

**A Critical Reflection on How Sensory Stories Facilitate High Quality Teaching and Learning for Children with Profound and Multiple Learning Disabilities (PMLD)**

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**Abstract**

This practitioner research paper is an investigation into the use of Sensory Stories in a class with children with PMLD and whether it constitutes as 'High Quality Teaching and Learning' with this cohort. The results suggest that the use of Sensory stories did indeed help students to reach their targets. This success may be partially or greatly due to the use of 'intensive interaction' in conjunction with the sensory stories and signposts further research into the two.

**Introduction**

This small scale practitioner research conducted by a trainee teacher, who has no previous experience of working in a PMLD (*Profound and Multiple Learning Disabilities*) classroom, investigates whether the use of Sensory Stories, in a classroom with a strong ethos of Intensive Interaction, constitutes high quality teaching and learning. This research was carried out in an inner city Special Educational Setting. To set the scene a discussion of the nature of PMLD and the implications for High Quality Teaching and Learning for this group, accompanied by theoretical frameworks and the evidence that underpins these, is provided. Although this research began as a focus on Sensory Stories it soon became apparent that the classroom 'Intensive Interaction' ethos may have played a large part in the success of Sensory Stories. The literature review focuses on; Sensory Stories, Intensive Interaction and Assessment Methods. A rationale is provided for the use of a practitioner research methodology together with a description of the particular methods used and of Denscombe's four key principles informed ethical considerations. Schon's critically reflective model was used in order to move away from technical rationality (theoretical knowledge) to tacit knowledge (synthesis of theory and practice). The Results of the study are presented and reflected upon and a conclusion based on the findings is presented.

**The Nature of PMLD and implications for HQLT**

The term Profound and Multiple Learning Difficulties (PMLD) was introduced by Evans and Ware (1987) and is generally used in the UK for "that very small group of learners who are functioning at the very earliest stages of intellectual development and who have additional (and multiple) physical and sensory impairments". (Imray 2013) A good introduction to the needs and potential for progress particular to children with PMLD is provided by The PMLD Network:

Like all of us, people with profound learning disability will continue to learn throughout their lives if offered appropriate opportunities. Such opportunities must take account of the fact that most people are likely to be learning skills that generally appear at a very early stage of development... For example, some people may have a very small short-term memory and so will need the opportunity to encounter events many times before they become familiar. Constant repetition and a great deal of support will be needed to generalise learning into new situations. Supporting the learning needs of a child or adult with profound and multiple learning disabilities also needs to take account of any additional needs, such as sensory needs (see sensory needs section) so that the best approach to learning can be established. (PMLD Network 2017)

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With respect to Vygotsky's (1978) classification of children's cognitive functioning into age-based groups, Rieber and Carlton (1993) suggest that children with PMLD will function "in the zero to two years range". However Lacy points out that "it is not possible directly to equate infants in the first few months of life to older children who appear to be at the same stage of development" (Lacy 1996) because this does not take account of their years of life experience.

In his constructivist theoretical framework for cognitive development in children, Piaget (1969) describes an initial Sensorimotor Stage, in which the child learns about the world through their movements and senses and this approximates to Vygotsky's zero to two years range. Children with PMLD are generally considered to operate within this sensorimotor stage of development. According to Cherry children utilise skills and abilities they were born with (such as looking, sucking, grasping, and listening) to learn more about the environment. (Cherry 2016)

In contrast to neurotypical infants, children with PMLD will be limited, by their motor and sensory disabilities and any health conditions, in their ability to explore the world. To compensate for this their teachers may bring motorsensory experience to the child. These adults will need particular skills in order to discern whether their efforts are beneficial as, Lacy says:

- Most children with PMLD will be developing communication very slowly and
- perhaps unconventionally in that they are likely to make considerable use of
- non-verbal communication instead of spoken language. Adults working with
- children with PMLD need to be accomplished interpreters of the tiny and often
- inefficient indications of their thoughts and emotions. (Lacy 1996)

There is copious literature about HQLT (High Quality Learning and Teaching) but does this transfer well to children with PMLD? We need to separately consider what constitutes high quality learning and high quality teaching. Lists of what constitutes HQLT, were compiled by authors such as Good and Brophy (1994), Cotton (1995) and Danielson (1996). Of these Danielson's list seems the most comprehensive. For this study however we will focus on the work of Coe, Aloisi, Higgins and Elliot who write "We define effective teaching as that which leads to improved student achievement using outcomes that matter to their future success." This seems relevant for children with PMLD, so long as the outcomes reflect realistic targets. They go on to explain that:

...student progress is the yardstick by which teacher quality should be assessed. Ultimately, for a judgement about whether teaching is effective, to be seen as trustworthy, it must be checked against the progress being made by students

(Coe, Aloisi, Higgins and Elliot 2014).

For children with PMLD, who will progress in very small increments, a more sensitive measure than 'yardstick' may well be needed. Overall these authors state there is strong evidence that Pedagogical content knowledge and Quality of instruction impact on outcomes. They state; "As well as a strong understanding of the material being taught, teachers must also understand the ways students think about the content..." (Coe, Aloisi, Higgins and Elliot 2014). This seems to apply to children with PMLD, however an understanding of the child's abilities, disabilities, developmental stage and medical conditions also seems necessary to tailor teaching to the child's ability to learn.

In respect of high quality learning Wolke opines that "attention, or engagement, is the most important predictor of successful learning outcomes for a child, even above IQ" (Wolke 2013) and Imray

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comments that “Multiple studies over several decades have clearly demonstrated that without engagement there is no meaningful learning...” (Imray 2013)

In relation to people with PMD (physical and mental disability) Carpenter comments on “the importance of maximising the arousal and connectivity of individuals in this group, who are typically affected by a myriad of intrapersonal complications including sensory, intellectual and physical challenges”. (Carpenter 2015).

Before assessing performance of children with PMLD it is important to take into account their behaviour state. On behaviour state measures, Arthur (2004), describes how these “provide an index of the observed level of engagement and responsivity in students with PMD, examples of which include Awake, Active, Alert, Crying and Agitated, Asleep, and so on.” Carpenter (2015) advised that research demonstrates how factors intrinsic to the child with PMD shape their functioning.

### **Literature review**

#### *Sensory Stories*

Taking it to be that children with PMLD are at broadly at the sensorimotor stage of development and taking into account Gascoyne’s opinion that:

Recognizing the importance of the senses as a gateway to all learning is fundamental to tailoring appropriate provision, essential for fulfilling children’s potential. It is also crucial to meeting the needs of children with sensory processing difficulties

(Gascoyne, 2012).

and Downing, Aldrich and Shelly’s opinion that; “All children exhibit the need for sensory activities and will usually respond to them by focusing better in the classroom, increasing interactions with peers, and improving overall daily functioning.” (Downing, Aldrich and Shelly 2006) An intervention using the senses seems to be suitable for children with PMLD. Gascoyne goes on to say: “Sensory-rich play is an inclusive way of encouraging learning and development, with the hands-on approach appealing to children with different thinking and learning styles” (Gascoyne, S. 2012).

In 2003, Occupational Therapists Deborah Marr and Victoria Nackley, originally developed the idea of Sensory Stories as interventions for children, with autism, who are hypersensitive to sensory input. Although most of the literature relates to this original description of a Sensory Story it is not the approach used for teaching children with PMLD. Patterson's description better exemplifies Sensory Stories as used in PMLD classrooms and is the approach used in the study:

A Sensory Story is a narrative composed of simple lines of text. Each line has an accompanying sensory experience that supports the story. An effective story includes unique elements that target a student’s sense of sight, sound, taste, touch and smell. For example, touching a pencil is not strongly stimulating- but touching something gooey will likely elicit more emotion or communication.

Each line (or couple of lines)-and a photo depicting the text-go on a laminated card. As you read each card with the student or client, the student experiences the sensory stimulus (Patterson, 2016)

Patterson goes on to say that “Presenting the story consistently and repeatedly may help to establish neural pathways and aid in the overall development of communication.” (Patterson, 2016) Imray appears to concur with this approach, contending that:

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...pupils with profound and multiple learning difficulties are highly unlikely to learn to communicate, eat, reach out, make choices, pro-actively engage with others effectively, unless 'distinct kinds of teaching' are used...

(Imray 2013).

Lacey expands upon the method of Sensory stories in use with children with PMLD stating:

There are a range of ways of sharing stories with people with PMLD. Involving people with PMLD in storytelling is usually multi-sensory and is unlikely to focus on a book, although the story may have originally come from a book. The multisensory experience of storytelling is likely to involve objects to touch, look at and listen to: - things to smell and even to taste. Suitable sentences are only usually a few sentences long with each sentence being repeated several times to help the listeners to become familiar with them and to learn to anticipate what is coming next

(Lacey 2012).

#### *Intensive Interaction (II)*

Firth et al (2008) define Intensive Interaction as 'a socially interactive approach to developing the pre-verbal communication and sociability of people with severe or profound and multiple learning disabilities'. A practitioner would mirror closely observed expressions (facial, bodily, verbal) of the person with PMLD. Intensive interaction is variously described as; involving oneself "warmly in the behaviours which seem important to the client" (Nind and Hewett 1994), an approach which encourages "the child to use meaningful communication where none has been apparent" (Lacey 1996) and interacting with "...emphasis on pleasure and encouraging the child to enjoy human contact..." with "...facial expressions or tickles or 'blowing raspberries' or any other little action the child finds enjoyable." (Lacey 1996). It involves "playfulness and joining the child on their own terms as in early parent-child interaction." Nind also includes additional measures such as; "...Respond to each individual's behaviours as if they have communicative significance... and ...follow each individual's lead and share control of social activities..." Nind 1996)

Weedle justifies the use of Intensive interaction stating that:

Overall, there is evidence that Intensive Interaction can enhance social engagement and communication for people with severe-profound intellectual disability, which suggests its use in clinical practice is warranted

(Weedle, S. 2016).

#### *Assessment Methods*

Since, for this study, pupil progress is the main barometer for both the quality of learning and the quality of teaching, it is germane to examine issues around assessment of progress in children with PMLD. Lacey (2010) writes that whilst teachers, directed by the needs of their pupils, do set targets, these targets must always follow "a strengths and needs analysis with clear reference to developing pupils' understanding as well as skills." (Lacey 2010). Imray and Hinchcliffe (2013) point out that a high number of targets makes recording difficult and risks compartmentalisation of learning. The Welsh Assembly Government have compiled "The Routes for Learning seven key milestones" (WAG, 2006) (see Appendix 2) and also caution that any one milestone may not be relevant to all children and all children may reach milestones in different sequence and at different rates.

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Imray et al (2010) raises the legitimacy of retrospective target setting:

Individual progression may only be recognised in retrospect, at the end of each session, week, half-term, term and/or end of year. This retrospective target setting is legitimated by the tendency of objectives or target based teaching to narrow the learning opportunities offered to those with PMLD

(Imray, Gasquez navarro, and Bond, 2010).

For this study the assessment measures that were used held a broad set of possible targets and those which had been achieved were retrospectively recorded.

Lacey comments that SMART (Specific, Measurable, Achievable, Realistic, Time-related) targets have been used in schools for pupils with severe and profound learning disabilities (SLD/ PLD) but these do not seem to apply well with pupils with PMLD because they can take a long time to move onto the next measurable skill but still be learning. Lacey describes SCRUFFY targets: Student-led, Creative, Relevant, Unspecified, Fun and For Youngsters (Lacey 2010).

### **Methodology**

Practitioner research is a methodology which operates under the interpretivist paradigm. Burton and Bartlett explains that:

For the interpretivist there is no one objective reality that exists outside the actor's explanations, just different versions of events. Pupils, the class- room teacher, other teachers at the school, parents, all have a view of what goes on and act according to how they interpret events. The researcher in this paradigm seeks to 'understand' these actions

(Burton and Bartlett 2005).

Whilst the positivist is concerned with quantifying data and attempting to reach an objective truth, the interpretivist is more concerned with recording and exploring the tapestry of differing viewpoints and perspectives and, as Burton and Bartlett go on to explain, seeks to "achieve an in-depth understanding and detailed description of a particular aspect of an individual, a case history or a group's experience(s). The reason for achieving this understanding is explained by Menter et al who state that "One of the common motivations for undertaking a collaborative research project in a school or college is the desire to improve practice" (Menter et al 2011).

Practitioner research was selected as the methodology for this project for a number of reasons. Firstly I aimed to inform his own practice because he had been on placement in a special educational setting and self-identified personal lack of knowledge about how to achieve HQLT in a PMLD classroom. This practitioner research approach suits the constraints of the circumstances for the study namely, short period, small scale, low participant number and one researcher with one peer observer. The research is collaborative and may be used to inform the practice of the researcher, the peer observer and the rest of the student cohort (given group discussion about the research). The research is open to scrutiny from peers and can be democratically analysed along with the rich web of issues and viewpoints arising.

An advantage of practitioner research is that regular analysis of data allows teachers to inform their practice in the midst of their study and to act on their findings without having to revise the study. (Campbell, 2013)

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This is particularly relevant in this study as I became aware of the importance of the class approach of 'Intensive Interaction' midway through the study and was able to further investigate its relevance without making major changes to the project.

Smith and Lyte encompass the strengths of practitioner research when they say that it is about:

...posing, not just answering, questions, interrogating one's own and others' practices and assumptions, and making classrooms sites for inquiry—that is, learning how to teach and improve one's teaching by collecting and analysing the “data” of one's daily life in schools  
(Cochran-Smith & Lytle, 1999).

### *Ethics*

The ethical considerations of this research have been informed by Denscombe's key principles which state that the researcher must: protect the interests of participants, ensure participation is voluntary based on informed consent, avoid deception and operate with integrity and comply with the law of the land (Denscombe 2004). To comply with these requirements the researcher has sought written consent from the class teacher, as the children within her class are unable to give consent themselves. The Class teacher was provided with a consent form and an information sheet outlining the aims and methods of the research before the research began. It was made clear that the teacher can withdraw consent for any students at any time without having to give a reason.

The University ethics form was completed, up to date researcher DBS check was provided to the research school, anonymisation of the educational setting and all participants' identities was undertaken and all videos and photographs were taken on equipment belonging to the school and images remain the property of the school.

### *Methods*

I went into the classroom 2 weeks early and; made enquiry about the children's abilities, disabilities and needs, read student profiles and workbooks and took part in all of the lessons using interventions such as process based learning, aromatherapy and massage therapy, Sensory Stories, multisensory environments and music therapy. I practised using Intensive Interaction, worked with children on contingency awareness (cause and effect) and experienced the high level of personal care needed by the children. Sensory Stories were chosen as the research intervention because these seemed to result in a strong level of engagement from the children and seemed to be an intervention a trainee teacher could deliver reasonably well. The teacher agreed the methodology and signed the specifically developed consent form.

I observed teachers performing Sensory Stories, both to learn how to deliver this intervention and to informally observe the efficacy of Sensory Stories by using the reference material later given to the peer observer for their observations: copies of summaries of: DfE P scales 1-3, Carpenter, B (2015) seven indicators of engagement, Behaviour State Measures (Arthur 2004) and The Routes for Learning seven key milestones (WAG, 2006). (Appendix 1). In the week of the study two of the School's award winning Sensory Stories; 'The Path to Grandma's House' and 'We are going on a Bear Hunt' were performed by me four times, to the whole class (total 7 pupils but 3 – 5 present for each performance), with the children in a semi-circle and with the staff helping. A fellow student also doing research (different class, different topic), observed two of the 'We are going on a Bear Hunt' performance sessions, midweek and endweek, making contemporaneous notes and subsequently producing a

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formal written observation. For each observation they were supplied with copies of the documents to help assess whether students were meeting expected targets. Using the same reference material, I wrote a reflection 'on action' for each performance, in line with Schon, both to improve effectiveness as the week progressed and to assess efficacy of the intervention. Since no material work was being produced by the children, one of the TAs (Teaching Assistants), was instructed to take photos and make videos during the two peer observed sessions, of the children demonstrating achievement at relevant P levels (a scaling system which ranges from 1-8 and sits below level 1 in the National Curriculum. They are used to assess progress for children, often with learning disabilities, working below level one of the national Curriculum). I evaluated the films and the photos with respect to engagement, P levels and important sensorimotor milestones.

#### *Reflective model*

For the purpose of this study I elected the use of Schon's reflective model of reflection 'in action' and reflection 'on action.' This model has been useful in terms of evaluating and analysing the data, synthesising theory and practice and informing the development of the study and bridging the gap between theory (technical rationality) and practice. (Schon 1983)

Scales explains how Schon's theories can aid a teacher Practitioner Researcher move from understanding technical rationality to acquiring tacit knowledge. She says "Schon believed that reflection begins in working practice, particularly those areas of practice where professionals are confronted with unique and confusing situations" (Scales 2008) and although "Teachers may have acquired the theoretical knowledge (technical rationality) of their subject or of the practice of teaching and learning" it is "From these real-life experiences teachers can develop tacit knowledge- a synthesis of theory and practice which they have developed for themselves." (Scales 2008)

#### **Results**

During the research period I observed 3 Sensory Stories being delivered and performed 8 Sensory Stories. In general for all participants, I observed reaction, interaction and a high level of enjoyment and engagement in all the children at some point, given they were in a behaviour state that was conducive to their participation i.e. not asleep, medicated or in distress. Some children who were asleep or distressed woke and joined in or calmed during the Sensory Story session. The results given below for triangulation purposes were taken from the two peer observed Sensory Stories) and include my observations, peer observer feedback and notes on the images taken. The peer observer summarised her findings; 'at the midweek observation the Sensory Stories worked well overall to stimulate pupils and engage them'. At the endweek observation: 'the session was extremely effective in stimulating the senses of pupils'. Videos and photographs invariably showed participants laughing, smiling, responding to stimuli, giving eye contact and enjoying the Sensory Stories.

#### **Researcher reflection**

In terms of Routes for Learning (WAG 2006) some children in the study noticed stimuli, responded consistently to one stimulus and initiated actions to achieve desired results (i.e. achieved one to three of the 7 key milestones). With respect to P Levels (DfE 2014) the observation records show that during the peer observed sessions children in the study group encountered activities and experiences, showed simple reflex responses, showed emerging awareness of activities and experience and had periods when they appear alert and ready to focus their attention on certain people events and objects (P1). Some children began to respond consistently to familiar people, events and objects, accepted and engaged in coactive exploration (P2i) and (P2ii); began to be proactive in their intentions for example communicate consistent preferences and affective responses and remember particular

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characters dramatised with sensory cues. Some children were observed to seek attention through eye contact, gesture or action, sustained concentration for short periods and explored materials in increasingly complex ways for example reaching out and feeling for objects (P3i). Some children also exhibited between one and six of the Seven Indicators of Engagement (Carpenter 2015); initiation, awareness, curiosity, investigation, anticipation and persistence. The children in the study were very well acquainted with the Sensory Stories used in this study and the results may well have been very different during the period of familiarisation. The length of this period is not known. It may be useful to undertake further research comparing responses to familiar and unfamiliar Sensory Stories. If a child responded to any stimulus, during delivery of a Sensory Story, the staff would use Intensive Interaction techniques to magnify and reinforce that response, for example by using the child's name, commentary on the response, repeating the stimulus, mimicking vocalisations, closely approaching the child and touching the child. So although the initial response of the child was generated by the Sensory Story, what was observed seems likely to have been due to a combination of both the Sensory Story and the Intensive Interaction approach. The Intensive Interaction ethos in the classroom probably confounds the apparent effect of the Sensory Story by enhancing observed positive responses. Future studies to take account of each and then both would be useful.

This short study did not take into account the responses of children who were absent or asleep during the two peer observed sessions. These children were each seen to respond positively to Sensory Stories, at least on one occasion, during the preparatory and practice phases. Although she commented on this to some extent, the peer observer did not see the extent to which distressed or disengaged children became calm and engaged, during the delivery of Sensory Stories during the whole period I was involved.

Child B often responds in subtle ways and that child's responses seem to have been drowned out by the more marked responses of classmates in observation records. The responses of children seemed to be dependent on timing in relation to their treatments and routine and other factors which affected their behaviour state. It would probably be useful to revisit evaluation methods, preparation of the peer observer, the number of peer observations and the best time to perform Sensory Stories.

No images were taken of behaviour states prior to the Sensory Story and valuable information was not recorded because of this deficiency in the method. All the photographic and film evidence shows the children engaged and happy. From observer notes it is clear that expressions of dislike (e.g. child A) or complete non-engagement (e.g. asleep) were not recorded. This was also a deficiency in planning and instructions to the TAs. It seems infeasible to compare prior records of attainment with post intervention attainment for each child with PMLD in the study group because of the well documented very gradual progress generally made by this population. The study did not include a critique of my (and other adults' present) performance of the Sensory Story however the children's responses are used as a proxy measure for this. It would have been an improvement to give the peer observer written reference material on behaviour states measures and a template on which to record observations.

### **Conclusion**

In this small study, the use of Sensory Stories that are well known to the children, performed in a classroom with a strong ethos of 'Intensive Interaction', has shown some evidence of learning in relation to P scales, The Routes for Learning seven key milestones and the seven indicators of engagement, provided the children are both present and in a behaviour state that is conducive to learning. Given these results this researcher would advocate the use of Sensory stories within a PMLD

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class and intends to make use of them in future practice. High quality teaching was inferred from my pedagogical content knowledge, which is evidenced as having a strong impact on outcomes (Coe, Aloisi, Higgins and Elliot 2014), acquired through their research of PMLD and also through the children's responses to the stories. To further examine whether, how and to what extent Sensory Stories contribute to HQLT it would be beneficial to devise a method of research into Sensory Stories alone, taking account of lessons learned. Although unplanned, I have identified that an 'Intensive Interaction' approach is something that would merit further research.

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### Appendix 1.



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## **Appendix 2:**

### **The Routes for learning Seven Key Milestones (WAG, 2006):**

- Notices stimuli
- Responds consistently to one stimulus
- Contingency responding
- Contingency awareness
- Object permanence
- Selects from two or more item
- Initiates actions to achieve desired result (exerting autonomy in variety of contexts).

### **Citation**

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