical decisions, and thus the ability to diagnose and manage a child with DVD did not solely rely on skills and knowledge gained from evidence-based research.
Lastly, the findings from this study provide suggestions to the support and training that SLTs require in making diagnoses such as DVD, where evidence-based practice is not always possible due to the lack of research, and further wider implications of providing the diagnosis that may influence clinical decisions. This holistic approach to providing a diagnosis, considering the motivations and implications of labelling, may benefit from being part of an SLT’s Continuing Professional Development (CPD), or may be beneficial as part of specific training requirements.
References:


Appendix 1

Dear Colleague,

We are writing to invite you to take part in a current research study exploring the views of Speech and Language Therapists on current issues regarding the identification, diagnosis and treatment of Developmental Verbal Dyspraxia (DVD). As part of her final-year project, one of my students is looking to interview qualified SLTs with experience of working with children with speech difficulties. Attached is a Participant Information Sheet containing further information.

If you would like to take part, please contact me via email (rholewis@cardiffmet.ac.uk) and I will pass on your contact details to my student in order to make further arrangements.

With best wishes,

Rhonwen Lewis

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Llandaff Campus,  
200 Western Ave,  
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Appendix 2

Participant Information Sheet

Research topic: The views of Speech and Language Therapists regarding the approaches to, and issues surrounding the diagnosis and treatment of Developmental Verbal Dyspraxia

You have been invited to take part in the above study. Your participation is voluntary and in order for you to decide whether you would like to be involved, details of the study are provided below.

Background

A position paper (https://www.ndp3.org/documents/rcslt2011dvdPolicyStatement.pdf) was written by RCSLT in 2011, which discusses some of the controversies around the diagnosis of DVD. This paper states that DVD is yet to have a specific definition or agreed set of diagnostic characteristics, and there is no single approach that is identified as optimum in the differential diagnosis and overall management of DVD. Though the evidence for intervention for children with DVD is limited, it is beginning to emerge (p.18). Similarly, there are no specific recommendations with regards to assessment guidelines due to limited research evidence available.

There are current controversies surrounding the identification, assessment and management of DVD. This study aims to explore SLTs’ views regarding these issues in order to gain a more thorough understanding of current perspectives.

I will be conducting a series of semi-structured interviews, focussing on your thoughts regarding current perspectives, what assessments and intervention strategies you believe to be effective when working with a child with DVD, and differences between working with DVD and other speech impairments.

Why have you been asked to participate?

You have been asked to take part in this interview as you are a qualified SLT with experience of working with children.

What participation means in practice:

If you decide that you would like to participate in this study, we will arrange a suitable time and place for the interview to be conducted. The interview will last between 30-45 minutes, and will be recorded in order for me to later transcribe and analyse the data. When transcribing the data, all names of people and places will be made anonymous to protect your identity and will ensure that the data cannot be traced back to you.
Participation is voluntary and you have the right to withdraw at any time during data collection and up to two weeks afterwards. There will be an opportunity for you to read and approve the written transcript before the data is analysed.

**Are there any risks?**

No significant risks from taking part in this study have been identified. If you do not wish to answer any of the questions, you can indicate this to me. You can withdraw from the study at any time during data collection and up to two weeks afterwards.

**What happens to the results of the interview?**

The transcribed interview will be analysed and the themes that emerge will be discussed in light of current perspectives regarding the identification and treatment of DVD. This discussion alongside anonymised quotes will be included in my dissertation. With your consent, the data will also be retained for further research and dissemination of findings.

**Are there any benefits from taking part?**

There are no direct benefits from taking part, although we hope you find it interesting to explore different approaches to DVD, and discuss the controversy over its diagnostic criteria.

**How we protect your privacy?**

Careful steps will be taken to make sure that you cannot be identified from any of the information that I have about you. All the information about you, and the information you give in the interview will be stored securely away from the consent forms. At the end of the study, the audio data from the interview with be destroyed unless you give consent for it to be retained for future research. The consent forms are retained by the University in accordance with University regulations.

**Further information**

If you have any queries about this study, please do not hesitate to contact my supervisor, Rhonwen Lewis, via email: rholewis@cardiffmet.ac.uk
Appendix 3

Interview Schedule

Aim: To explore Speech and Language Therapists’ typical practice when working with a child with suspected DVD, and to explore SLTs perspective on the process and reflect on their practice.

1. What are the diagnostic criteria you look out for when diagnosing DVD?

What I’m trying to find out: diagnostic criteria, key characteristics of DVD

2. The position paper by RCSLT in 2011 discusses some of the controversies of diagnosing DVD. Umbrella term: SI, DVD comes under this. No validated list of diagnostic features. Children are diagnosed with SI with ‘features of DVD’. What is your opinion on this uncertainty?

Prompt: if participant has read the paper: Was there anything else that particularly struck you about this paper?

What I’m trying to find out: feelings surrounding the uncertainty of the diagnosis

3. What assessments would you use to assess a child with a potential diagnosis of DVD?


What I’m trying to find out: types of assessments used with children with DVD. ‘Mechanics’ behind making the diagnosis. Different approaches.

4. Would your assessment of a child with suspected DVD differ from your assessment of a child with an inconsistent phonological disorder?

Reworded: Are there any assessments that you would use with a child with DVD that you wouldn’t use with a child with IPD?

What I’m trying to find out: differential diagnosis; any differences in types of assessments used with the two client groups?

5. Would you consider seeking a second opinion regarding the diagnosis of DVD?

Prompt: If so, who? E.g. specialist SLT or agency such as Nuffield Dyspraxia Centre?

What I’m trying to find out: do SLTs feel comfortable dealing with the speech impairment as a profession, or would they prefer a second opinion from a different health profession?
6. What intervention strategies would you use for a child with DVD?

Prompt: Follow programmes (Nuffield)? Consider use of AAC?

What I’m trying to find out: ‘Mechanics’ behind management; what approaches are used

7. RCSLT (2011) state that there is no robust evidence for ‘blocks and breaks’ style of therapy (e.g. 6 weeks therapy followed by 6 weeks consolidation period) or consultative/advisory models of service delivery (p.18). What’s your opinion on this?

What I’m trying to find out: specifics of management

8. How often would you provide therapy for a child with DVD?

What I’m trying to find out: whether SLTs think it’s best to provide intensive therapy sessions (e.g. 3 times a week for 4 weeks) or therapy sessions that are spread out across a longer period of time (e.g. 12 sessions over 8 weeks)

9. What are your views on the differences between IPD and DVD in regards to therapy?

Prompt: intensity of therapy? What about therapy programmes?

What I’m trying to find out: despite being perceptually similar, does the management of the two speech impairments differ? Speech sound pathway: follow same route.
Appendix 4

Colour-coding key for themes

**Diagnosis**
- Characteristics leading to the diagnosis of DVD
- Decision made over time
- What impacts making the diagnosis

- Implications/ consequences of diagnosis
- Impact of diagnosis on parents
- Diagnoses influencing further intervention
- Service constraints

**SLT's feelings towards uncertainty of label**
- SLT's confidence in making a diagnosis of DVD
  - Further support, experience

**Assessment**
- Specific assessment according to characteristics
- What effects the assessments used; 1) age of child 2) service constraints
  - Time, facilities

**Management**
- Intensity
- Specific programmes/strategies
- AAC
- Factors that influence management - Malcomess
- Parental involvement
- What to target? → emphasis on language

**DVD vs IPD**
- DVD vs IPD assessment
- Management principles in DVD vs IPD
- Characteristics that distinguish between IPD and DVD
Appendix 5
Jefferson Transcription System


*Interviews were not transcribed in detail. There are numerous transcription symbols outlined, however for the purpose of this study, only the following were used.*

(.) A micropause - a pause of no significant length.

(3) A timed pause, given in seconds, e.g. (3) is 3 seconds

**Underlining** denotes a raise in volume or emphasis

(h) Laughter in the conversation
Appendix 6
Transcribed interviews with comments

Participant 1

1. Is I'm going to begin by asking you what you diagnostic criteria you look out for when diagnosing DVD?

2. P: So (1) I'd look out for (1) consistency of the speech errors (1) um (1) any kind of paralinguistic or (1) I think that's one of the key things (1) really (1) as well as whether their spontaneous speech is better or after imitation (1) and (2) also difficulties with oral motor movements as well.

3. I: Great (1) thanks (1) it was mentioned in the participant information sheet about how RCSLT wrote a position paper in 2011 discussing some of the controversies around diagnosing DVD. So (1) the umbrella term is speech impairment, and under this term we have DVD (1) however, there's no validated list of diagnostic features that you look out for in order to make a diagnosis of DVD. What do you think about this uncertainty?

4. P: the uncertainty of the label?

5. I: Yes (1) on the uncertainty of having no validated list of diagnostic features that we as SLTs make reference to.

6. P: Um (3) yes, it doesn't really help and I tend to ask am (1) second opinion

7. I: To people who have more experience in this. It sounds (1) that's sort of due to my experience, really as well (1) but I think the treatment and the therapy that we provide would probably be similar anyway, no matter whether they had a phonological disorder or dyspraxia, or whichever speech impairment (1) so (2) the umbrella term doesn't make much of a difference?

8. P: I don't think it changes much (1) if you said, terms change.

9. I: So what you're saying is (1) the characteristics you look out for and so the term itself doesn't make much of a difference?

10. P: Yes (1) exactly (1) and then those characteristics help inform interventions (2) I think it's useful to know. If well (1) you could think (1) "oh that's really similar to another child I've seen".

11. I: Brilliant, so you've said that the characteristics you look out for are inconsistency of phonological errors, and articularatory groping (2) are there any particular assessments you would turn to in order to help make a diagnosis of DVD?

12. P: I'd probably use the DPEA (1) um there's an inconsistency check on there to see (2) um whether their errors are consistent (1) and I'd also do an eye contact (1) assessment just to check the movements and the articulation of the child as well.

13. I: Would you choose a formal over an informal assessment for a child with DVD?

14. P: Um (1) it depends on the age of the child (2) if it was a younger child I'd tend towards informal assessment (1) and then as they're older (1) I'd use more formal assessment.

15. I: You mentioned the DPEA (2) um is there a reason why you'd choose this assessment over (1) for example the STAP?

16. P: I'd pick the DPEA just because of that inconsistency check. I know someone in our team has created (1) a (1) um consistency check for the CLEAR, but I don't think that's been standardised so I just stick with the DPEA.

17. I: Is standardisation something you look for in an assessment, do you think?

18. P: I think (1) it depends on the child again really. Whether you want something to be quite formal, maybe to provide a report (1) it would be useful to have that.
evidence to back that up, and the kind of research behind it (2) But (3) yes (3) typically I would choose a standardised assessment.

I: Okay (5) Would your assessment of a child with DVD differ from your assessment of someone with an inconsistent phonological disorder?

P: Um (6) I think (7) well if someone had an inconsistent phonological disorder, to kind of determine (8) or differently diagnose whether it’s DVD (9) I’d do more assessments like the or-o-motor assessments (10) um (11) discussion with parents as well (12) to find out if they have any spontaneous movements they can do when they’re not asked to imitate (13) things like that.

I: Brilliant (14) okay (15) and do you feel able to decide on a diagnosis of D/VD on your own?

P: I think (16) because of my experience at the institute (17) and (18) well (19) I’ve got one at the minute (20) he is a tricky child so (21) I am getting a second opinion on him but I suppose (22) to answer your question (23) um (24) b

I: Is there someone you would turn to (25) maybe your team leader (26) or another form of support?

P: Um (27) well (28) I’d go to someone in the team who specialises in speech (29) so at the moment we have two ladies who specialise in speech (30) um (31) and the one I have asked just happens to be my line manager too.

I: That’s handy (32) So what intervention strategies have you found useful to use with a child with DVD? So, they’ve had the diagnosis of DVD (33) what would your next step be?

P: Well (34) we use the Nufield approach (35) and we follow that quite strictly as well (36) and do every level of that (37) and we do lots of different articulation exercises and or-o-motor exercises just to make sure we’re kind of getting lots of different movements (38) um (39) and it’s been really handy to get the parents and school on board (40) and they’ve taken to it really well (41) it is quite simple (42) and so it’s easy for parents to kind of (43) pick up tips (44) the only problem with it is trying to make it interesting (45) because it’s just lots of drilling (46) over and over again (47) um (48) and just trying to make it fun really (49)

I: You mentioned drilling (50) would this be a technique you’d associate particularly with DVD?

P: Yes (51) I think that’s one of the main things really (52) just lots of repetition (53) lots of drilling (54) and that’s what they’re going to need.

I: Brilliant (55) thank you. Would you consider any use of AAC?

P: Yes (56) I think (57) again (58) it depends on the child and their abilities (59) um (60) I had a brief (61) kind of (62) child that I worked on with placement (63) um (64) and she was in (65) a school for (66) um (67) special educational needs (68) and she used an AAC device because she was so unintelligible (69) and it really helped her and um (70) it was something that she really enjoyed using as well (71) so it was motivating for her (72) um (73) but again it depends on the child and their needs (74) and also their aims as well (75) whether speech output is an aim (76) and also their abilities (77) but yes (78) AAC is definitely something I’d consider.

I: Um (79) so in terms of the intensity of treatment (80) um (81) in the position paper written by RCSLT they said “there is no evidence for blocks and breaks style of therapy” so 6 weeks on (82) 6 weeks off (83) Um (84) so (85) what is your opinion on this (86) and the intensity of therapy?

P: I think that’s really interesting actually (87) but (88) I think what we tend to do (89) is if a child is referred with queries of dyspraxia (90) or any kind of phonological
disorder () we tend to give them on going blocks of therapy () so they have it
every week () just consistently () and then obviously depending on the child
and the situation () you give them the odd break () but yes () we always tend to
give on going therapy () Someone in work was talking about it today actually ()
about how there is no evidence to say how often we should be providing therapy
() ()
I: It is tricky
P: But once we've worked with them for a while () it depends () again () it all
depends on the child () but () we had a young child referred and we had to
do a bit of investigation first just to find out where we were () and what we
thought () and then I was allocated to him () to do a block of on going therapy
() um () but that was kind of a bit of assessment as well () so () um () we
were just kind of trying to figure out whether it was a disordered speech or
dyspraxia () and mum's aware of that as well () we talk through why we are
doing what we're doing and explain everything to the family () but yes () this is
the boy I'm getting a second opinion with now () because I have been working
with him now for a couple of months () but he can do certain things () like he's
great with the in o motor () but yet () he hasn't got the consistency () he's got
one clear word and that's 'mummy' () the rest is unintelligible
I: Okay, that's interesting () So () my next question you've already answered ()
and to reiterate () you said that how often a child needs therapy is dependent on
the individual ()
P: We've recently started using the Malcomson outcome measures as well () so
() looking at the child () whether they're motivated () whether the parent is
taking them to speech therapy () and what their needs are

I: Okay () great () and my last question is () what are your views on the
differences between IPD and DVD in regards to therapy? So, if we start off by
talking about the intensity of therapy?
P: Um () well again () with us we'll probably be doing on going therapy () um ()
With an inconsistent phenological disorder () we'd probably go down the core
vocab approach () but then that's quite new in our department as well () some
therapists have brought experience from other places they've worked () So I
think with IPD I'd do the core vocab () and with DVD I'd do the Nuffield () lots of
drilling () lots of repetitions () and just making sure you do every stage of that
Nuffield () because often they get mixed () so they go straight from CV to whole words
I: Do you think you'd use a core vocab approach with someone who has DVD? ()
or again is that dependent on the child?
P: I think it depends on where you're working as well () Because I know that
core vocab is quite new to us in our department () but it's always something I
was taught in unit () and yes () other departments I'm sure are very Nuffield
orientated
I: To confirm, what do you mean by the core vocab approach?
P: Um () picking 50 functional words () and getting those words from family and
schools () and making sure that they are functional () and that they're
motivating and beneficial to the child () um () and then working on ten words
each week () until you get the consistency () and hopefully that then will get the
consistency () I think they would get quite bored if the session was too long ()
() just go through ten words and go through them once or twice before
Moving on, I'd do quite short sessions to keep their attention. So little and often, and then for example if you get seven out of ten one week, you can add new words onto the list for the following week then, so they might be stuck with the same few words for a number of weeks and you'd accept any production that they do so say they said 'tar' for 'cat', you'd accept that, you wouldn't keep pushing.
Participant 2

I: As I mentioned ( ) you've got the right to withdraw at any time ( ) and then I'll transcribe the interview and I'll send it to you ( ) so if you're not happy about anything you said or if you don't want me to include certain things in my analysis ( ) then just let me know 2 weeks after receiving the transcription

P: lovely ( ) thank you

I: All the information is on the participant information sheet anyway ( ) so ( ) my first question ( ) what characteristics do you look for when diagnosing DVD?

P: Ok ( ) um ( ) probably ( ) inconsistency in articulation ( ) I have to say I don't think it's a decision that you make on one day ( ) I think it's a decision that you make over time ( ) having known a child over a period of time ( ) (2) it often the fact that you've done some work on articulation ( ) and you can see that progress isn't being made ( ) and that there are a lot of inconsistencies (2) Potentially ( ) sounds might be being used that aren't speech sounds ( ) sometimes you get odd sounds that are being used ( ) and also ( ) they are just really struggling ( ) um ( ) and not responding to therapy ( ) That is what would sort of set alarm bells off in my head ( ) and makes me think ( ) right ( ) I need to look at this ( ) so progress ( ) knowing that they're quite inconsistent about the way that they use phonology (3) And often as well ( ) there is quite a self-esteem element ( ) also they can be children that are quite competent in other ways ( ) often they are children that are doing very well in school ( ) apart from speech (2) they may or may not have other types of dyspraxia ( ) but um ( ) I wouldn't take that as a diagnostic feature ( ) because it can sit on its own without any other dyspraxia markers at all

I: Brilliant ( ) so you'd mainly look out for inconsistency of speech errors and ( ) the way that they're not progressing through therapy ( ) and look at their self-esteem and awareness of their difficulties

P: Yes ( ) I think those are the big things that I'd look for ( ) that would make me think a child had dyspraxia ( ) and make me want to look further into it ( ) yeah

I: Ok ( ) so ( ) RSCS Wrote a position paper in 2011 ( ) ( ) don't worry ( ) you don't have to have read it ( ) it basically says ( ) it states that there are controversies around diagnosing DVD ( ) which we already know ( ) um ( ) the umbrella term is speech impairment ( ) and DVD comes under this ( ) so DVD is a subcategory of a speech impairment ( ) so as I mentioned ( ) there is no validated list of diagnostic features ( ) and children are often diagnosed with features of DVD ( )

P: speech impairment?

I: Yes ( ) or speech impairment? What is your opinion on this uncertainty?

P: I think it's very worrying ( ) and ( ) I am probably one of those people that think past these features of these ( ) and I think the reason for that is because it isn't clear ( ) there is no diagnostic criteria ( ) um ( ) interestingly ( ) we have twilight sessions ( ) in ( ) um UCL ( ) Met ( ) and we had a very interesting one last year ( ) around dyspraxia ( ) which also involved adult therapists ( ) and we all ( ) thought the adult therapists would be far more willing to be specific about the people that they diagnose ( ) but actually ( ) we all said we all felt the same ( ) we ( ) the same ( ) ( ) ( ) ( ) think it's actually quite bad ( ) that we haven't got clear criteria ( ) because if we think about things like SLI ( )
they're very clear about that ( ) and you know ( ) as a profession have been
working for a long time ( ) dyspraxia has always been there ( ) why can't we nail
this down? I think it's actually quite an issue actually ( ) why can't we diagnose it
properly? In the population ( ) the children that we are clear that have DVD ( ) is
a small portion of the children we see ( ) so I wonder if that's why it hasn't been
something that has been called down then
I: that's really interesting
P: P: Phonometrics as a clinician ( ) and I think it bothers less of clinicians ( ) and I
think that is why we don't always want to be clear about it ( ) because there is no
clear criteria ( ) so often it is on a hunch ( ) that seems terrible ( ) but
I: no no no ( ) I understand ( ) because you've got the label there ( ) but there's no
actual evidence or data behind it ( ) and we're still using the term ( ) despite
there being no validated list of diagnostic features
P: and I think ( ) if you think of ICD-10 codes ( ) or whatever it is called now ( )
if you think of ASD ( ) and you think of SLI ( ) very very clear ( ) very clear ( ) but
like you say ( ) DVD just comes as part of what they call speech impairment ( )
which is very broad ( ) and that's an issue isn't it?
I: it is ( ) you're right ( ) Um ( ) so what assessments do you think are helpful to
assess someone with potential DVD?
P: Oh ( ) I went to ( ) a clinical excellence network in Bristol ( ) and it was
actually ( ) that day was run by Nuffield ( ) Now ( ) Nuffield was something you'd
do in college ( ) and you just think it's really old fashioned ( ) but it was very
interesting ( ) to sit and listen to them ( ) and it actually enhanced my interest in
Nuffield ( ) so I actually do use ( ) I use things like the PEAR and the STAF ( ) I've
also used a bit ( ) which I find is very ( ) um ( ) it's quite an informal assessment
( ) it's quite lengthy ( ) so if you're trying to do it with a young child ( ) it can be a
bit too lengthy ( ) but I have to say I do like the old fashioned Nuffield assessment
( ) and for a child that I've maybe done other assessments with ( ) and I'm
thinking ( ) do you know what ( ) Nuffield ( ) I think yes they have got dyspraxia
that's probably what I would do ( ) I have to say
I: Okay ( ) brilliant ( ) Would your assessment of a child with suspected DVD
differ from a child with an inconsistent phonological disorder?
P: I would say ( ) as a clinician ( ) no ( ) they would start ( ) you would start
treating them in a similar way ( ) again it goes back to what I said before ( ) it's
about seeing how they develop over time ( ) and that's why ( ) if I give an
example of this lad that I've just picked up ( ) when I went in ( ) my gut was
telling me ( ) oh golly ( ) he must ( ) I think he has ( ) but then I've only seen him
twice ( ) so I want to spend more time ( ) so probably I would ( ) I would start
tracking the pathway as if he's got inconsistent speech ( ) but I'm going to end up ( )
I know in the next few weeks ( ) I'm going to have to do something ( ) like ( ) I
was thinking of using a PDA with him actually ( )
I: I've never heard of that
P: It's a phonological ( ) um ( ) oh what does it stand for? ( ) it's basically for
phonological awareness ( ) because what I want to do is check how his
phonological awareness is ( ) because sometimes ( ) children who have got
inconsistent speech can have poor phonological awareness and not have
dyspraxia ( ) so that's the next thing I would do ( ) and then depending on how
he does with that ( ) over the next couple of weeks ( ) with the programme ( )
I've set him ( ) I'm gonna think then maybe I need to do a Nuffield
I: Okay (J) so um (J) would you say that the awareness is a factor that
distinguishes between an inconsistent phonological disorder and DVD
and have more insight into their difficulties [2] if I look at him as a child (J) he's
clearly aware of his own needs (J) and is upset by that (J) whereas a child that is
just a bit inconsistent with phonology isn't [2] there's definitely certain social
communication issues with it as well (J) and also a level of frustration (J) that
haven't mentioned before but that is clearly another element of it too I think [J]
[2]: Yes definitely (J) Do you feel able to make a diagnosis of DVD on your own?
P: I don't [2] but that's because I have years of experience behind me perhaps
I feel like (J) when I do that (J) I need a lot of evidence to back that up (J) and I
suppose even with the years of evidence behind me (J) I always have to say to
myself (J) I'm going to say that he has DVD (J) but I'm going to give him a term's
support and see how that helps (J) so there's always um (J) and I don't know
why it is so hard to be absolutely clear (J) I think that goes back to there's no
criteria (J) but I feel confident enough to say that I am 99% sure that this child
has a diagnosis of DVD (J) but do you know what (J) I need to do input for that
and I need to see how that goes (J) and I think that's very frustrating the parents
and stuff (J) and I was in a meeting [2] only a few weeks ago [2] talking about this
other child and [the teacher said] 'shall I put down he's got dyspraxia?' (J) and I
said 'will you wait a moment? I need 6 weeks to see how he's doing' (J) and I
wouldn't say that about anyone else (J) but there are huge implications here
I: absolutely
P: I think there are implications of labelling behind that as well and also (J) the
implications on the therapist (J) and how we take that programme forward (J) it
could potentially be that I have to go to that school 3 times a week (J) to give him
support (J) and that is actually massive (J) but its looking at (J) I'm going to need
to do that to see if it actually helps him or not (J) and in hindsight (J) I can be very
clear then that he did deserve that diagnosis
I: that's interesting (J) thank you (J) So (2) going back to that question sorry [J] if
you weren't confident [J] who else would you go to? Is there someone specific?
P: we as clinicians have always got back support (J) and I think I would always go
to a peer (J) and actually (J) interestingly I'm meeting up (J) in a couple of
weeks (J) with a therapist here (J) who I know is very confident with DVD (J)
and I'm going to say 'right okay *** (J) here's my case study (J) what do you think?' (J)
but that's absolutely fine and that's how we should all work so I think it is about
having those case discussions (J) you can be 99% sure but still feel like you want
to talk to somebody to ask 'what do you think?'
I: okay (J) thank you (J) so we've talked about assessments (J) so now I'm going to
ask you about intervention (J) What intervention strategies do you think are
useful for a child with DVD? (J) you mentioned about seeing the child 3 times a
week (J) so is intensity something ...
P: Yes (J) so Nuffield say (J) and what the RCSLT are saying now is that dyspraxia
therapy can't be done by an assistant (J) It has to be a therapist (J) so similarly it
can't be done by (J) you know (J) a lot of my work takes place with learning
assistants in school (J) but if you're doing a dyspraxia programme (J) there needs
to be a therapist that does that (J) thinking about children that make good
progress (J) in the past (J) I have often used the Nuffield dyspraxia programme (J)
along side things like (J) I have an apraxia app on the iPad (J) that is very similar
to Nuffield (2) when you think about Nuffield (1) they have on the front of the
pack (1) they have a wall (1) looking at all levels all the time (1) it's not like we're
just going to do it in isolation (1) we're going to do it in isolation and then we're
going to do it in CVC (1) we're going to do it at the beginning of words (1) I
suppose it's like a bit of a bombardment (1) if you like (1) I have to say (1) in the
past I have found that that really does help (2) I also use cued articulation (1) and
let (1) because that's always a good thing to (1) um (1) give the child a marker (1) and
often (1) cued articulation is the first time they'll make a very good try at a sound
(1) and it's a really good strategy that teachers can use in class (1) so I do use
Nuffield (1) I do use the apraxia app (1) I use cued articulation (1) and also further
down the line (1) when I'm looking maybe at generalising (1) I use things
like black sheep work books and types of phonology games that we think of (1) I
just think (1) everything we have got in our toolbox (1) and also silent sorting
(1) so you're understanding that they are identifying sounds (1) um (1) similar (1)
clapping syllables (1) making sure that they understand what's the beginning
what's the end (1) you have to do all of that in addition

I: yes (1) the awareness side (2) do you consider use of AAC at all do you think?
P: I've got to a point (1) once (1) where I had a child who I had probably seen for
about 5 years (1) who was about to go into (1) um (1) comprehensive school (1)
and (1) broke my heart (1) because I knew that his understanding was way better
than what he could express (1) and I was very worried about how he would be (1)
when he went to comprehensive school (1) so actually (1) I did put in a referral to
Rookwood for him (1) and they came out and assessed him (1) and we were
looking at using AAC (1) but (1) there needs to be a time and a place for that (1)
and I think also (1) he had had years of therapy (1) and it was very clear that he
wasn't suddenly just going to turn around (1) you have to look at the whole child
don't you? (1) to me (1) though (1) that would be like (1) the last resort (1) but yes
(1) that is an option (1) and I know there are children that need it

I: great (1) in the policy statement I mentioned earlier (1) they mention about (1)
terms of intensity (1) they say that there is no robust evidence for blocks and
breaks type of therapy (1) so 6 weeks on 6 weeks off (1) what is your opinion on
this?
P: I: I totally agree (1) who ever thinks 6 weeks is okay (1) the children I have
seen that have done well (1) it's actually been (1) I would probably have seen
them ever a term without a break (2) I find (1) because I often work term time
only (1) for the children who have got verbal dyspraxia who I'm seeing in school
(1) I tend to give them a term's support (1) then they have a natural break because
they have the school holidays (2) but a problem is the summer holidays (1) and
that is 6 weeks off isn't it? (1) because often you do see a fair bit of regression
in that time (1) so I totally agree with RCLST (1) and I do think that it just needs to
be very consistent (1) and sometimes they get to a point (1) and they say (1) I don't
want to come today (1) and you think you know what, maybe they need a couple
of weeks off (1) I think the 6 weeks is arbitrary (1) you need to look at their
situation (1) and there are times that they are doing really well (1) there are times
where you move forward (1) you just need to crack on and keep going
I: yes (1) there are so many other factors to consider
P: yes (1) so I agree with RCLST's statement (1) definitely
I: my next question was (1) how often does a child with DVD need therapy?
P: actually () Nuffield say they should be seen daily () and there is evidence to show that the 10 minutes or quarter of an hour daily () is what is required () but a therapist can't do that () so what RCLT say now is that we should see a child 2 to 3 times a week () but they need to be () practising their targets on a daily basis () and I think the biggest thing is that there needs to be consistency () between what you're doing at school and that mum is doing it at home () so I talk about things like () okay () put a picture of the 'T' on the mirror when he's brushing his teeth and make sure you practice that in the morning and when he's going to bed () you know () it's about talking to the parents about the little ways that they can keep reminding them () and that's where cue card articulation comes in as well () I think it just has to be both little and often and it has to be consistent ()

I always think of it as a little bit like when you're learning to play an instrument () a child can go to their lessons () they can do maybe an hour's practice before the lesson () but that teacher will know that they haven't done anything the week before () and dyspraxia is just the same () because you need to form a new habit () don't you? () and the only way you can do that is every day

I: Okay () thank you () um () you mentioned earlier about () how () the Nuffield dyspraxia programme can only be carried out if you're a speech therapist you said?

P: well () you should only be doing a () What RCLT are saying is that if a child has a diagnosis of DVD () it's only a therapist that should be carrying out that therapy () whereas before () it was okay for an assistant to be doing if () it's not now

I: okay () so in terms of giving strategies to parents () that's fine as long as it comes from you?

P: from a therapist () yes () and it's important isn't it? () that you have a good relationship with the parents

I: absolutely () and it helps again with the consistency () and intensity of the practice () because we can't be there all the time I suppose ()

P: No

I: and my last question () is about the differential diagnosis between inconsistent phonological disorder and DVD () so () we said about the assessment process which would kind of be the same () you said you'd use STAP and the IDIAP () so in terms of therapy

P: (h) that's not the easiest question () I think it's about intensity () um () I always explain it to parents like () when you roll a ball in the sand () when you roll it the first time () it just makes a little tiny furrow () but if you keep rolling it and rolling it and rolling it () the furrow gets deeper and deeper and deeper ()

and that's why you're trying to set up a new pathway () really () it's the same as if you play the guitar () you learn muscle memory around chords () and so on () with dyspraxia () again () you're trying to set up those new sequences if you like () so that's dyspraxia () and that's why it has to be intense () and that's why it has to be daily and it has to be very consistent () whereas with an inconsistent phonological disorder () you're picking out () okay () 'what are the sounds that they really mess up?' () some sounds are okay () but some sounds aren't () I want to teach the sounds that they're struggling with () so it is different () because you're picking on the sounds that you know would make a huge difference if they could get them right () I think the other thing is () if they are just inconsistent with their phonology
they are going to get it quite quickly. You’d be amazed at how quickly some children can learn a new sound when they can do other sounds well, but it’s at times a very lengthy process. Although they feel the same if you were to listen to the two children, they’d sound the same, but actually but actually the process is really really different. Does that make sense? That’s how I feel.

Yeah, that’s interesting. It’s so much more deep seated. It’s so much more that you’ve got to start from scratch and set those pathways up whereas with the inconsistent phonology they’ve got some things, there’s some things they haven’t got. It’s almost like a jigsaw, you’re trying to fill in the pieces and I feel the verbal dyspraxia is quite different from inconsistent.

That’s just how I feel. Brilliant. Yes, that makes sense. Thank you ever so much.
I: Just to reiterate, I'm not testing your knowledge at all. It's just about your opinions and what you think about DVD and the uncertainty surrounding it.

P: Okay

I: So my first question is, what are the diagnostic characteristics you look out for when diagnosing DVD?

P: Okay (.) so I would look at vowel distortions and inconsistencies (.) severe phonological disorder (.) so disordered production of consonant sounds (2.) I would also look out for their syllable awareness (2.) prolonged sort of disorder (.) and motor programming (.) yeah (.) and so inconsistent production of words (.) so when they've said a word (.) do they say it in different ways then when they produce it (2.) um and also (.) they struggle when they have to rely on their own representations whereas (.) if they were to imitate (.) this may be a bit more successful (.) anything else (.) ah and prosodic abnormalities.

I: Brilliant (.) thank you (.) So there was a position paper written in 2011 by RCSLT and it discusses some of the controversies of diagnosing DVD (2.) Currently (.) there is no validated list of diagnostic features a child must present with in order to gain a diagnosis of DVD. (.) What is your opinion on this uncertainty?

P: Right (.)

I: So for example (.) ASD (.) there's a published list of characteristics a child must present with (.) to get this diagnosis (.) however there is no such list for DVD despite therapists using the term (.) So there are things we look out for (.) like you said (.) inconsistencies (.) but yeah (.) there's no list of validated features as of yet (2.) What is your opinion on this? (.) The fact that there's no set criteria (.)

P: It's a bit concerning that we don't have something we can rely upon with no evidence base to base either (.) I think a lot of therapists use their judgement on this (.) follow on from papers that they've read (.) I follow on from information that I've received as a student (.) but also from things that I've read more recently about DVD (.)

I: Okay (.) and in terms of assessment (.) what kind of materials (.) assessments (.) would you use in order to assess a child with a potential diagnosis of DVD? (.) In order to help you make that diagnosis.

P: We tend to use the Nuffield (.) and I would use the Nuffield (.) I always have

I: Okay (.) what specifically is in the Nuffield that constitutes the assessment?
P: You would do an assessment initially ( ) look at their ability to sequence ( ) syllable 
42 articula ( ) production ( ) and then it has a set programme that you can follow
43
44 I: Brilliant.
45
46 P: I would tend to use the ( ) to assess ( ) I mean ( ) I don’t work hugely with
47 children with speech sound impairments any more ( ) but in the past I would use the
48 STAP ( ) I know some therapists in our department would use the ( ) but
49 there is an assessment within the Nuffield that I have used in the past
50 I: Okay ( ) and do you feel able ( ) or comfortable ( ) to decide on a diagnosis of DVD on
51 your own? ( ) or if not is there a certain person you’d ask a second opinion from?
52 P: No ( ) I think I would be able to make a diagnosis based on the information that I had
53 entered previously ( ) and make a diagnosis of DVD ( )
54
55 I: Is there any reason why you think you’re comfortable in making this diagnosis?
56 P: I think I am an experienced therapist I would feel quite confident in seeing a child with
57 ( ) we have a service ( ) and we have a diagnosis from within the ( ) In our department now
58 ( ) we do have an SSL service ( ) and they tend to see all the children with speech sound
59 impairment ( ) and they are more specialist now ( ) and there is one therapist in our
60 department that is very specialist ( ) very experienced in that area ( ) So I would ask
61 for advice or support if necessary.
62 I: What intervention strategies do you think are useful for a child with DVD?
63 P: Do you mean in terms of the type of therapy we provide?
64 I: Yes
65 P: Lots and lots of repetition ( ) and ( ) in the past ( ) making sure that they had access to
66 regular therapy ( ) lots and lots of repetition of the same sound ( ) and making sure
67 everyone around them is using the same techniques as we are ( ) Again I would use
68 Nuffield ( ) although more recently we have introduced POPAT into our service as well
69 ( ) but I would personally rely more on Nuffield ( ) I feel more comfortable with that
70 resource
71 I: Okay ( ) thank you ( ) would you consider use of AAC in your management of a child
72 with DVD?
73 P: I think that would depend on the child ( ) and the severity ( ) and how frustrated they
74 were by their difficulties ( ) it’s not something I’ve considered in the past ( ) but it’s not
75 something I’d rule out either ( ) depending on the specific needs of the child
76 I: Great ( ) so in this position paper that I mentioned ( ) RCSLT state that there is no
77 evidence for blocks and breaks style therapy ( ) so 6 weeks on 6 weeks off ( ) What’s
78 your opinion in terms of intensity of treatment and how much therapy we should be
79 providing?
80 P: I think that ( ) generally ( ) we no longer provide breaks for children who are
81 receiving phonological therapy ( ) because we don’t see the effectiveness of treatment
() If we're working with them and we feel they need ongoing and continuous therapy [1] 70

we will continue to provide that () and that sort of giving 6 weeks on 6 weeks off hasn't 71
been effective for children with that nature of difficulty () so we do tend to provide that 72
level of support depending on the needs of the child () There are times when they need 73
a natural break () but in terms of breaks within therapy () we don't tend to do that any 74
more

I: Okay

P: Especially a child who has a severe speech disorder like DVD () we wouldn't 76
necessarily give them breaks and breaks of therapy

I: I know it's different for each child () but roughly how many hours per week () or how 78
many sessions would be considered intensive therapy?

P: Again () yes it does depend on the child () but my thoughts are () a child should 80
have 2 or 3 sessions per week with a TA supporting them to continue the program of 81
therapy () Thinking about the children in our department who have DVD () I know 82
one of them has therapy over 3 days () and then has a TA then who carries out the 83
programme () I couldn't pinpoint hours but it is quite a lot

I: Do you and other SLTs specifically go in to see these children 3 times per week () or 84
do you set work for the TAs to carry out over the week?

P: Yes speech therapists () so this child I was talking about () a therapist does go in to 86
see him 3 times a week () and then on top of that he has support from his TA who 87
carries out the programme with him () also parent support () so the intervention really 88
is daily () obviously with service constraints and things () we can't provide daily 89
support () parental involvement is crucial [] otherwise () you know () it's not going to 90
be effective () but () I would envisage that a child who has that severe sort of speech 91
disorder should need regular input () whether that's by a speech therapist () or 92
through a speech therapy assistant

I: Great () thank you () So my last kind of question () is about the differential 94
diagnosis of DVD and inconsistent phonological disorder () So I know that a lot of their 95
() um () kind of overlap () and I know in the speech sound pathway, IPD and DVD both 96
follow the same path () So I think the argument is () if the outcome for these speech 97
disorders is the same in terms of therapy () is there need for separate diagnoses ()

I: Saying that () would your assessment of a child with suspected DVD differ from your 99
assessment of a child with IPD?

P: No () not necessarily () I would assess them in the same way

I: Are there any assessments that you would maybe use with someone with DVD but not 101
with IPD () or vice versa?

P: No [] I would still do the same [] would use the STAP assessment and the Nuffield

I: Okay () and in terms of intervention strategies () What are your views on the 106
differences between IPD and DVD in regards to therapy?
P: Again, I think I would use the same sort of approaches with both (.) I rarely work with those client groups any more but in the past I think I would (3) because of the nature of their difficulties (.) I would do the things that I thought were helpful for both (.) So I think I would still use the same approaches for children (.) I mean perhaps (.) that if the child has got DVD (.) actually with either of the children (.) the prolonged nature of the difficulties and how long it does actually take (.) I don't know whether it's the same with IPD (.) as I say those aren't a client group I work with regularly any more (.) I don't really know enough about the differences between them (.) but yes (.) I think I would use the same approaches management (.) or would it be influenced more so on the child's presentation?

P: For me personally (.) with all the children I work with (.) whether they're speech or language (.) I would always look at their characteristics first (.) and how they present (.) and what conclusions they've come to rather than what label they've actually got (.) what their label is (.) I would always look more at how they present and what are their features

I: Okay (.) and in terms of intensity as well (.) so would both client groups (.) DVD and IPD (.) would they both receive the same level of intensity?

P: I think it depend again on the child (.) yes (.) I've said to you before (.) in terms of what we provide (.) if we feel a child continues to need regular input from us (.) then we don't stop that input (.) At the end of a set number of weeks (.) we would re-evaluate where the child is at and if we feel they need continuous input (.) we would continue going with them (.) This does bring a lot of constraints on a number of resources (3)

I: Super. This would be the only thing on the diagnosis (.) it would be more evidence for what (.) the need for more resources to support the children with DVD by the nature of their difficulties (.) but then IPD children present in similar sort of ways (.)

I: Brilliant (.) thank you very much
Participant 4

I: Thank you again for participating in my study. I'm not trying to test you in any way.

P: I'm just trying to get your opinions on DVD what kind of things you would use to

I: assess (.) and what therapy you'd provide

P: Ok

I: My first question is (.) what are the diagnostic criteria you look out for when
diagnosing DVD?

P: So from my perspective (.) I'm aware of key characteristics (.) those that have been
written by (.) documented in the position paper by RCSLT (.) and also on our speech
sound development guidelines (.) we've got a kind of criteria (.) and those ones are
complexes with speech sounds (.) more difficulties with multisyllabic words (.)
looking at complexity of the problems and the disordered difficulties (.) but for me (.)
when I think of DVD (.) I think of the long term implications (.) so all those
suprasemantical difficulties (.) I think like prosody (.) and rate of speech (.) and the
multisyllabic words (.) then that link in with that (.) because I feel (.) that you shouldn't
look at DVD until they've had a chance of appropriate therapeutic intervention (.) in an
environment that is conducive to that style of learning (.) and then if there are still
residual difficulties (.) I think then you can start to say (.) that this may be a
characteristic of DVD (.) So I am very much that kind of backwards (.) rather than forward
thinker (.) I accept clinically that there are difficulties (.) and actually the way you would
deal with DVD is the same way you'd deal with a complex phonological disorder (.) so
clinically (.) you don't really need to worry about it (.) personally (.) I think what you
need to do is (.) do the therapy (.) and then start thinking (.) well why isn't this
improving (.) and then start looking at some of those additional layers...

I: Great (.) thank you (.) So as you are aware (.) in 2011 RCSLT wrote a position paper
that discusses some of the controversies around the diagnosis of DVD (.) and how there
is currently no validated list of diagnostic features (.) what is your opinion on this
uncertainty?

P: I think I've already answered that in (.) that I think it's right to have (.) if you've got DVD
(2) in my mind there's a difficulty that is the long (.) and so you shouldn't be going that
diagnosis too early (.) it gives false representations to the family (.) or education (.) or
you are implying that a child is never going to improve (.) and in some children that
does happen (.) but I don't think it should be something that's diagnosed too early (.) (2)
which would approach from the term of diagnosis (.) out of the term of
intervention (.)

I: Ok (.) and so in terms of the fact that there is no validated list...

P: There isn't (.) but it does say with DVD that they will have long term difficulties with
prosody and suprasemantical difficulties relating to (.) rate of speech and (.) um (.)
intonation patterns (.) and that reduction of poly or multisyllabic words when they've

got quite complex sentences
P: Because it's confusing. I think that's why it personally. Let's see. There are children aged 4 (2) they can look exactly the same (4) the same clinical intervention (2) and one will improve (4) and one possibly won't improve in terms of fully improved (4). I think even a child with DVD has the potential (2) and the capacity to improve at a speech sound level (2) it's all those other bits

I: yes (3) the fact (1) however (1) that we're diagnosing DVD (1) without this validated list of what exactly is DVD...

P: are we diagnosing it? (2) how many? (1) do we have data on that? (1)

I: it is a very low prevalence (4) I'm not sure of the exact statistics (1) and there is question over whether the prevalence rate is low (1) or whether we are not diagnosing it (1). And what I'm trying to get to with my research (1) is (2) despite the term being used (1) even though it's not very much (2) we still do use it (1) without any list of validated characteristics to refer back to

P: DVD would be similar new (1) because DVD has a list of characteristics (1) but they can also cross over and overlap with a few other areas (1) so that's because (1) I am not an empirical evidence-based profession (1) as much as we'd like to be (2) because always the environmental factors that will impact on our ability to either diagnose or not diagnostic make or don't (4) and I don't think (3) our children are not black and white (4) therefore having a characteristic list (2) even if we get one and it's agreed by APA and RCoA (1) I still don't know whether or not it will be easy to utilise that in terms of whether there will be so much cross over with phonological delay and a phonological disorder (1) at a certain level (1) depending on the age of the child (1) and the presentation of the child at that point (2) you know (1) one of the biggest things that I think a lot of the older therapists would do is (1) if a child presents with a vowel only system (1) and you immediately think (1) it's potential DVD because of this (1) and then you've got DVD and the other element of (1) it impacts on the expressive language (2) a lot of therapists start working on the speech too (1) in my opinion (1) again there's no evidence (2) this is just anecdotal (1) how can you work on that when they haven't got a label system (4) so developmentally (1) you wouldn't expect that speech sound system to be kicking in (1) because they don't have up to X amount of words (1) before the speech sound system kicks in (2) how can you argue that that is DVD (2) I think as well (1) there are too many cross overs with language development (1) without developmental norms (1) and I think you have to assimilate them all (1) however I do think it's worth while diagnosis to have (1) past a certain age (1) and then I think some of those characteristics that are used are quite relevant...
I: Am I right in saying that (I) um (you think (you think it's more beneficial to have (the) the perceptual features (what you see in a child) rather than the label DVD (so say (in order to inform your management of that child?

P: Yes I think so (because again (clinically) a label means nothing to us (does it?) (2) Even an ASD label (means nothing to us (we clinically will deal with what's presenting ()

I: Great (thank you (So (moving onto assessments (What assessments or types of assessments would you use in order to assess someone with potential DVD?

P: Considering (I'm very reluctant to give a diagnosis (I wouldn't even think about that (so again (for me it would be looking clinically at how the child is presenting (and doing an assessment based on that (2) So it may just be an informal assessment (so I would look at fundamental sounds and ability to do that (2) repetition of CVC words (2) Reading some copying of CVC words but also these sounds requiring production as well (2) I do repetition of words if need be (but I wouldn't do it normally (2) I think it's soul destroying for the child having to say the same word over and over and not get it right (2) I tend to use a puzzle (whereby they've got to request a piece and then tell me as they're putting the puzzle together what it is (so that's for the younger children (2)

And then for my older children (once we've got up to the level where they can cope with informal assessment (I'll start with word level and then also connected speech level (but I don't have the time or the facilities to do NICE type formal assessment (which is percentage correct (correct) so I don't do that (2) I'd do that informally to be honest (but there's a section on the NICE that works out (for you as well (2) but I've never (I don't think I've ever felt the need to do that because I've been able to figure out what's going on with the child (on a more informal basis

I: Okay (and so with their speech (would you feel the need to draw up their phonetic inventory?

P: Again there's not that many DVD children who I think are truly DVD who have got huge amounts of incoherence (that's actually one of the smallest elements (when they're young they have (but then you don't know whether that's to do with them not knowing the label of the individual item (and they haven't got that templatic profile to be able to back it up (so I think for me (when I start thinking about that diagnosis (I'd come early at all for me (all of those difficulties should have disappeared

I: Okay (So I understand that you said (you don't tend to diagnose DVD (or if you do (it's after a long period of time seeing that child (Would you say you felt comfortable in making that diagnosis on your own (or is there someone you'd ask a second opinion from?

P: No (because I would be the second opinion that everyone would come to (laughs (in this department anyway (laughs)
I: [laughs] and so am I right in saying that you are confident in making this diagnosis due to your experience and your role?

P: yes it is as the therapist who deals with complex speech disorders it would be for sure. However, the case (s) I've needed extra help I have gone outside the Nuffield and done some work with them. Many years ago though, I was more than happy to approach them.

I: Okay so we've spoken about assessment and how you'd mainly use informal assessment. I look for certain perceptual features in their speech and in terms of intervention strategies. If someone with characteristics of DVD or has DVD was to have therapy with you what strategies would you use?

P: well I think from my perspective lots of the Nuffield works really well for all children with complex speech difficulties. I wouldn't do it as prescriptive as what the Nuffield suggests because I think that's quite arduous for a child of a certain age um I would take the principles and I would adapt them to work with a child.

I: Could you expand on that? Do you mean instead of working step by step through all the processes, i.e. CVC V CVC do you miss out certain steps?

P: I think I tend to do the whole step by step so single sound / CVC / CVC and then as you're getting to the top of one you're then introducing another sound and working on that one and you're moving those up so yes I do that I just wouldn't (2) so a wouldn't use the pictures but I wouldn't do the repetition at single sound level as much as they do just because if the child can do it the child can do it and if not yes you would do that as well but I don't tend to use the resources just the principles.

I: These principles so do these include using specific strategies?

P: I would use a clinical approach which is evidence based how I then run my clinic well that's a very anecdotal non evidence based way isn't it and within that there's lots of drill work lots of repetition and I've anecdotal come across some evidence to do with frontal lobe that's linked with ASD so with the frontal lobe that's your mirroring lobe and some ASD individuals are impaired because that mirroring doesn't work properly they don't mirror the same volume as you or the same kind of calmness as you and the same appropriateness as you so I was thinking about it from the mirroring point of view not the social point of view. So I encourage them to look at me lots and lots of tactile approaches things like that.

I: Okay great Would you consider use of AAC at all in your management plan?

P: I have done yes it's never worked as successfully as I'd have liked it to and I've never gone high tech there's never been a need to. Low tech type picture books linked into categories and things that you would use with your disphasic patients I've trialled some of those in the early days and to be honest I don't
think they work very well. There's been limited success and again that was because we accepted that it was the disordered speech sounds presentation as a consequence of a diagnosis like this and so you're jumping to the speech and what anecdotally I've learned over the years is that it would have been so much better to do Makaton which I know is considered AAC but more therapy through language. For those words up and running through language it doesn't matter what the approximation is so that communication going and then map on the sounds afterwards.

I: So using strategies along side speech rather than compensating

P: I think completely stopping speech and doing language work I would say. Even if it does still materialise that they do have DVD (I think they need a robust expressive language system) and lots of children anecdotally that we have found didn't know the label so for example cup. Some did so some would only have a vowels only system and you would go straight into working with for example. P word final to get some sort of approximation of that and that worked well but for a large proportion of children 2 and a half 3 year olds it wasn't always just the vowel I don't think it was a vowel distortion I think it was a lack of labelling.

I: To clarify do you mean those children would have an impaired semantics system?

P: Yes ( ) but yes ( ) have used AAC (I've used Makaton and I've used pictures and stuff as well) Makaton would be my preferred choice but because I'm coming from that language element and then with pure speech ones and there's only been (2) one ( ) that I remember but to be honest he had such good non-verbal communication skills he didn't need anything else (2) He used loads of gesturing ( ) pointing ( ) he picked up sounds as well through therapy.

I: Okay ( ) and so on the same subject of intervention the RCSLT position paper states that there is no robust evidence for blocks and breaks style therapy ( ) so 6 weeks on 6 weeks off ( ) in terms of intensity of therapy how often would you say a child with DVD needed intervention?

P: For my perspective ( ) don't have to comply with that ( ) I see mine for as long as they need ( ) as long as it's clinically appropriate ( ) they can be seen as much as they need ( ) I have trialled the twice weekly therapy ( ) because there's evidence to suggest that works ( ) but again ( ) then I think we're reinforcing the wrong message ( ) that we are the only ones that can improve their system (2) I think we are the only specialists that can improve it ( ) but I think we can uphold those proximal forms ( ) to then carry on certain element of it ( ) quite successfully ( ) as we get up to a certain level (2) I'm all for intensity in terms of regular contact with us as a department ( ) but I don't think that intensity needs to increase with as per week ( ) because I think we can utilise that time done in an environment with a person that's proximal to them ( ) and this is the whole Makatoness thing that we're moving towards now anyway ( ) and prudent healthcare.
198 I: Yes exactly (.) and with the constraints of service delivery as well (.) yes

199 P: if I had the opportunity to do it (.) and this was when I was very early on in my post
200 (.). as a newly qualified (.) where I was using evidence to empower my clinical reasoning
201 and judgement (.) and now I recognise practicality (.) why is it that empirical evidence is
202 so much better to have (.) but you still need that overview of evidence to be able to
203 justify it

204 I: Okay (.) thank you (2) my last set of questions is regarding the differential diagnosis of
205 DVD in relation to inconsistent phonological disorder (.) in terms of assessment (.)
206 would your assessment of a child with potential DVD differ from a child with IPD?

207 P: I don’t know whether I’d beat myself up enough to worry about that (.) I think to start
208 with (3) yes (.) I would worry more about a child having the label (.) so being able to say
209 that horse is horse (.) but really changing it around (.) so it would be realised as ‘orty’,
210 ‘orty’, ‘ootsy’ (.) now to me (.) that’s not DVD (.) to me that is an inconsistent
211 phonological disorder (.) because there’s no way you could phonologically explain that
212 (.) if that was happening (.) there’s no pattern (.) whereas with DVD (.) there is often a
213 pattern (.) it’s a loose pattern (.) but you’d often be able to find a pattern (.) you’d be
214 able to use your clinical knowledge of delay and disordered processes to work it out (.)
215 for example she can’t do that because actually all of her system is voiced (.) but actually
216 (.) she can’t cope with that voice so she’s not voicing it (.) she’s stopping it (.) it would
217 take a while (.) but you’d be able to get it (.)

218 I: Okay (.) you mentioned earlier about using informal assessment to assess a child with
219 DVD (.) would this be the same with IPD?

220 P: yeah (.) with IPD you’d do the informal assessment with the repetition (.) and with
221 DVD you tend to do more of a formal assessment (.) more often or not (.) you have to
222 listen to them more than once to say the word (.) to make sure that you’ve got the right
223 representation (.) phonologically

224 I: Great (.) and my last question is about therapy (.)

225 P: I think the biggest difference is (.) I’d use core vocabs with IPD (.) You don’t get that
226 many inconsistent ones (.) but you get a few (2) and then you tighten up their processes
227 so they have got some consistent processes (.) but then you actually work on it in the
228 same way (2) once you’ve got consistent processes (.) you do the same (2) but I think
229 in all of this (.) what’s important to remember is (.) you have to make sure that the
230 language levels are robust or appropriate or at the level you want them to be (.) because
231 that doesn’t happen (.) you could explain that a child is process driven as well or
232 semantically they’re not coping with the words (.) there’s too much cross over in
233 that as well

234 I: Yes (.) so you emphasise the importance of the underlying language difficulties before
235 looking at speech?

236 P: Yes (.) I think just being more aware of that is really important
Participant 5

I: Like I said its not to test your knowledge in any way [.] its just about your opinion and your views on DVD and what kind of things you'd lookout for in the diagnosis of it. [.] so my first question is what are the diagnostic criteria you look out for when diagnosing DVD?

P: I would obviously look for very disordered speech [.] very limited range of phonemes [.] consonants and vowels [.] I do look for inconsistent production as well [.] I would check out and look out for any sort of displacement for placement for these consonants or vowels [.] I know that some of the literature talks about feeding difficulties [.] obviously we look at that and case history [.] I do check out sort of non-speech motor movements as well [.] and I would check out whether or not spontaneous versus imitation so sort of things like that.

A: fantastic thank you [.] so in your participant information sheet I've kind of written a little bit about how RCSLT wrote a position paper [.] you don't have to have read it [.] if not its fine [.] but basically it discusses some of the controversies of diagnosing DVD so we've got the umbrella term which is speech impairment and under this is DVD so its a sub group of speech impairment [.] however there is no validated list of diagnostic features and children are often diagnosed with the speech impairment with features of DVD as opposed to DVD itself [.] and this might be due to the uncertainty of the diagnosis [2] what your opinion is on the uncertainty of the diagnosis so that fact that we haven't got a list?

P: I do tend to look at the list in the position paper to help guide my clinical decisions [.] and I can't think of them off hand [.] there were a few that [.] ASHA as well I think there's three and I can't think what they are but they're the ones that I would look at [.] I think in terms of that is uncertain and I am very reluctant to ever say a child has got DVD because it changes so much over time [.] and because there's such a think on the surface quite similarities between the inconsistent phonological disorders and DVD that I think you need to nearly do that long period of diagnostic therapy first [.] so yeah.

A: Ok great [.] you said you use this paper to diagnose is there anything else interesting in the paper that you read?

P: I had a look at it [.] I can't think

A: Yeah no its fine it is very long

P: Yes I did have a flick through that you know when it came out and particularly because I was treating that little boy but someone else diagnosed him [.] but yeah

A: Great ok [.] what assessments are useful to assess a child with a potential diagnosis of DVD [.] so what kind of thing would you use
A: Yeah if you could just to confirm thank you

P: I would assess initialisation of single consonant (CV) vowels and then working up through the structure of consonant-vowel (CVC) nonsense syllables (CVCC) so I would do both if they could produce them spontaneously versus on initiation (CVCC) sometimes I have used the LEAP which is looking at more the inconsistent production to see if there is sort of more than 90% inconsistent then I would much more inconsistent phonological disorders rather than DVD (CVCC) yeah within the Nuffield as well I would look at some speech motor production as well.

A: ok so more informal assessment would you say

P: Yeah

A: ok great (CVCC) so you've mentioned which assessment you would use so you've gathered all your data, you've got an idea of what the child looks like (CVCC) would you be comfortable in deciding on the DVD (CVCC) a diagnosis of DVD on your own or is there a second opinion you need to ask for or?

P: I'd probably look within the department because we have other therapists who are very skilled and experienced and have worked previously where they are the specialises in speech sound disorders (CVCC) I think it might also depend in what situation the child was in if it was a sort of statutory assessment then I would have to write down and that it was part of the legal document in terms of their statement of special educational need (CVCC) whether or not I'd want to give that label, as I said I think there's controversy over it and I think to actually give a label particularly a very young age if it was a very young child (CVCC) I probably would either consult with or ask a second opinion (CVCC) I'd probably consult with peers initially

A: Yeah and just to reiterate so that's due to the fact that there are implications of the label so the long term impact of a label you mean

P: yes I think and expectations of parents and of the professional really as to what that label will mean for that child (CVCC) both in terms of the level of impairment, the impact of that and really how we would build our provision to that child in terms of (CVCC) I think with a label such as that you will know have certain expectations on how much provision a child would need in order to overcome that impairment (CVCC) but obviously an assessment and the decision about provision would be needs based rather than resource based
A: yeah absolutely \( ) \) great yes thank you \( ) \) so you would get a second opinion based on the fact that there are implications to a long term label?

P: I may not always ask another therapist to see that child directly but I would probably use the assessment information that I’ve gathered and consult with \( ) \) even if it was even in a clinical supervision situation

A: yeah ok \( ) \) so we’ve spoken about assessment so onto management so which intervention strategies would you use with someone with DVD

P: I would use a range of interventions \( ) \) I often follow the Nuffield dyspraxia program in terms of building up the range of sounds and the structures that a child can produce \( ) \) I always augment that with visual support strategies so I’ll use \\
artication a lot to help the child understand and produce some of the sounds \( ) \) sometimes I’ll use signing like Makaton \( ) \) Both signing and symbols to help both the child understand me but help them have a mode of communication both with me but particularly with home and school \( ) \) I know they talk about children with DVD having intact rules and maybe not needing a lot of input side of the \( ) \) but I would often do PEPAT \( ) \) So the program of phonics awareness training I think that’s what it is, but I would use that or Metaphone \( ) \) with those sorts of awareness strategies as well

A: ok great \( ) \) you said about signing things, would you consider use of more high tech AAC or?

P: I haven’t had a child that needed \( ) \) high tech AAC \( ) \) mainly the children I have had over the years have needed either to sign symbols \( ) \) I suppose yeah thinking about the current world of technology that we have even if it was a phone or an ipad if it was symbols or pictures on that \( ) \) I have used photographs of families as well family members where a child has had difficulty expressing their names but I haven’t used anything high tech, not to say I wouldn’t \( ) \) I just haven’t had a child who needed that level

A: so more like communications boards sort of thing then, pictures

P: Yeah like choosing boards and yeah

A: ok great \( ) \) and they use that then as a means of communication or is that to implement in therapy

P: I use it with just the structure of the sessions particularly one of the children I work with had got extremely limited attention listening skills in we had a first nest last with symbols and Velcro boards that they remove like a task planner so I use that \( ) \) in class the child would use it for choosing school dinners versus lunches or whatever snack he wanted to express that

A: yeah I see ok \( ) \) it sounds a bit like PECS is that similar to
P: I think with PECS the aim of it is you would week on the child’s initiation ( ) this child is very communicative just didn’t have the means or the speech sounds to articulate and to get the message across so yeah.

A: great thank you ( ) so in terms of intensity ( ) SLTs state that in their position paper there is no robust evidence for blocks and breaks style of therapy so six weeks on six weeks off ( ) what is your opinion on this?

P: I would agree that a child with a speech sound disorder which you were considering may have features of DVD ( ) definitely don’t benefit from breaks in therapy ( ) I mean even a child with speech sound delay needs at least 8 weeks therapy in order to reach the targets and consolidate and begin to generalise those ( ) I mean one of the children 3 see him 3 times a week that is because probably it was backed as part of the statement at educational level but he has made huge progress in 12 months from open vowels to now using CVCV clauses with 2 of those together ( ) subject variable object 3 of those together rather ( ) so it has worked for the child that I am seeing so I would say at least twice a week ongoing without a break.

A: ok so your sessions probably last about

P: they last about 45 minutes to an hour

A: and that’s 3 times a week

P: in an ideal week but obviously there is times when its only twice a week and he’s also seen by a teaching assistant on the days that I don’t see him so he is getting a lot daily really.

A: ok thank you ( )

P: I think that’s an ideal situation though I think for other children it might be twice a week ongoing ( ) I mean maybe with some breaks depending on the child’s level of motivation and the parent’s ability to bring them ( ) I work within a school based service so I travel to them so we don’t have the impact of a parent being able to access a clinic because we travel and provide it on site.

A: ok great thank you ( ) so we’ve said about how often child needs therapy so my last kind of couple of questions is about differential diagnosis ( ) I know you mentioned about inconsistent phonological disorder being really similar to it earlier ( ) so would your assessment of a child with suspected DVD differ from that of a child with consistent phonological disorder? ( ) So I know at the start you wouldn’t necessarily know but in terms of maybe reassessing and finding outcome

P: yeah I think I would initially assess them both the same way because the DEAP isn’t something I do standard it’s just because it’s not readily available within the department ( ) we’ve got one in the department ( ) so I would tend to do the Nuemark Assessment as I said you know assessing their sound production at different levels ( )
within that I’m not sure I would notice the inconsistencies because its one ( ) but maybe through the period of language therapy if you knew you did a lot of drill work so you did a lot of repetitions of the same sound or the same I think when you go up to syllable level it would be more apparent ( ) say 5 or 10 in a row and if it was inconsistent then I would probably rethink my thoughts as to that it was more inconsistent phonologically so ( ) although the DAP and Dodd quotes more than 40% ( ) and then I’d probably use more of a core vocabulary approach in order to get the consistency ( ) There’s no point doing phonological based therapy if there’s no consistent plan for that really

A: My last question is ( ) about intervention ( ) you mentioned about core vocab ( ) is there any other differences in intervention techniques between IPD and DVD?

P: With IPD ( ) they tend to not have the rules ( ) so ( ) their whole storage of those sounds and words aren’t consistent ( ) so I’d probably work a lot more on the core vocabulary and the input side of it ( ) I think that’s it ( ) So I’d use much more of a core vocab approach until they got consistent and then I’d move onto the usual phonological base where we’re contrasting errors ( ) and the actual articulation of sounds

A: Okay ( ) so IPD would be core vocab ( ) and then with DVD...

P: I’d probably follow a Ruffin ( ) I still do input work with both to be honest ( ) I think with the DVD ( ) I do a lot more drill work ( ) a lot more on the motor output and getting that consistent motor programme in place ( ) so a lot more drill work ( ) and I know with core vocab you are repeating to get that consistent ( ) but once that’s there I’d do a lot more phonological based contrast therapy ( ) whereas with DVD ( ) it’s more the articulation and building up the segments

A: Just quickly as well ( ) going back to the labelling ( ) do you think it’s important to have the label DVD ( ) or would you base their intervention more on their presentation ( ) their characteristics?

P: I would use the presentation more than the label ( ) I think it is useful to have some sort of differentiation between a severe speech sound disorder and DVD ( ) in order to help us clinically ( ) and prioritise those children ( ) and in terms of clinical decision making and clinical reasoning ( ) we need to have much more priority for those children and I think having a label ( ) will certainly help us do that ( ) but I think there’s a fine line between that and another severe speech sound disorder ( ) I think we need to look at ( ) not just the level of impairment ( ) but also the impact in terms of their level of intelligibility ( ) participation in daily living ( ) and their level of concern ( ) and others ( ) I do think having a label will help us prioritise them.
Appendix 7

PARTICIPANT CONSENT FORM

Reference Number:
Participant initial:
Title of Project: The views of Speech and Language Therapists regarding issues surrounding the diagnosis and treatment of Developmental Verbal Dyspraxia
Name of Researcher: Amy Rigden

Participant to complete this section: Please initial each box.

1. I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time before or during data collection and up until two weeks afterwards, without giving any reason.

3. I agree to take part in the above study.

4. I agree for the data to be retained for research purposes

Signature of Participant Date
_______________________________________  ___________________

Name of person taking consent Date
_______________________________________  ___________________

Signature of person taking consent
_______________________________________

* When completed, 1 copy for participant & 1 copy retained by researcher
Appendix 8
Ethical Approval

Thursday, 23 November 2017

cshs/ethics/approved

Rigden, Amy
BSc (Hons) Speech & Language Therapy
Cardiff School of Health Sciences

Dear Applicant

Re: Application for Ethical Approval: The views of Speech and Language Therapists regarding issues surrounding the diagnosis and treatment of Developmental Verbal Dyspraxia

Project Reference Number: 9649

Your ethics application, as shown above, was considered by the Health Care and Food Ethics Panel on 22/11/2017.

I am pleased to inform you that your application for ethical approval was APPROVED.

Minor issues may still need addressing before you commence any work – if so these will be listed below.

N/A

Where changes to the information sheet, consent form and/or procedures are deemed necessary you must submit revised versions to the relevant ethics inbox. If you are a student – your supervisor must do this on your behalf.

Note: Failure to comply with any issues listed above will nullify this approval.

Standard Conditions of Approval

1. Your Ethics Application has been given a Project Reference number as above. This MUST be quoted on all documentation relating to the project (E.g. consent forms, information sheets), together with the full project title.

2. All documents must also have the approved University Logo and the Version number in addition to the reference and project title as above

3. A full Risk Assessment must be undertaken for this proposal, as appropriate, and be made available to the Committee if requested.

4. Any changes in connection to the proposal as approved, must be referred to the Panel/Committee for consideration without delay quoting your Project Reference Number. Changes to the proposed project may have ethical implications so must be approved.

5. Any untoward incident which occurs in connection with this proposal must be reported back to the Panel without delay.

6. If your project involves the use of human samples, your approval is given on the condition that you or your supervisor notify the HTA Designated Individual of your intention to work with such material by completing the form entitled “Notification of Intention to Work with Human Samples”. The form must be submitted to the PD (Sean Duggan), BEFORE any activity on this project is undertaken.
This approval expires on 22/11/2018. It is your responsibility to reapply / request extension if necessary.

Yours sincerely

P
Chair of Department of Healthcare and Food Ethics Panel
Cardiff School of Health Sciences
Llandaf Campus
Western Avenue, Cardiff CF5 2YB
Tel: 029 2041 7125
E-mail:

PLEASE RETAIN THIS LETTER FOR REFERENCE


**Appendix 9**

**Ethics Application form**

When undertaking a research or enterprise project, Cardiff Met staff and students are obliged to complete this form in order that the ethics implications of that project may be considered.

**If the project requires ethics approval from an external agency (e.g., NHS),** you will not need to seek additional ethics approval from Cardiff Met. You should however complete Part One of this form and attach a copy of your ethics letter(s) of approval in order that your School has a record of the project.

The document *Ethics application guidance notes* will help you complete this form. It is available from the [Cardiff Met website](#). The School or Unit in which you are based may also have produced some guidance documents, please consult your supervisor or School Ethics Coordinator.

Once you have completed the form, sign the declaration and forward to the appropriate person(s) in your School or Unit.

**PLEASE NOTE:**

Participant recruitment or data collection MUST NOT commence until ethics approval has been obtained.

**PART ONE**

<table>
<thead>
<tr>
<th>Name of applicant:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor (if student project):</td>
<td></td>
</tr>
<tr>
<td>School / Unit:</td>
<td>Cardiff School of Health Sciences</td>
</tr>
<tr>
<td>Student number (if applicable):</td>
<td>St20056744</td>
</tr>
<tr>
<td>Programme enrolled on (if applicable):</td>
<td>BSc (Hons) Speech and Language Therapy</td>
</tr>
<tr>
<td>Project Title:</td>
<td>The views of Speech and Language Therapists regarding issues surrounding the diagnosis and treatment of Developmental Verbal Dyspraxia</td>
</tr>
<tr>
<td>Expected start date of data collection:</td>
<td>03/11/2017</td>
</tr>
<tr>
<td>Approximate duration of data collection:</td>
<td>8 months</td>
</tr>
<tr>
<td>Funding Body (if applicable):</td>
<td>Click here to enter text</td>
</tr>
<tr>
<td>Other researcher(s) working on the project:</td>
<td>If your collaborators are external to Cardiff Met, include details of the organisation they represent.</td>
</tr>
<tr>
<td>Will the study involve NHS patients or staff?</td>
<td>Yes</td>
</tr>
<tr>
<td>If yes, please state the nature of their involvement and how they will be contacted.</td>
<td>It involves health professionals who work within the NHS but they will not be contacted through the NHS and they will not be asked to comment on any aspect of their work within the NHS</td>
</tr>
<tr>
<td>Will the study involve human samples and/or human cell lines?</td>
<td>No</td>
</tr>
</tbody>
</table>

**Does your project fall entirely within one of the following categories:**

| Paper based, involving only documents in the public domain | No |
| Laboratory based, not involving human | No |
| Practice based not involving human participants (eg curatorial, practice audit) | No |
| Compulsory projects in professional practice (eg Initial Teacher Education) | No |
| A project for which external approval has been obtained (e.g., NHS) | No |
| **If you have answered YES to any of these questions, expand on your answer in the non-technical summary. No further information regarding your project is required.** |
| **If you have answered NO to all of these questions, you must complete Part 2 of this form** |

**In no more than 150 words, give a non-technical summary of the project**

DVD is a complex motor disorder that causes children to have difficulty in creating accurate movement plans to control the articulatory muscles, which make speech sounds. Their speech errors are inconsistent, leading to speech which is very difficult to understand (Dodd, 1995).

A position paper was written by RCSLT in 2011, which discusses some of the controversies around the diagnosis of DVD, which is yet to have an agreed set of diagnostic characteristics. Additionally, there is no single approach that is identified as optimum in the differential diagnosis and overall management of DVD. Pert states that “children who are now described as having IPD would previously have been described as having DVD” (Pert, 2017).

It is evident that there are questions and uncertainties around the identification, or even existence, of DVD. This project aims to explore SLTs views regarding these issues in the context of current practice within the profession.

**DECLARATION:**

I confirm that this project conforms with the Cardiff Met Research Governance Framework

I confirm that I will abide by the Cardiff Met requirements regarding confidentiality and anonymity when conducting this project.

STUDENTS: I confirm that I will not disclose any information about this project without the prior approval of my supervisor.

Signature of the applicant: Date: 27.10.2017

FOR STUDENT PROJECTS ONLY

Name of supervisor: Date: 27.10.17

Signature of supervisor:
PART TWO

A RESEARCH DESIGN

A1 Will you be using an approved protocol in your project?  
No

A2 If yes, please state the name and code of the approved protocol to be used
Click here to enter text.

A3 Describe the research design to be used in your project
Research methods
Data collection will take the form of semi structured interviews lasting 30-45 minutes each (interview schedule attached to illustrate types of questions asked). Interviews will take place in a location that is convenient for the participants, this could be in a quiet room within the University, or in a public place e.g. a quiet area of a cafe. A written information sheet (attached) will be provided to participants prior to them agreeing to take part and on the day of the interview, this information will be discussed and there will be an opportunity for any questions to be answered. Participants will then be asked to sign a consent form (attached). Interviews will be audio-recorded on a Zoom H4N Audio Recorder and the audio files will be transferred to kept securely a password protected PC for storage. The interviews will then be transcribed by the researcher and the completed transcripts will be provided to participants for checking for validation, a timeframe of two weeks will be given. The interview recordings will be destroyed following completion of the project, after the final Exam Board, unless consent has been given for retention of the data for research purposes.
Sample
Between 4-6 participants will be recruited. The participants will need to be qualified SLTs with experience of working with speech difficulties in children, therefore purposive sampling will be employed in order to represent a range of experience and knowledge of DVD.
Recruitment of participants
Therapists who have links to the SLT department at Cardiff Met will be contacted by email (attached), where an information sheet (attached) will be supplied and

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1 An Approved Protocol is one which has been approved by Cardiff Met to be used under supervision of designated members of staff; a list of approved protocols can be found on the Cardiff Met website here
they will be asked to express interest in the study via email to the supervisor.

**Analytical techniques**

Thematic Analysis will be used to explore the meaning that emerges from the transcription, and will be used to formalise the identification and development of themes.

<table>
<thead>
<tr>
<th>A4 Will the project involve deceptive or covert research?</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>A5 If yes, give a rationale for the use of deceptive or covert research</td>
<td>Click here to enter text.</td>
</tr>
<tr>
<td>A6 Will the project have security sensitive implications?</td>
<td>No</td>
</tr>
<tr>
<td>A7 If yes, please explain what they are and the measures that are proposed to address them</td>
<td>Click here to enter text.</td>
</tr>
</tbody>
</table>

**B PREVIOUS EXPERIENCE**

**B1 What previous experience of research involving human participants relevant to this project do you have?**

Final year Student Speech and Language Therapist. Various clinical placement experiences involving regular and extensive contact with Speech and Language Therapists and their clients.

**B2 Student project only**

What previous experience of research involving human participants relevant to this project does your supervisor have?

Doctoral research project involving collection of longitudinal data from bilingual children and their parents. Supervision of multiple undergraduate projects involving human participants e.g. parents, teachers, school-aged children.

**C POTENTIAL RISKS**

**C1 What potential risks do you foresee?**

1) Risk of feeling coerced to take part and right to withdraw
2) Risks involving personal data
3) Risks regarding nature of interview questions

**C2 How will you deal with the potential risks?**

1) On learning about the study via email, it will be made clear that there is no obligation to respond. It will be made clear that participation in the study is entirely voluntary and informed consent will be gained prior to commencement of the interview. It will be made clear that they have the right to withdraw from the study at any point during data collection and up to two weeks afterwards and that there is an opportunity to validate the data following transcription.

2) All data will be stored securely on a password protected PC and the personal details of the participants will be stored separately and will not be included in any outputs arising from the research. The consent forms will be stored by the project supervisor within the University and will be retained in accordance with University regulations.

3) Careful consideration has been put into designing the interview questions in a non-invasive and non-threatening way. However, at any point during the interview, participants can indicate that they do not wish to answer, or continue to
answer, a question. This is made clear in the Participant Information Sheet and will be reiterated verbally at the start of the interview.
Word Count:

Introduction & Literature Review: 3,311
Methodology: 1,203
Results: 2,736
Discussion & Conclusion: 2,594

Final word count: 9,844