

Quest for learning

Guidance & Assessment Materials

Profound & Multiple Learning Difficulties



The Council for Curriculum, Examinations & Assessment (CCEA) wish to acknowledge that the ***Quest for learning*** materials are mainly based on Routes for Learning - assessment materials for learners with profound learning difficulties and additional disabilities created by the Qualifications and Curriculum Group, Department for Education, Lifelong Learning and Skills, Wales (ACCAC, 2006).

Contents

1	Introduction	1
	Rationale	2
2	<i>Quest for learning</i> in Practice	7
	The format of <i>Quest for learning</i>	7
	Key Milestones	10
	Assessment in practice	12
3	Approaches to Teaching	13
	Interactive approaches	13
	Behaviourist approaches	14
	The creation of a learning environment	15
	Curriculum design	17
	How to plan appropriate outcomes	18
4	A Focus on Learning	21
	Learning to learn	21
	Effective learning	23
	Barriers to learning	29
	Tactile development	31
5	The Communication Process	35
	Development of early communication skills	35
	Interaction with learners (using a variety of strategies)	39
	Interaction	40
	Prompts or cues?	43
	Objects of reference	44
	Home school links	45
	Communication passports	45
6	Assessment for Learning	49
	Assessment for Learning within the Northern Ireland context	49
	Assessment for Learning and Assessment of Learning	50
	Assessment for learning and assessment of learning within the <i>Quest</i> materials	51
	Key issues to be considered when assessing learners with PMLD	52
	A wider definition of progress for learners with PMLD	55
7	Conclusion	57

8	Record-Keeping	59
9	Glossary	63
10	References	71
A1	Appendix 1	77
	Who are learners with PMLD/complex needs?	77
A2	Appendix 2	79
	Key Questions for curriculum design	79
A3	Appendix 3	81
	Maslow's hierarchy of needs	81
A4	Appendix 4	83
	Alerting and discriminative descriptors of the sensory system	83
A5	Appendix 5	85
	The work of Lili Nielsen	85
A6	Appendix 6	86
	Attaining object permanence	86
A7	Appendix 7	87
	Reflexes	87
A8	Appendix 8	89
	Stages of expanding space	89
A9	Appendix 9	90
	Hearing impairment (HI)	90
	Visual impairment (VI)	90
	Cortical visual impairment	91
A10	Appendix 10	92
	The development of manual behaviour	92
	Encouraging tactile development	94
A11	Appendix 11	96
	Affective communication assessment (observation recording sheet)	96
A	Acknowledgements	99

"for those individuals who consistently fail to show measurable progress on conventional assessments, a different model of progress is required. It is not that these individuals cannot make progress, but we would argue that the instruments by which progress is measured do not suit the people whose abilities are being measured."

Barber & Goldbart (1998)

"It is important that individuals working with children who are severely disabled are given tools that enable them to address the relevant features of the child's behaviour without trying to fit the behaviour into a pre-existing assessment tool that was not developed for, or related to, the behaviour of someone with very special problems i.e. unique abilities and patterns of growth"

Wolfe Schein (1998)

Introduction

The Revised Curriculum is intended to "make learning relevant, connected and skills based" (CCEA, 2002). It has moved away from a subject based approach and instead emphasises the key skills of Communication, Using Mathematics, Using ICT and Thinking Skills & Personal Capabilities which are supported through integrated Areas of Learning. For learners working at the very earliest levels of development including learners with Profound and Multiple Learning Difficulties (PMLD), this more holistic approach is appropriate (see Appendix 1). The focus should be on skills and capabilities rather than 'working towards' subject related targets which may not be priorities for the individuals concerned.

This flexibility should allow for pupil-centred planning and assessment which puts the needs of learners first. Planning, teaching, learning and assessment should be built around these needs.



Rationale

The statutory framework provided by the Education (NI) Order 1996 and the Special Educational Needs and Disability (NI) Order 2005 (SEND0) supports the inclusion of all learners.

Most assessment instruments, even those concerned with early development in learners or designed for learners with learning difficulties and disabilities assume that children will follow a 'normal' pattern of development. However, conventional, linear, hierarchical assessments may be unable to detect the subtle changes in behaviour which may indicate learning by pupils with PMLD regardless of how many 'small steps' are provided.

These materials are intended to support teachers/classroom assistants of learners with PMLD, providing ideas for and pathways to learning. They are supported by research regarding developmental processes in infants and children and other key theories regarding the current approaches in the assessment and teaching of learners with PMLD.

This guidance:

- offers an overview of the main theories and background information underpinning effective teaching and assessment;
- considers the complex interaction between the sensory impairments, motor disabilities, medical problems and cognitive processing difficulties experienced;
- takes a more holistic view of learners by focusing on how they learn and by acknowledging their different abilities and achievements;
- takes account of preferred sensory and learning channels and ways of processing information;
- focuses on those early communication, cognitive and sensory skills that are the foundation to all future learning and crucial to an improved quality of life;
- supports the development of learner-centred approaches and the focus on emotional well-being through all the Key Stages from the Foundation Stage through to Key Stage 4;

- celebrates the different abilities of learners with the most complex needs, rather than trying to fit them into an existing framework not developed with these needs in mind;
- recognises interactions in new settings and situations as valid progress in the same way as the learner's development of new skills;
- is aware of atypical patterns of PMLD development which impact on:
 - the processing of new information and stimuli
 - the ways in which new experiences are accommodated into existing schemes
 - the learners' approaches to problem solving situations
 - the ability to form attachments and interact socially
- recognises external environmental factors/family circumstances.

These materials are intended to:

- support teachers in their assessment of the current performance of their learners;
- discover what has shaped that performance;
- develop learner-centred programmes based on their understanding of the learners' current level of:
 - cognition
 - communication activity
 - sensory processing ability

Preferred learning styles and contexts must be taken into account.

To build in the flexibility necessary to cater for the very individual needs of these learners, the *Quest for learning* materials show a range of learning pathways that can be used to assess the learning of young people (aged 3-19) with complex needs and will provide an appropriate context for the development of these early skills. The materials will be part of the Revised Curriculum and Assessment Arrangements, which will include learners of all abilities.

As Mittler, (2000) points out, to be specific about the needs of distinct groups is not to undermine inclusion. Providing equal opportunities is about meeting individual needs - not treating everybody in the same way. Moreover, the development of specific programmes for the distinct group of PMLD learners provides an opportunity to build key skills in communication, cognition and social interaction which allow for more inclusive experiences when these skills can be generalized.

Principles

The *Quest for learning* materials have been developed with the following principles in mind, they will:

- provide a whole picture of the learner and the learning process;
- focus on the learner - on his/her abilities rather than disabilities. All learners are entitled to a 'fit-for-purpose' assessment of their needs;
- provide an assessment which is process-based and looks at the relationship between the learner and his/her environment;
- enable the learner to participate in the assessment process with the involvement of the family and the allied services;
- ensure that staff undertaking the assessment have a high regard for relationships and support interactive approaches;
- ensure that the main purpose of assessing a learner is to enable him/her to make the best possible progress in the development of skills, knowledge and understanding (Assessment for Learning),

Vygotsky, (1978) supported the use of dynamic assessment, which focused on the Zone of Proximal Development (ZPD). The ZPD is the difference between what a learner can achieve independently and what he/she can achieve with adult help in the form of prompts or cues and support or scaffolding. The learner's current performance with this support can give an indication as to where future teaching priorities should lie. Vygotsky stressed that the interaction between learner and adult was key in leading to cognitive change.

- empower staff and parents/carers, valuing all sources of knowledge about the learner and sharing and feeding back information in a clear and helpful format leading to accurate judgements and promoting consistency between staff and others assessing him/her;
- support teachers and others in seeking evidence of understanding and to focus them on priorities for future learning;
- identify emerging skills, knowledge and understanding and support this emergence with suggested interventions.



Quest for learning in Practice

This section will provide an overview of:

- the format of *Quest for learning*
- key milestones
- steps
- the assessment in practice

The format of *Quest for learning*

These assessment materials focus on the following key learning priorities for learners with PMLD using an individually structured sensory approach:

- *communication*
- *social interaction*
- *early cognitive development*

The assessment tool tracks progress in these three key areas, as learners experience and/or engage with the following processes as outlined in the table below.

Table 1: Progress

From	Towards
Limited responses to small number of known stimuli.	Greater range of responses to increased number of stimuli.
Dependence on a secure and predictable routine.	Increased tolerance of change in routines and greater degree of autonomy within environment.
Motivation prompted by "artificial" reinforcement.	Motivation prompted by naturally occurring events/consequences.
Use of near senses (tactile, proprioceptive, olfactory).	Increasing use of distant senses (visual, auditory).
Use of concrete modes of communication (body language/use of real objects).	Use of more abstract modes of communication (e.g. pictures, signs, symbols, speech).

From	Towards
Reliance on co-active involvement, physical guidance, gestural or verbal prompts.	Understanding of natural cues, leading to greater independence.
Resistance to contact with others.	Tolerance of contact with others.
Passive co-operation and supported involvement.	Learner directed involvement / deciding whether to respond / showing pleasure or displeasure / starting and finishing deliberately / indicating level of willing participation.
Limited learning positions.	Increased repertoire of learning positions (e.g. standing frame, chair, mat, "walker").
Use of learning in limited contexts and demonstration of achievement on one occasion in one particular situation, circumstance, or setting.	Ability to transfer learning between different contexts and to demonstrate achievements on a range of occasions, situations, circumstances, and settings.
Reliance on harmful or inappropriate behaviours (self harming, aggression toward others, screaming, throwing objects,) in order to gain attention and communicate needs to others.	Use of appropriate behaviours (speech sounds, gestures, signs, reaching for objects or symbol cards) in order to gain attention and communicate needs to others.

Table 1 highlights the fact that, far from being straightforward small steps which follow a pre-determined hierarchy, **PMLD progress is complex and may not develop sequentially.**

These materials are intended to be used to help staff identify a **range** of possible learning pathways, rather than presenting checklists of pre-determined small steps which may detract from the key focus of addressing meaningful, individual learner priorities.

For this reason the *Quest for learning* materials point to **key milestones** in learning but do not dictate how to get there. **Each key milestone (see figure 1)** is a concept which it is important to achieve if the learner is to move onto the next stage of development.

However, not all learners develop in the same way and may take different routes to get to the key milestones. A series of steps offers pathways between each key milestone. The pathways from one step to another are not set out in a strictly linear sequence and all steps need not necessarily be visited.

Figure 2 illustrates the steps between the first two key milestones. The **blue** steps indicate a **social interaction** strand and the **yellow** steps indicate a **cognitive** strand. **Communication is implicit in both strands.** The path taken will depend, amongst other things, on the style of learning, sensory awareness and level of motivation. This assessment tool is not about ticking a box and moving on to the next one. Staff should start at a step known to be within the learner's capability. He/she should then set up appropriate activities, moving through the steps until well beyond the point at which the learner appears not to respond.

PMLD cannot be summarised by a single number, and it is not good practice to have a 'score' in mind towards which you are working. As Hewett and Nind, (1998) state "if we try to teach strictly to the attainments as targets in a controlled and directed fashion we will probably not be providing the type of dynamic learning opportunities which commonly produce the attainments."

This assessment tool is an integral part of the learning process. Each step on the Quest map is followed by the following sections:

Section One: Assessment Activities - Things to Try

Section Two: Assessment Outcomes - Things to Look For

Section Three: Reinforcement & Extension Strategies - Teaching Strategies

The booklet is set out in this way because assessment is not a one-off event - this tool helps staff to observe learners over time, in different situations, working with familiar adults in familiar environments, and to see multiple samples of each learner's abilities. Staff should note variations in performance which may in turn give further information about the individual's learning. As well as being an assessment tool to identify a baseline, these materials should also help staff to track ongoing progress in a formative way.

Key Milestones

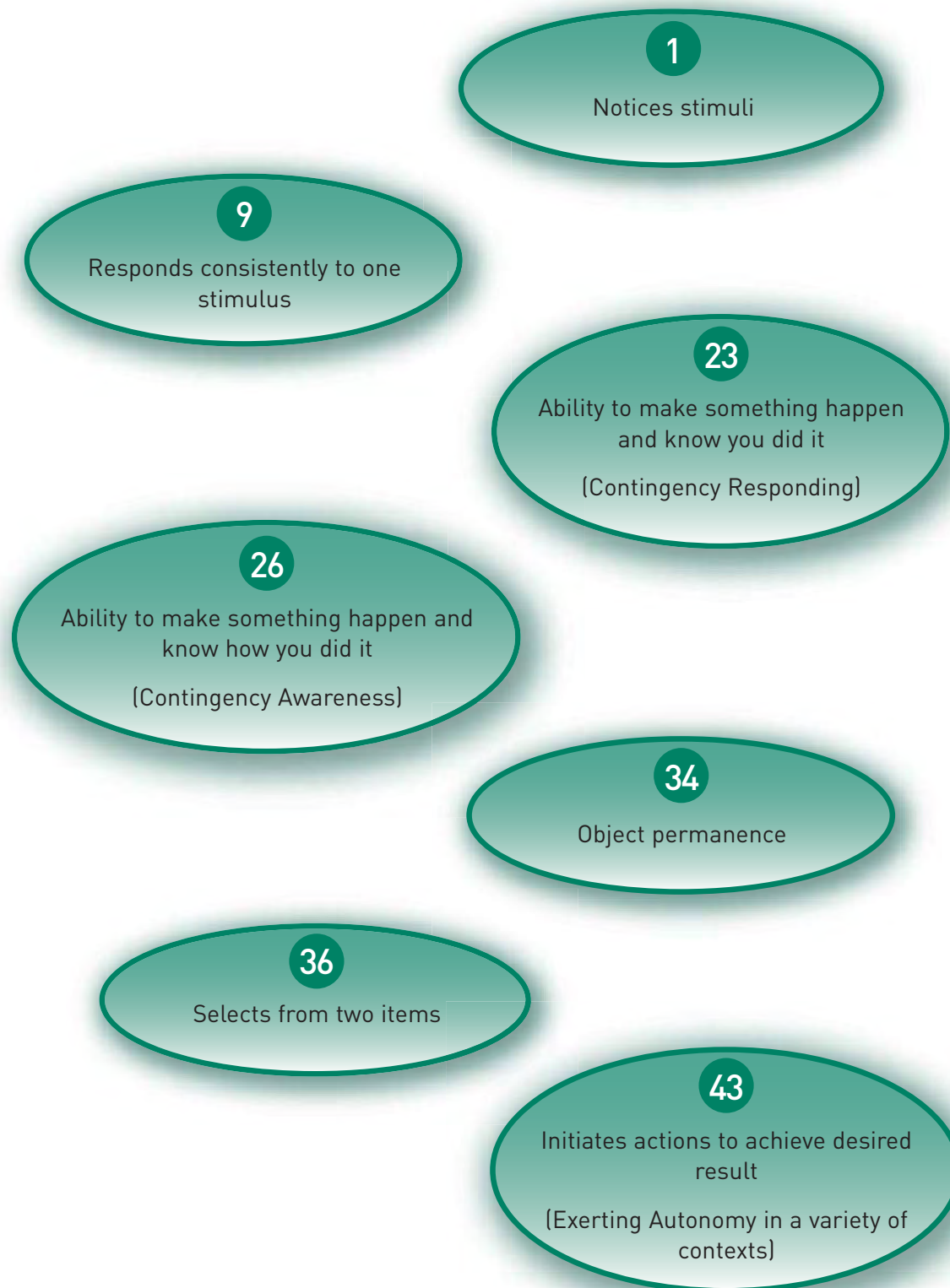
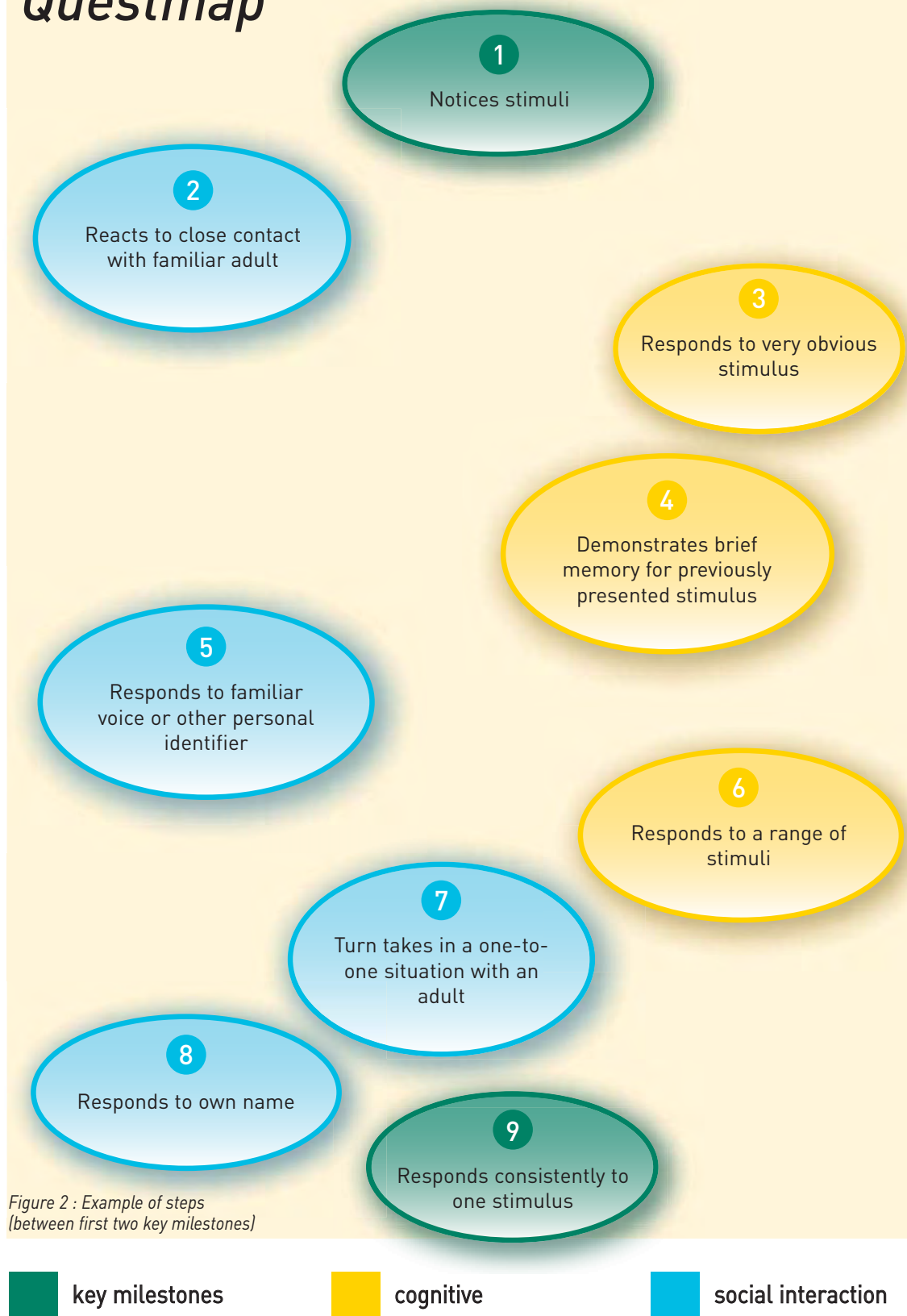


Figure 1: The Key Milestones

Questmap



Assessment in Practice

Schools need a clear idea about attainment to structure their observations and make sense of learners' responses. The progress of learners with PMLD can only be seen through careful observation across a controlled range of activities, settings and staff.

Assessment should take place in a familiar environment with familiar staff. The involvement of parents, carers and other family members should be encouraged at all stages because the behaviour of the learner may vary at home or in the presence of family members. The family will know more about their child than can be ascertained from observations in school. Their input will therefore be essential, as will contributions from the multi-disciplinary team involved with the learner.

The assessment materials give support to teachers in making decisions about assessment activities, assessment outcomes and teaching strategies. Staff should be able to plan appropriate learning activities, teaching strategies and resources (such as staff and equipment). These materials will enable him/her to recognise a certain behaviour when it is happening.



Approaches to Teaching

This section will provide an overview of:

- interactive approaches
- behaviourist approaches
- the creation of a learning environment
- curriculum design
- how to plan appropriate outcomes

"Rather than using explicit teaching methods based on the transition of information and the direct teaching of skills, the teacher's role...is to create learning situations which provide opportunities to solve real problems."
Westwood, (2001)

Interactive approaches

Facilitating the development of fundamental early communication skills requires practitioners to use process-based, interactive approaches rather than product-based behaviourist ones. Interactive approaches have moved away from the teaching of small sequential steps, controlled by the teacher, and instead focus on broader attainment which is not necessarily easy to measure or record.

The principles of the interactive approaches are that:

- learning is contingent upon good interpersonal relationships;
- there is sensitivity to feedback from the learner;
- the focus is on understanding, developed through relationships which foster respect, negotiation, participation and motivation;
- the quality of the teaching and learning process is as important as the performance of the objectives;
- teaching is not always dependent on dividing that which is to be taught into its constituent parts.

Behaviourist Approaches

Traditionally, the assessment and teaching of complex areas of early development has been heavily influenced by behaviourist thinking. However, as Collis and Lacey (1996) summarise, there are concerns resulting from the nature and use of behaviourist methods, including:

- problems with generalisation, Sugden, (1989);
- learning without understanding, Farrell, (1991);
- an emphasis on what is learnt rather than what is taught, Billinge, (1998) and on products rather than processes of learning, Smith et al, (1993);
- concern only with the observable, Sugden, (1989);
- casting the learner in a passive role, Jordan and Powell, (1991);
- seeing the teacher as a technician rather than an educator, Guess, Benson & Seigel-Causey, (1985).

Traditional behaviourist methods have, however, had some positive effects on work with learners with PMLD due to the emphasis on:

- a systematic approach;
- gathering evidence of learning;
- clarity and precision;
- baseline measurements;
- clearly identified roles;
- context and environment;
- specific techniques (e.g. task analysis, prompting, reinforcement).

This assessment tool follows principles of process-based, interactive learning, combined with the features of behaviourism listed above.

N.B. Staff should reflect on the theory underlying any classroom method to ensure that they develop an approach that is relevant and meaningful to their learners.

The Creation of a Learning Environment

The importance of pausing, turn-taking and copying is highlighted by Nind and Hewett, (2001) who illustrate how techniques to promote infant communication can be applied to work with PMLD learners.

To promote infant communication we:

- make ourselves available to have a conversation at the baby's level of understanding;
- watch the baby carefully for any signs of interest or enjoyment;
- respond to things the baby does, let the baby lead;
- celebrate facial expressions and noises - often by imitating or joining in;
- keep the conversation going by enjoying what the baby does;
- take pauses and go at the baby's pace;
- take turns - the adult inserts bits of their own behaviour, often imitations of the baby, in between the bursts of the baby's behaviour. This creates turns without the baby realising it at first. Soon, however, the pleasure of exchanging bursts of behaviour, and real turn taking, emerges.

Staff should provide waiting time, as a lack of immediate response may not mean a lack of understanding. It is important to take into account the processing difficulties which can lead to delayed responses. Ware, (1996) warns that if such time is not provided, then the learner may miss some experiences which foster early development, such as turn-taking skills developed through early games and through parent/infant 'conversations'. Adequate processing time enables learners with PMLD to share control and enter into more equal interactions.

Pausing, Turn Taking and Copying

A learner in the early stages of communication needs help to develop an understanding of cause and effect, including communicative actions and subsequent responses. If the learner sees something to communicate about or respond to, this essential stage is more likely to be reached. By building 'pauses' into familiar routines and activities the adult can create opportunities where the pupil can 'fill the gap' to make something desirable continue. This gives learners the opening to make a communicative response.

These can be developed by one-to-one games with adults, small group turn-taking activities with adults and peers, and the use of cause and effect switch computer programmes. However, everyday care routines, (snack and dinner times, moving from wheel chair to toilet/hoist/standing frame, putting on coats to go on the bus, etc) which "often become seen as barriers to the actual job of teaching" Barber & Goldbart, (1998) also provide the opportunity for staff to pause the activity and observe whether the learner makes any attempt to 'fill the gap.' It is important to see the communicative possibilities in everyday functional tasks.

Sometimes the communicative intent of the learner with PMLD might simply be to encourage the other person to carry on with the fun.

"Much of what we talk about to each other is simply the hot air of companionship. The ability to relate to each other simply for the purpose of relating seems to be central to being contented, to our emotional well-being. Mostly, most of us simply like to be with other people and enjoy each other, talk, laugh, be companions"

Nind & Hewett, (2001)



Curriculum design

Although schools need to take account of their statutory obligations, the Revised Curriculum framework offers a high level of flexibility. Moreover, additional elements may be included in the curriculum as appropriate to the needs of learners.

A first principle of planning should start from the basis of the needs, interests, aptitudes and achievements of the learners. This clearly encompasses the communication, social interaction, early cognitive development and sensory abilities which are fundamental to all learning.

Tasks must be relevant and purposeful to maximise motivation and to help learners make sense of the world around them. Curriculum experiences need to be carefully mediated, as uncoordinated approaches, particularly those using different sensory pathways, can lead to a range of experiences that carry little meaning for learners.

Schools should have regard for the concept of age appropriateness, e.g. by ensuring that there is progression through the key stages in terms of curriculum, resources, activities and relationships. However, the priority is that learners' developmental needs are met so that they are empowered by developing skills for further learning.

For older learners, staff may wish to consider the use of wider contexts, including vocational and work-related experiences as contexts for learning. It is important however, that an appropriate focus is retained on the needs of learners with PMLD.

Finally, schools must ensure that appropriate policies and practices are established to ensure the safety of both staff and learners. This may include child protection, manual handling, restraint and communication regarding medical information such as allergies and effects of medication.

Staff should critically reflect on their current curriculum to structure their discussions (points to structure discussion are in Appendix 2).

How to plan appropriate outcomes

For learners with PMLD, the level of stimulation will need to be more carefully controlled than for other learners. Some may find difficulty in responding to stimuli through competing sensory channels, e.g. a learner may be unable to carry out a tactile search while listening to the teacher talking. In the early stages of development it may be appropriate to limit input to one sense only.

To develop an effective programme of work for learners with PMLD, teachers must first accurately identify the specific needs of each learner. The type of objectives set as a result of this process may vary depending on the area of work.

Teachers should avoid 'quick fixes' focusing on the most easily observable behaviours. Any skills achieved must be underpinned by real learning which leads to a permanent change in behaviour. Breaking down a subject-based curriculum into lists of activities and experiences can lead to a fragmented approach: the skills, knowledge and understanding gained are not clearly identified and are consequently hard to reinforce across the curriculum. This makes learning doubly difficult for learners for whom generalisation is a problem anyway!

For some skills, a traditional behavioural objective may be appropriate, e.g. Jack will hit a switch to operate a toy on three consecutive occasions. This may be recorded by a simple tick indicating that Jack is able to hit the switch (**but understanding cannot be recorded in this way!**). If understanding is to be assessed, a different kind of objective will be needed. It could be, e.g. that Jack waits for the music to stop before pressing the switch again (showing understanding of the connection between pressing the switch and gaining the musical reward). Several incidences of this behaviour may be recorded to show understanding in different situations.

A short comment will be required to record any important information about the setting, staff or equipment. It may be useful to describe what happened, what strategies were used by the learner and whether any prompting or support was needed (and if so, of what type and level). This information may be important to inform future planning. Refer to the section on record keeping.

On occasions, more open-ended objectives may be appropriate, e.g. when encouraging problem-solving or experiential activities. The learner's response to a given situation may be recorded as:

- steps taken;
- what was achieved independently;
- techniques or strategies used;
- levels of support needed;
- strategies to further develop problem-solving skills.

When success is achieved, it is important to maintain and further develop behaviours in a wider range of contexts and with different members of staff or different resources. Learners' responses may be specific to one situation initially and generalisation is an important learning outcome.



A Focus on Learning

This section will provide an overview of:

- learning to learn
- key principles for effective learning
 - sensory stimulation
 - prior learning and experience
 - multi-sensory experience
- barriers to learning
 - sensory impairments
 - stereotyped behaviours
 - degenerative/life limiting illness
- tactile development
 - tactile selectiveness¹

Learning to learn

Learners with PMLD working at the earliest stages of development may move through the following basic learning processes:

- **Habituation.** This occurs when a regularly presented stimulus eventually fails to gain a response as the learner grows used to it. A small change in the stimulus may again trigger the response. This provides evidence of learning, as the learner shows sensitivity to and memory of the properties of the stimulus, e.g. sound and movement patterns. It is useful to note how quickly the learner responds again - and how features of the stimulus were changed to recover their attention.
- **Early associative learning.** This occurs when learners learn to anticipate a significant event through an earlier cue which can be reliably associated with it, e.g. the learner hears the dinner trolley and smacks his or her lips, looking forward to lunch. This again shows sensitivity to events and indicates the possibility of prediction developing at a later stage.

¹formerly referred to as tactile defensiveness

- **Operant conditioning.** This occurs when the consequences of an action alter the probability that it will be repeated, e.g. a learner hits a toy which plays a tune. This increases the likelihood of the learner hitting the toy again as he/she begins to make the link between the stimulus and the response. A learner may also stop an action to prevent a negative consequence, e.g. touching a toy triggers a loud, frightening noise so the learner doesn't touch it again.

If learners are observed closely during these learning processes, teachers will be able to gather evidence about the learners' level of awareness of events around them. The way learners respond can provide us with further knowledge and understanding about their memory, preference for different sensory stimuli, ability to associate cues with events, the ability to anticipate and predict and finally the ability to influence events in their immediate environment.

Haring et al., (1981) described the following hierarchy of skill development:

- **Acquisition** - in which learners learn correct new responses through demonstration, modelling or physical prompting with an emphasis on developing accuracy. At this stage learners need a great deal of support.
- **Fluency** - in which learners, through repetition, reach a level of mastery combining speed and accuracy. The action still takes time to complete.
- **Maintenance** - in which learners consolidate and maintain a high level of competency and fluency over time by over learning through repetition and familiarity. They will remember how to do the task after a break.
- **Generalisation** - in which learners develop and achieve mastery in different settings or contexts, with different stimuli or materials or with different staff.
- **Application or adaptation** - in which learners recognise similarities and differences between key elements of new situations and select appropriate responses, adapting their established skills and understandings to new problem-solving opportunities.

The application of skills developed and consolidated in this way in different situations can support problem-solving and self-directed learning. Moreover, learners must be given carefully planned opportunities to move through this sequence with each new skill, without losing spontaneity and creativity.

Effective learning

Recent work by Blakemore & Frith, (2000), OECD (2002), and Smith & Hannaford, (2002) has provided us with a clearer insight into how all children learn.

Learners need to feel secure with the people around them. They must feel safe and be positioned comfortably. The learners' immediate surroundings must be considered to ensure that they are not overloaded with too many stimuli at any one time. Physical factors, e.g. thirst, hunger, fatigue and factors affecting emotional state, for instance attending respite care, should also be recognised so that learners are emotionally and physically ready to learn.

Learners who are under stress will not learn effectively due to the 'fight/flight' response.

The work of Abraham Maslow, (1970) is relevant here and further details are provided in Appendix 3.

Learners' receptiveness to stimulation may depend, at least in part, on their biobehavioural state. The term 'bio-behavioural state' refers to the level of arousal of the central nervous system.

The Carolina Record of Individual Behaviour, Simeonsson, Huntington, Short and Ware, (1982) defines nine levels of arousal:

- Deep sleep
- Quiet sleep
- Active sleep
- Drowsy
- Quiet awake
- Active awake
- Fussy awake
- Mild agitation
- Uncontrollable agitation

The best times for learning are during quiet and active alert states. At times of very high or very low arousal learning will not be effective. Internal factors such as hunger, tiredness, discomfort and state of health have an impact on the level of arousal, as do external factors such as noise, light, temperature and movement. Learners may be calmed by rocking and warmth and aroused by strong stimuli such as cool temperatures and fast movement. It is important to try to give learners strategies for regulating their own state, e.g. bringing their hands into their mid-line or changing position.

Learners' ability to attend and learn may also differ with the time of day due to biorhythms. Levels of hormones, such as cortisol and adrenalin, vary throughout the day and affect learners' states of alertness. Blood sugar levels may also have an effect.

For some learners using enteral feeding methods (PEG/Nasal Gastric), it may be necessary to select optimum times for learning around feeding routines. Other learners may have epilepsy or other conditions which require medication that can cause side-effects. Over time, staff will begin to take all these factors into account in order to recognise and capitalise on the best times for working with each learner.



Sensory stimulation

To create 'responsive learning environments' the sensory stimuli offered must match the learner's needs. Some may find it difficult to respond to stimuli through competing sensory modalities, so it is sometimes appropriate to limit input to one sense only rather than overloading him/her with too much or the wrong type of sensory experience.

Seven major types of sensory input to the brain have been identified:

- auditory;
- visual;
- tactile (touch);
- olfactory (smell);
- gustatory (taste);
- vestibular (sense of equilibrium);
- proprioceptive/kinesthesia (movement).

Brown, McLinden and Porter, (1998) also include sensory input to the homeostatic system.

Stimuli to any of these senses should be carefully selected according to purpose. Orelove and Sobsey, (1996) divide stimuli into 'alerting' stimuli, which raise levels of arousal (but risk fear/anxiety), and 'discriminating stimuli', which prepare learners to notice similarities and differences.

For further information, see Appendix 4.

To avoid 'overload', staff should use simple communication strategies at the appropriate level. Environments such as light and dark rooms should be used with care and with a clear focus on the purpose and complexity of activities. Care is also needed in the use of equipment to encourage interaction with the environment, e.g. resonance boards.

The work of Lili Nielsen will be of particular interest here and further information is given in Appendix 5.

Prior learning and experience.

Learners must be helped to build the concepts that are fundamental to early learning (key milestones shown in **green** on the *Questmap*).

The following are of particular importance:

- **Contingency responding** - the learner realises that performing a particular action causes an effect but has not yet made the 1:1 association, i.e. one switch press = one response.
- **Contingency awareness** - the learner knows that one action will cause one particular response to happen.

A learner hitting the switch more frequently in an attempt to gain more responses/rewards (and continuing to hit the switch while the reward is still operating), is probably demonstrating contingency responding and NOT contingency awareness.

In order to achieve contingency awareness, learners need:

- something that they find rewarding;
- an action that they can perform;
- an ability to repeat this action while they can still remember the effect it had on the previous occasion.

At this stage, the learner's memory is likely to be shorter than seven seconds and staff should take this into account in their planning.

When contingency awareness has been achieved, as stated above, the learner will associate a particular action, e.g. press switch, with a single reward. For learners who have achieved contingency responding and who hit a switch frequently (with a physical action that they find relatively easy), the development of contingency awareness may be helped by using a switch that is harder to operate.

- **Object permanence** - the learner knows that an object continues to exist even when it is out of sight.

When the learner searches for an object which has disappeared from view, it is clear that he/she is carrying a picture of the object 'in his/her head' and has attained object permanence.

Appendix 6 provides further information to support the development of object permanence.

When introducing new areas of learning, experiences should be carefully planned to build on those that are familiar to the learner. The various aspects of the learning experience can then be gradually and systematically changed or extended.

Multi-sensory learning

The role of movement in learning is increasingly being recognised and staff should explore (with therapists) how careful positioning and movement may be used to enhance learning in the classroom.

Stimuli

Learners should be carefully assessed to find out their preferred or dominant sensory channel. Colour preferences, contrast, light, favourite sounds or textures can then be used to full effect. Some learners may be **tactile selective** and may initially have a limited tolerance of certain experiences.

To help learners discriminate, a range of stimuli should be used. These may be applied to parts of body, such as the feet. Opportunities should also be given to gradually tolerate contact with a range of materials.

As these learners are often slow to respond to stimuli, the parents, carers and staff need to allow adequate waiting time. If such time has not been provided, the learner may have missed some of the experiences that foster early development.

Feedback

Learners need immediate and consistent feedback on their responses. Many learners with complex needs will have had limited feedback from their activities and may be in a state of 'learned helplessness' arising from their lack of control over their lives. This in turn may lead to the development of stereotyped behaviours. It is essential that responses which may signal rejection are responded to appropriately.

The lack of mobility and sensory input for some learners will have restricted their experience of everyday objects and environments. Such experience must be built up systematically through all available senses. If ICT is used, staff should tailor reward time to the needs of each learner.

Reflexes

Some early reflexes may be present in learners throughout their school life. Reflexes for sucking and swallowing may be a problem in some learners leading to feeding difficulties. Learners' needs are best met through a coordinated approach between education, therapy and care.

Further information on these early reflexes is given in Appendix 7.

Generalisation

Transfer or generalisation of skills often requires specific attention. Skills taught in one setting or context or by a particular member of staff may not readily transfer to other settings or people. It may be necessary to re-teach a behaviour or skill in the same way in all settings, with various staff/resources to ensure that the learner will use the skill more widely.

The ability to generalise skills will represent real progress for many learners with PMLD.

Affective, spiritual and emotional development

Attention should be paid to early affective, spiritual and emotional development. Staff may notice learners responding to naturally occurring stimuli, e.g. sunlight shining onto the learner's face. Learners may show 'awe and wonder' or what has been described as a 'whole body smile'. It is not always possible to plan such responses - they occur unexpectedly - however they do show the importance of providing opportunities and time for exploration in a range of environments including natural environments.



Barriers to learning

The barriers to learning for PMLD learners are varied, may be interactive and include significant and complex physical, medical, sensory and communication needs. In addition to this, emotional and behavioural difficulties linked to their conditions and/or external factors will also impact on learning.

Sensory impairments

Visual and/or hearing impairments (VI & HI) may sometimes be overlooked in learners who have very complex needs. Some may initially present as blind or deaf but will have some residual vision or hearing. Specialist assessment and advice should be sought if it is suspected that a learner has a sensory impairment.

For further information on VI and HI refer to Appendix 9.

Factors to be considered when thinking about barriers to learning, include the following which fall broadly into two interconnected areas:

Internal

- physical and/or medical, including degenerative and life limiting conditions;
- sensory impairment(s);
- social, emotional and behavioural difficulties;
- communication;
- state of arousal, i.e. quiet/active alert;
- the impact of medication;
- stereotyped behaviour.

External

- personal and family circumstances;
- socio-economic;
- whole school ethos;
- staff/learner relationships;
- planning;
- classroom organisation and management;
- environmental conditions, such as unsuitable lighting and noise levels.

Assessment guidelines need to reflect the fact that, due to varying levels of physical or medical well-being, learning for pupils with PMLD may:

- appear to be lost or 'locked in'
- remain unchanged
- be lost

Learners may at first only appear to recognise familiar or relevant sights and sounds. They will need to be taught to use their senses and experiences should be planned to support this sensory development.

The following points may help staff to meet the needs of this group of learners:

- **appropriate positioning** - to enable learners to access equipment and maximise their use of vision and hearing to communicate with others and explore their environment.
- **properties of sensory stimulation** - these can be visual, e.g. colour, contrast, brightness of light, pattern or auditory (intensity, volume, pitch/frequency, tone). In both cases the pattern, duration, cueing and method of presentation of the stimulus can be varied to prompt or change a learner's response.
- **environmental factors** - work should normally take place in a quiet room, free from distractions. Consider lighting level, reflection or glare, background noise, acoustics, visual clutter and familiarity with and actions of staff present.

Stereotyped behaviours

Stereotyped movements can be used as a basis for interaction as adults can join in with the movement or use the rhythm to interact by tapping the learner or using musical instruments. These behaviours may be extended and linked to similar movements or objects, e.g. a spinning toy may be attractive for a learner who waves his/her hands to get a visual effect from bright light.

However, these behaviours or repetitive gestures should be closely observed to try to monitor the purpose that they serve. They may have originally been communicative or exploratory but they may have become habitual. They may be used to block out confusing stimuli and may provide clues to the learner's emotional state.

Lee and MacWilliam, (2002) suggest that when children start to use these gestures to communicate, there is less likelihood of them becoming obsessive or ritualistic as they will have acquired meaning.

Degenerative and life limiting conditions

Due to varying levels of physical or medical well-being, learning for pupils with PMLD can either:

- be lost or
- remain unchanged.

Tactile development

Tactile selectiveness (defensiveness)

Some learners with PMLD, in particular those with sensory impairments may be tactile selective. Selective touch may be due to hypersensitive skin or to poor tactile discrimination or tactile selectiveness (defensiveness). Learners who are tactile selective may avoid touch or experience aversive responses to some textures or stimuli. The stages outlined on Appendix 10 may be used as a basis for moving a learner on from resistance to tolerance. It is important to note that even when a learner tolerates a stimulus this does not mean that he/she will be able to use this new source of information

In normally developing infants, close senses, i.e. senses through which information is gained through close contact - touch and movement, appear to be more developed at an early stage than distance senses, i.e. visual and auditory where information is gained from less direct contact.

Sensory information can be acquired by:

- **haptic perception** - direct touching via hands
- **tactile perception** - whole body receiving information through touch, e.g. mouthing, skin-sensitivity to temperature, pressure, pain, etc.

This clearly has implications for organising the learning of those working at this very early stage of development. Generally, inputs through the close senses will meet with a higher level of success.

However, some learners may respond to a visual or auditory stimulus in preference to tactile one and all senses may not necessarily be used.

Stages for tactile development were outlined by Aitkens and Buultjens, (1992). These are as follows:

- **awareness** (getting a reaction);
- **attending** (overcoming tactile defensiveness, exploring by hand/mouth);
- **localising** (finding/retrieving by touch);
- **recognising** (familiar people/objects);
- **understanding** (using touch for greater understanding of/appropriate use of objects).



Touch may be active (active manipulative use of skin/other receptors) or static (passive but aware), passive meaning not involving independent exploration. Although static touch (see Table 2) may provide information about characteristics of objects such as temperature, texture and movement, active touch is usually necessary to gain detailed information.

McLinden and McCall, (2002) outline the following exploratory procedures and sensory information acquired through them:

Lateral motion (rubbing finger across surface of object)	Texture
Pressure (squeezing, poking)	Hardness
Static contact (fingers resting on surface)	Temperature
Enclosure (holding, grasping)	Shape/size/volume
Unsupported holding (holding in hand)	Weight
Contour following (tracing along contours of object)	Global shape, exact shape

Table 2 Exploratory procedures and acquired sensory information

(Reprinted from McLinden, M., McCall, S. (2002) *Learning Through Touch - Supporting Children with Visual Impairment and Additional Difficulties*. London: David Fulton.)

It is important to try to assess what object properties are being perceived by learners as they explore. This information will help to build a picture of learner preferences and may inform future teaching methods.

Care is needed in selecting strategies to support learning through touch. Bridgett, (1999) notes that there is a fine line between establishing awareness of the environment and 'coercively manipulating a child through an experience they may be unable to assimilate'. Possible strategies may be that of hand-under-hand or hand-on-top guidance.

See Appendix 10 for the main stages of development of manual behaviour for normally developing infants, together with some practical suggestions for developing the tactile sense.

The following stages of physical guidance are derived from the work of McInnes and Treffry, (1982).

- **Coactive** - moving through resistance to tolerance and passive co-operation. The adult works coactively behind the learner to hold or begin to manipulate an object.
- **Co-operative** - the adult works behind the learner to hold and manipulate features of an object, and may move to the front of the learner when he/she begins to respond co-operatively and finally begins to lead.
- **Reactive** - the learner imitates then initiates. The adult works in front of the learner, who begins to independently locate, grasp and manipulate an object.

However touch is used it must be consistent, as different types of touch can have many meanings (e.g. reassurance, feedback, prevention of action) and could easily cause confusion for learners at an early stage of development.

How does your school...

- take account of the principles of effective learning?
- ensure opportunities for 'learning to learn' across the curriculum?
- meet the needs of learners with sensory impairments?

The Communication Process

Communication is a dynamic process not a static situation so we should never "arrive" at a definitive programme for a child.'

Brown, D. in Wyman, R.,(1996)

This section will provide an overview of:

- the development of early communication skills;
- interaction with learners using a variety of strategies:
 - responses
 - interactions
 - prompts or cues
- the use of objects of reference;
- communication passports; and
- home school links.

Development of early communication skills

In the earliest stages of communication Rowland, (1996) suggests that there are four basic reasons for communicating with other people.

These are:

1. to refuse things we do not want;
2. to obtain things we do want;
3. to engage in social interactions (positive/negative); and
4. to provide or seek information.

As learners develop, they may begin to express themselves in more conventional ways but early communication will include non-speech vocalisations, facial expressions, eye gaze, gestures, whole body or body part movement.

The main stages in the development of communication skills are shown below. Although, it is unlikely that learners with PMLD will achieve abstract symbols and language, these have been included to illustrate the possible progression.

Stage	Description	Possible interpretation
Pre-intentional behaviours	Learners show only involuntary/reflexive responses to internal or external stimuli usually associated with well-being, e.g. pain, hunger. These must be responded to and given meaning.	May be interpreted as expressing comfort or discomfort or showing interest in people.
Voluntary behaviours (not yet intentional)	Although these behaviours are voluntary, they are not intentionally communicative, as learners do not yet realise they can control the behaviour of others. Parents/carers interpret these behaviours as communicating something.	May communicate refusal/rejection a request for more of an action/object, a request for new action/object, a request for attention or showing affection.
Unconventional communication	Here, learners communicate intentionally but in unconventional ways, e.g. body movement. They realise that other people can be used to obtain something they want (proto-imperative).	Pre-intentional behaviours
Conventional communication	Learners use pre-symbolic behaviours to communicate intentionally, e.g. gesture, vocalisation. The learner acts on both people and objects at the same time, e.g. gazing at someone and pointing to an object of interest to share their experience (proto-declarative). Learners without sight may not develop this shared intention.	In addition to above may communicate: greeting others, offering/sharing, directing others attention, using polite forms, confirming/negating information or asking questions.

Stage	Description	Possible interpretation
Concrete symbols	At this level, learners begin to use concrete symbols to represent objects/people. Such symbols may be objects of reference, pictures or actions/gestures. There must be a clear 1:1 relationship to the original object, i.e. symbol must resemble the original in terms of appearance, feel, sound or action made.	In addition to above learners may request objects not present, label people/objects.
Abstract symbols	Abstract symbols (e.g. speech, manual signs, Braille or printed words, abstract graphic symbols or 3D abstract symbols) are used one at a time. They may also include proto words - the learners' own consistent pattern of sounds to stand for an object, person or event (e.g. 'nonny' for milk).	
Language	Here 2 or 3 abstract symbols may be combined and learners begin to use grammatical rules.	

Table 3 Main stages in the development of communication skills

(Adapted from Rowland, C. (1996) Communication Matrix. Portland, Oregon: Oregon Health Sciences University.)

Coupe O'Kane and Goldbart, (1998) state that during pre-intentional communication, the learner's development progresses through three levels:

- **Reflexive level** - the communication partner assigns social significance to a small range of very early behaviours, sounds and reflexes which occur in response to a limited range of internal and external stimuli through all available sensory channels.
- **Reactive level** - the communication partner assigns social significance to reactive behaviours which are produced in response to a wide range of stimuli through all available sensory channels.
- **Proactive behaviour** - the communication partner recognises behaviours as signals and assigns communicative intent and meaning, becoming increasingly selective about behaviours to which they respond, shaping intentional communication.

Figure 3 illustrates the gradual shift from concrete to abstract. However it is likely that most learners with PMLD will always use concrete methods of communication.

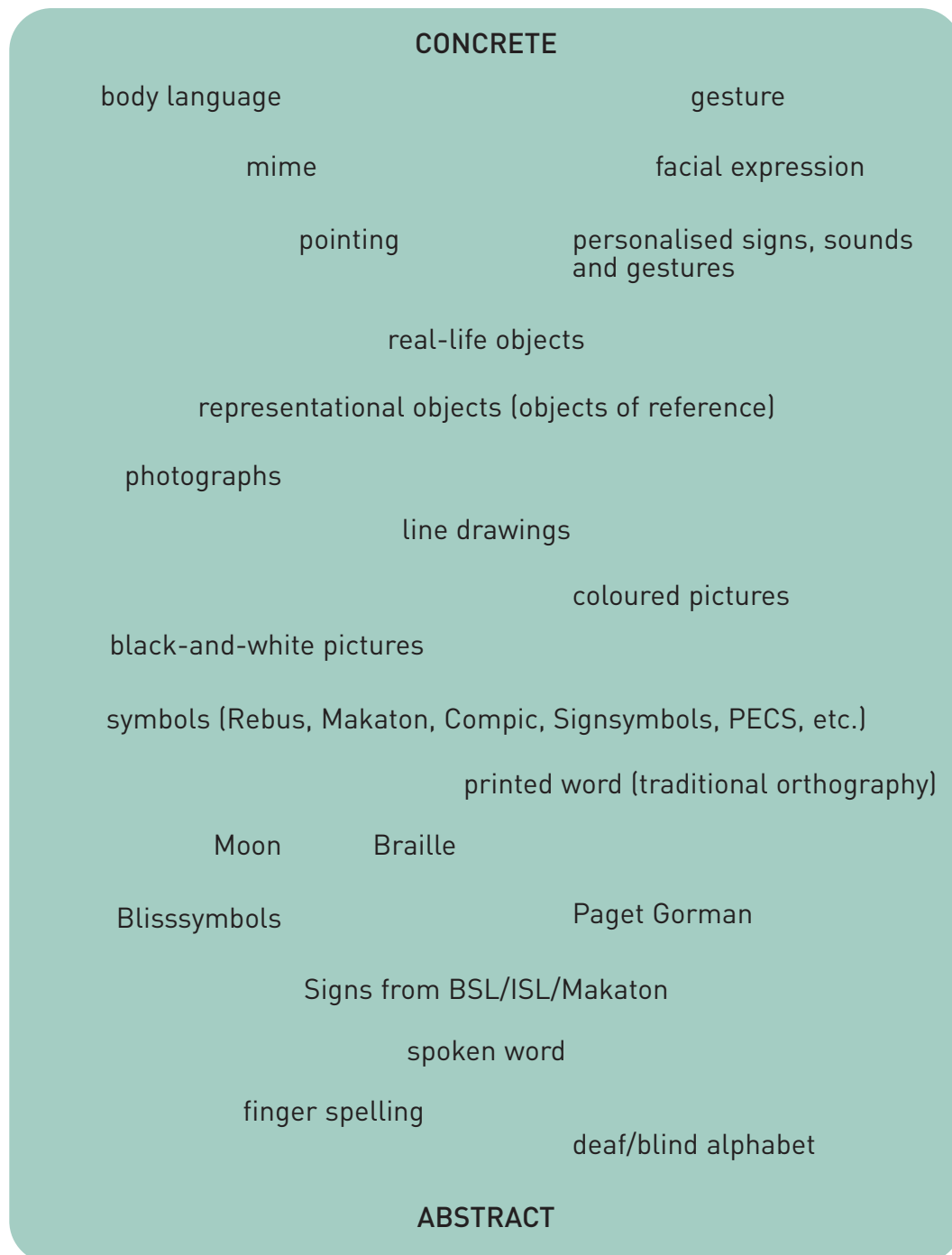


Figure 3

(Adapted from Park, K. (1997) in Craft, C. and Downs, C. (eds) *Sex in Context: strategies and safeguards relating to the sexuality of children and adults with profound and multiple impairments*. Brighton: Pavilion Publishing.)

Whatever method of communication is used, the essential elements are:

- contingency awareness (where the learner gains a sense of control and an awareness of their own ability to affect the environment);
- a means of communication;
- something to communicate about; and
- a belief that the communication will gain a response.

Interaction with learners (using a variety of strategies)

Responses

At all stages staff must respond to the learner's behaviours as if they were communicative signals. Responding to needs and requests is vital to the learner's developing communication and must not be seen as 'spoiling' or 'giving in to' the learner.

Early responses may include 'stilling' (a momentary 'freeze'), a change in breathing pattern, tensing or relaxing, pupil dilation or eye movements, change in facial expression, vocalisation or movement of mouth, hands or feet. If learners are being filmed, staff need to ensure that these often small and barely perceptible responses are visible.

As responses become more pronounced and more consistent and learners begin to act independently on their environment, greater accuracy should be expected, with learners having to refine their actions and become more specific in their intentions.

It is important to establish:

- that a response is intentional and not reflexive, e.g. a startle;
- that a response is directly linked to the stimulus and not a response to staff actions; and
- exactly what qualities of the stimulus lead the learner to respond.

It is essential to involve the learners and follow their lead. Any preference expressed by the learner, e.g. for a certain type of music, should be incorporated into the programme. It is equally important to notice and respond to behaviour that may signal rejection or the learner's wish to stop an activity e.g. turning head away.

Interaction

Coupe O'Kane and Goldbart, (1998) suggest the following seven aspects of interaction between learners and communication partners.

1. **Vocalisation** - communication partner responds to the learner's vocalisations by saying his/her name, singing, whispering, etc.
2. **Facial expression** - communication partner reacts to the learner's facial expressions, initiating smiling, frowning etc., and looking for learner responses.
3. **Body proximity** - communication partner gets close, with face near to the learner so he/she are able to pick up on the learner's body tone, etc. Sensitivity is needed about personal space with some learners.
4. **Eye contact/orientation of visual regard** - communication partner should consider when starting an interaction or introducing an object to the learner whether their position is appropriate to help eye contact and joint regard of object.
5. **Physical contact** - communication partner needs to take into account the learner's likes/dislikes.
6. **Imitation** - communication partner imitates the learner's actions/sounds back to him/her.
7. **Turn-taking** - communication partner allows the learner time to respond and then provides feedback.



Intensive interaction provides a way of engaging with the PMLD learner which can help the adult to see 'where the learner is' with regard to *Quest for learning* and where he/she might move towards through the interactive process.

To implement intensive interaction you need to:

- *"Relax and enjoy yourself with the person...allow some of your natural communication abilities to guide what you do."*
- *"At the same time, think carefully about how to have a successful interaction with this person, by using simple principles borrowed from the interaction style parents use with babies."*
Nind & Hewett, (2001)

Nind and Hewett, (1994), suggest that communication partners can:

- touch, rock or hold the learner;
- share control of the activity with the learner;
- allow themselves to be controlled by the learner;
- use visual regard, mutual gaze, vocalisations;
- exaggerate facial expressions;
- use 'motherese' - slower, simpler speech;
- verbalise in short bursts, leaving gaps for the learner to respond;
- use games and playful, ritualised routines;
- synchronise tempo with the learner;
- keep the learner's level of arousal and involvement within optimum limits;
- respond to the learner, being sensitive to their signals and feedback;
- adjust their input as the learner makes progress.

The interactions can then be built upon in the following way:

Respond pleasurably to a behaviour, and your responses create interest from the pupil.

Repetition provides rehearsal and consolidation of known games and activities, and a continuous secure base and reference points. Through repetition variations occur, leading to new games and activities.

Repertoires of known and familiar activities are built up, created through the interactions. Natural variations and divergences create continuous and progressive additions of new activities.

Nind and Hewett, (2001)

Later, some learners may move on to use symbols including spoken words, manual signs or three-dimensional symbols or objects of reference.

It is important that learners are given time and space to communicate within a consistent routine and that staff respond and give meaning to pre-intentional sounds/movements. Everyday and care routines can be used as opportunities to develop communication if staff appreciate the need to pause and follow up any attempt by the learner to 'fill the gap'. Routines can give security and some degree of control but the learner must not develop learned passivity and must be given the time and opportunity to repair interactions when these have been interrupted.

As learners develop a wider range of responses, so staff should become more selective about the behaviours to which they respond, thereby shaping communication.

If a number of different people are in contact with a learner, staff might use a personal identifier that is an integral part of him/herself, e.g. long hair. Communication and handling strategies such as those suggested above, should be agreed to ensure a consistent approach. Communication Passports documenting a learner's responses and possible meanings can be useful in sharing this information with family and all staff working with the learner. This may also include individual 'meet and greet' routines which may be preferable to the use of standard 'Hello' songs with many learners. If learners do not yet recognise their name or own identifier, such a song will be the same in effect for everyone and will have little significance for individuals.

Few published assessments provide enough detail at this early level of development, but the Affective Communication Assessment, Coupe O'Kane et al., (1988) can provide useful information to supplement that gathered from parents, carers and others who know the learner well. See Appendix 11.

Although for learners with PMLD many of the routes to social learning e.g. modelling, verbal instruction, are limited by their sensory and physical disabilities, more is likely to be learnt by immersion in the communication process with sensitive communication partners than by 'training' provided on a set of visible behaviours.

Prompts or cues?

The terms prompt and cue are often used interchangeably. Goold and Hummell, (1993) note that cues suggest a course of action to the learner while prompts are used to direct their actions.

Natural cues can be used to increase awareness and let the learner know an action or event is about to happen. Such cues might be:

- auditory, e.g. rattling keys cueing car ride;
- gestural, e.g. arms out meaning 'Would you like to come up?';
- olfactory, e.g. smelling Marmite for 'I'm putting this on your toast';
- tactile, e.g. placing spoon to mouth for 'dinner is here';
- visual, e.g. swimming costume for 'Let's go swimming';
- routine cue, e.g. following set timetable with object/pictures; or
- verbal, e.g. speech/intonation suggesting a course of action.

Many cues can be usefully paired with key words, e.g. 'lunchtime', to give specific signals to help attention, recognition and understanding.

With all cues, care must be taken to ensure that the means of communication is in line with the learner's cognitive development, e.g. pictures and symbols may be meaningless to a child not yet at a symbolic level of understanding. For learners with PMLD - particularly if they also have a visual impairment - coactive signs may be used. Here, the communication partner physically guides the learner's hand to produce a sign. This is used in the early stages of signing or when learners have little independent hand movement. Again, this practice must have a clear purpose and be meaningful to the learner.



Objects of reference

Objects of reference (objects which stand for activities, places, people, etc.) can bridge the gap between non-symbolic and symbolic communication as they place lower demands on cognitive abilities, memory and visual skills. The use of objects of reference in their purest form requires symbolic understanding and learners need to be able to attach significance to an object other than its actual use, e.g. a cup stands for snack time. They also need object permanence and shared attention, ensuring a common understanding of objects.

Many learners with PMLD who have not attained symbolic understanding may use objects as 'experiential signifiers' rather than full objects of reference. This means that learners are given a means of understanding and anticipating events such as a piece of towel to signal that they are about to go swimming. An identical object will offer the highest level of 'concreteness' for learners who might not yet have the ability to associate one object for another. Rowland and Schweigert, (1989), McClarty, (1995) warn that any introduced objects of reference should support communication at every stage and not merely become window dressing in the classroom.

For learners with complex needs, life can be a fragmented series of experiences with little order. Without structure, learners may never develop anticipation and memory so it is essential to provide a simple, structured environment with ordered routines to which objects can refer. Once simple routines are established, the most appropriate object for a small number of activities can be chosen. Objects must be meaningful to each individual and will not therefore be standard for each child or in any one classroom.

Objects of reference should initially be objects used in an activity, e.g. a spoon for mealtime. With consistent use over time, learners will become increasingly aware of the connection between object and activity, e.g. smacking lips when shown spoon immediately prior to meal. At this stage the object may be distanced very slightly from the activity and signs of anticipation observed.

For learners with visual impairment, staff need to consider object size, positioning and the learner's means of access. In other words, they should determine which visual, auditory, olfactory qualities are needed to make the object a useful means of communication for the

learner. As learners become familiar with objects of reference indicating to them what is about to happen, they may begin to use them expressively, e.g. to choose a drink.

Home school links

Home-school links will be of particular importance for any learners from minority ethnic groups for whom there may be additional cultural considerations when developing communication programmes and care routines. Schools should contact their Education and Library Board for support with additional language needs.

Communication Passports

Communication and handling strategies as referred to earlier should be agreed to ensure a consistent approach. Communication Passports documenting a learner's responses and possible meanings can be useful in sharing this information with family and all staff working with the learner.

Key information regarding the cognitive, communicative and social abilities of learners with PMLD must be passed on, as quickly and effectively as possible to anybody who is going to interact with the learner. This is an important factor in the development of a responsive learning environment. If this is done, then effective communicative relationships can be built. Relationships are the key to progress, and the initial contact of a learner with PMLD and an adult can make or break the relationship.

If the following information is known to the adult it is more likely that a good relationship can be built up from first meeting:

- preferred mode of communication by which the learner makes needs known;
- an object which the learner needs in order to feel secure;
- an activity which the learner needs to engage in to increase his or her well-being;
- preferred positioning;
- behaviour triggers and how to respond; and
- eating, drinking and daily care routines.

Computer based package is available from www.communicationpassports.org.uk.

Personal Communication Passports, Guidelines for Good Practice adapted from Miller and Aitken, (2003).

Features	Benefits
<p>Passports are concise documents which present key information about a child's day to day requirements, views, personal likes and dislikes and methods of communication.</p> <p>Passports are usually small booklets, and are written in the first person from the child's own perspective, so they are informal and personal.</p> <p>Passports are written in an accessible way that does not assume prior knowledge and is simple, clear, direct, honest, attractive and fun.</p>	<p>Provide a practical, person-centred method of supporting people who cannot speak for themselves.</p> <p>Pull together complex information and present it in an easy to follow format.</p> <p>Present the person positively, not as a set of problems.</p> <p>Provide a place for the person's own views and preferences to be recorded and drawn to the attention of others.</p> <p>Allow information to be effectively, quickly communicated to people in contact with the person.</p> <p>Reflect the person's unique character and sense of humour.</p> <p>Describe the person's most effective means of communication and how others can best communicate with, and support the person.</p> <p>Draw together information from past and present, and from different contexts, to help staff and conversation partners understand the person and have successful interactions.</p> <p>Place an equal value on the views of all who know the children well, as well as the views of the specialist professionals.</p>

Table 4

Stages of development

Miller and Aitken, (2003) refer to the three stages of development which require different forms of record gathering depending on the ability of the pupil to contribute to their own communication passports. Learners with PMLD will be working within the first two stages.

Stage one (Sensory) - only non-intentional communication.

Passport is created by others through observation, intensive interaction, walkabout and work on presenting choices. It is an important means for learners to have preferences and their 'voice' heard.

Stage two - intent to communicate is there.

The learner produces effects deliberately, associating objects/activities with objects or pictures, indicating, responding to questions and uses consistent signals. Opinions can be ascertained using objects of reference, photos, pictures, symbols, answering questions, yes/no and non-directive play. Opinions can be transferred to passports.

The development of a communication passport involves collaboration of teachers, classroom assistants, parents, therapists, respite care workers and other adults. As the learner makes progress and develops new interests, the passport is altered accordingly. Each passport should be individual to the learner and should show 'where he/she is' in terms of communication, social interaction and cognitive development. When passports are in place all adults working with the learner with PMLD can see where to 'pitch' their input in order to meet his/her needs, communicatively and socially.

McClarty, (1995) stresses the importance of staff gaining information on the theoretical basis of this methodology and using this to develop a meaningful approach in the context of their own classroom.

How does your school...

- raise staff awareness of the communication process?
- cater for learners from minority ethnic groups, ensuring cultural considerations are respected?

Assessment for Learning

This section will provide an overview of:

- Assessment for Learning within the Northern Ireland context;
- information on Assessment for Learning and Assessment of Learning - the differences and the relationship between them;
- Assessment for and of Learning in the context of the *Quest for learning* materials;
- key issues to be considered when assessing learners with PMLD;
- a wider definition of progress for learners with PMLD.

Assessment for Learning within the Northern Ireland context

The aim of the Northern Ireland Curriculum is to empower young people to achieve their potential and to make informed and responsible choices throughout their lives.

The Revised Northern Ireland Curriculum promotes a learner-centred approach in which every pupil is encouraged to progress and achieve his/her full potential. The content of the curriculum is much less prescriptive, providing more freedom and flexibility for schools to tailor the education provision to meet the needs of their pupils. The Revised Curriculum embraces the principles of Assessment for Learning by placing formative assessment at the heart of the learning and teaching cycle, where the emphasis is on improvement, raising achievement in pupils' learning and celebrating success. Assessment for Learning has the potential to make a powerful contribution to the central aim of the Northern Ireland Curriculum by empowering learners and enabling them to realise their full potential.

Assessment for Learning and Assessment of Learning

'Assessment for Learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where they are in their learning, where they need to go and how best to get there.'

(Assessment Reform Group, 2002)

Assessment for Learning (often used interchangeably with the term formative assessment) is based on an extensive literature review conducted by Paul Black and Dylan Wiliam. They refined the term 'formative assessment' by emphasising that assessment can only become formative when it is an integral part of the learning and teaching process and when assessment evidence is actually **used** to modify teaching to meet the needs of the pupils and therefore improve learning.

Assessment for Learning (or formative assessment) takes place **during** learning, working **with** the learner to determine what is being learned and identifying what the 'next steps' should be. It is based on day to day classroom practice, where both teachers and pupils use feedback to improve the learning.

It involves teachers gathering and interpreting information about how well pupils are learning and specifically about their progress, the nature of their understandings and the difficulties they are having. The evidence is used to give feedback and support to help pupils improve their learning. It is not something extra or 'bolted on' that a teacher has to do. Assessment therefore becomes a much more supportive and transparent process which, based on critical information, is shared with the learners. There is a high emphasis on transferable learning and on enabling learners to take responsibility for their own learning and eventually their own assessment.

However, there has been a tendency to see assessment as an end-product that is separated from the learning and teaching process. This is assessment of learning (or summative assessment). It takes place after the learning and tells us where learners have been at given points in time and what has been achieved. It is used mainly to measure performance rather than support learning.

What are the differences between summative and formative assessment?

Summative assessment	Formative assessment
Is retrospective , looking back on the learning that has taken place.	Starts with a retrospective view but is largely prospective .
The judgement is made by the teacher on behalf of the learner.	Helps the learner to map out 'next steps' in order to manage their own learning.
The responsibility for learning is with the teacher.	The responsibility is as much with the learner as the teacher. The learner is involved in their assessment as well as the learning.
The intention is to provide a judgement on performance at given points in time.	The intention is to improve the learning rather than prove it.

It is important however, to avoid seeing Assessment **of** Learning and Assessment **for** Learning as opposing or contradictory practices - one complements the other. While the Assessment of Learning will always have a place in classroom and school practice, it is essential that both formative and summative assessment are used effectively and in conjunction with one another. Assessment for Learning will enable staff to make better and more informed summative judgements because they will have greater insights into how and what their pupils have learnt across a range of learning areas - insights that they can share meaningfully with parents and pupils.

Assessment for Learning is not a revolutionary concept. Many teachers already use a learner-centred approach and a range of formative assessment strategies. Assessment for Learning enriches existing good practice by providing a coherent, structured framework for formative assessment and making the underpinning rationale explicit for both teachers and pupils.

Assessment for Learning and Assessment of Learning within the *Quest* materials

The *Quest for learning* assessment is designed to enhance learning by helping staff to gather information which will enable them to move each learner through a developmental pathway which makes sense for him/her.

The assessment materials and related guidance will support staff in identifying precisely 'where the learner is' at a moment in time. This will enable staff to plan activities which focus on the learner's priority needs (in communication, social interaction and cognitive skills) at the appropriate level of development and ensure that the gap between 'where the learner is' and the proposed next step is not too wide.

The materials will support close observation and will enable staff to gain a greater understanding of the learning process. As the quality of information gathered improves, so will the planning for future learning. Consequently, the learner should make better progress. This is 'Assessment for Learning' in action.

The *Quest for learning* materials emphasise on-going, formative assessment where the learner progresses through a series of steps, not always in a linear sequence.

Learners 'pass through' the key milestones on the *Questmap*, i.e. the fundamental building blocks of early learning regardless of which pathway they follow. These key milestone statements form the basis of summative assessment.

When such information is used for summative purposes, the reliability and validity become more questionable if the small steps are not derived from relevant targets at an appropriate developmental level. The *Questmap* should address this problem at least in part as **the focus is on significant developmental milestones rather than contrived and possibly inappropriate subject-led targets.**

Key issues to be considered when assessing learners with PMLD

The *Quest for learning* assessment materials cover the key learning priorities for learners with PMLD (i.e. communication and social interaction and early cognitive development).

For learners working at the very early levels of development, dividing learning into Areas of Learning/subjects can be problematic and a more holistic approach is needed. As part of the on-going assessment process, developmentally appropriate targets can be set. They should include the basic learning skills and essential cross-curricular skills discussed above.

The Areas of Learning within the Revised Curriculum can be used as vehicles to achieve these targets in the context of a broad and balanced curriculum, appropriate to the setting in which learners are being taught. (See Chapter 3 Approaches to Teaching-Curriculum design.)

The key focus must be on developing skills for learning rather than on 'working towards' subject-related targets which may not be priorities for the individuals concerned. Targets should be regularly reviewed and changed if they are no longer relevant to the learner. Learners should be provided with opportunities for choice and will need motivating and stimulating experiences to enhance their self-esteem, support increasing independence and empower them to take some control over their lives.



A broad framework of progression (shown below) represents a continuum of engagement in which learners may move around from day-to-day and from experience to experience in their learning.

Forms of Engagement	Indicators of Observable Behaviour
Encounter	Learners are present during an activity.
Awareness	Learners appear to show awareness that something has happened and notice, or they fleetingly focus on an object/person.
Responsiveness	Learners attend and begin to respond to what is happening, often inconsistently. They begin to distinguish between people, objects, events, places.
Focused Attention	Learners show more consistent attention to, and can tell the difference between, specific events, objects, people, etc.
Participation	Learners begin to share, take turns and anticipate familiar sequences of events (possibly with support).
Involvement	Learners reach out, join in, 'comment' on activity and actions/responses of others.

Table 5 : Forms of engagement and indicators of observable behaviour

However, progression is not linear and needs to take many factors into account. This explains, at least in part, why it is difficult to apply a hierarchical assessment to this group of learners whose responses vary widely from day-to-day and in different contexts. Judgements made about the achievement of a single small step within a sequence could therefore be misleading, but difficulties may also arise when making best-fit judgements. In this situation, the learner may show some characteristics of performance on several different levels, which vary widely with different times and in different situations.

Staff are encouraged to observe learners over time, in different situations and to see multiple samples of each learner's abilities. They have an overview of progress and achievement and can draw upon a range of information, based on frequent contact and interaction to make valid judgements about pupil progress.

It is important that schools discuss and clarify their understanding of the terms used in Table 6 above and recognise the flexibility required when such a model is applied to learners with PMLD. Building on this, staff may find it helpful to agree and document their wider view of progress for learners with PMLD. The points below may support these discussions.

A wider definition of progress for learners with PMLD

Progress may be shown:

- **from** increased awareness and a greater range of responses leading **to** different levels of engagement and participation (see Table 1, page 8);
- by a move **from** use of near senses (tactile, proprioceptive, olfactory) and learning through sensation and movement **to** increasing use of more distance senses - visual, auditory;
- by movement through the communication continuum: **from** concrete modes (body language and use of real objects) **to** more abstract - pictures, symbols, print, signs and spoken word (see Figure 3, page 38);
- by movement through the interactive sequence - **from** resisting contact with others **to** tolerance, passive cooperation and supported involvement to enjoying social interactions/experiences;
- through a reduced need for support - move **from** coactive involvement, physical guidance **to** gestural or verbal prompts towards natural cues and independence;
- **from** a limited range of learning positions **to** a wider repertoire of learning positions (e.g. face to face, sitting, standing in frame);
- **from** the need for 'artificial' reinforcement **to** learners becoming motivated by naturally occurring events/consequences;

- when learners move **from** dependence on a secure/predictable routine **to** a greater degree of autonomy;
- **from** a reduction in frequency/severity of behaviour that inhibits learning **to** an increase in more appropriate behaviour which serves the same function;
- **from** being unable to cope as learners with frustration, failure and new, challenging situations **to** having the ability to cope (e.g. extending to new ways of learning);
- **from** having an individual pattern of learning **to** following the same pattern as other learners but taking longer;
- **from** being unable to transfer learning **to** transferring learning between different contexts or combine/use skills in different ways;
- **from** being unable to demonstrate achievement on more than one occasion **to** demonstrating the same achievement on more than one occasion, refining skills in a range of circumstances, situations and settings;
- **from** learners remaining passive **to** learners deciding not to respond.

The above points highlight that, far from being straightforward (i.e. in small steps following a pre-determined hierarchy), progress for this group of learners is complex and may move in a number of directions. The significance of progress in any of the above must be recognised and taken into account when planning future learning.

How does your school...

- assess key outcomes/EP targets for learners with PMLD across the curriculum?
- ensure that assessment informs future planning and the evaluation of individual programmes?
- use summative data to evaluate the effectiveness of the curriculum and teaching approaches and ensure they are responsive to learner needs?

Conclusion

Our learners are entitled to access a curriculum and assessment framework which is fit for purpose and meets their specific needs. The *Quest for learning* materials recognise that learners with PMLD have unique abilities and ways of learning. The materials provide a holistic assessment of the related areas of communication, social interaction and cognitive development and the underlying learning processes. The same approach should be taken to planning the whole curriculum. Staff should increase opportunities for learners to practise their skills in real school and community activities as well as working to extend the skills that they have. This, as opposed to teaching of isolated skills, will encourage learners' active participation. Although some learners may never complete a task alone, they may begin actively to contribute to or continue a movement they have been helped to begin. Such shared participation is more likely to have a real impact on their lives than a 'piecemeal' approach to skills development.

In supporting the assessment of this group of learners, the *Quest for learning* materials will also support the diverse needs of ALL learners within the inclusive assessment framework in Northern Ireland.



Record-Keeping

Rationale

These record keeping materials are aimed for teachers of learners with PMLD, to provide a format for recording outcomes of assessment activities.

It is important to take account of the following.

The information in the records need to:

- contain essential and necessary information to make judgements of learner's needs;
- be used to plan future activities both appropriately and realistically;
- assist in compiling :
 - School's pupil progress file
 - Individual Education Plans
 - Annual pupil Profile
- be shared with parents using professional and sympathetic discretion;
- be used carefully where no tangible evidence of progress is exhibited;
- ensure that each learner is seen at a personal level;
- be based on professional judgement and school policy;
- record and celebrate success, however minimal;
- recognise the individuality and dignity of each learner;
- use video recording (where practical e.g. parental permission, access to equipment) as evidence of responses and/or achievement.

QUEST MONITORING RECORD

PUPIL: _____ CLASS: _____ DATE INITIATED: _____

Objective (please state)		Sensory Area for Development				Initials
		Visual <input type="checkbox"/>	Auditory <input type="checkbox"/>	Olfactory <input type="checkbox"/>	Gustatory <input type="checkbox"/>	
Additional Considerations		Key Milestone <input type="checkbox"/>				Social Interaction <input type="checkbox"/>
		Cognitive <input type="checkbox"/>				
Date	Assessment Activities	Strategies/Resources	Assessment Outcomes			

Overall Comments:

Quest for learning Guidance & Assessment Materials

Figure 4

Quest Monitoring record form front

QUEST MONITORING RECORD

PUPIL:

CLASS:

DATE INITIATED:

Date	Assessment Activities	Strategies/Resources	Assessment Outcomes	Initials

Overall Comments:

Figure 5
Quest Monitoring record form back

Glossary

Glossary of terms

Acquisition - Haring *et al.*, (1981) learners learn correct new responses through demonstration, modelling or physical prompting with an emphasis on developing accuracy. At this stage learners need a great deal of support.

Active touch - is the active manipulative use of skin/other receptors and is usually necessary to gain detailed information.

Application or adaptation - Haring *et al.*, (1981) learners recognise similarities and differences between key elements of new situations and select appropriate responses, adapting their established skills and understandings to new problem-solving opportunities.

Appropriate positioning - to enable learners to access equipment and maximise their use of vision and hearing to communicate with others and explore their environment.

Assessment for Learning - Assessment Reform Group (2002) is the process of seeking and interpreting evidence for use by learners and their teachers to decide where they are in their learning.

Asymmetrical tonic neck reflex - (see Appendix 7) the movement of the child's head to one side will cause reflexive extension of arm and leg on the side to which the head is turned and flexion of limbs on opposite side.

Attending - Aitkens and Buultjens, (1992) overcoming tactile defensiveness, exploring by hand/mouth.

Attention - Gleason, (1984) with regard to auditory stimuli the learner gives a voluntary response such as stilling or vocalising showing an awareness that something is happening. This response may be fleeting or inconsistent.

Awareness - Gleason, (1984) with regard to auditory stimuli the learner gives an unintentional or reflex response.

Awareness - Aitkens and Buultjens, (1992) getting a reaction.

Bio-behavioural state - refers to the level of arousal of the central nervous system.

Body proximity - Coupe O'Kane and Goldbart, (1998) the communication partner gets close, with his/her face near to the learner so he/she is able to pick up on the learner's body tone, etc. Sensitivity may be needed about personal space with some learners.

Body space - McLinden & McCall, (2002) adapted from Best, (1992) the child's world expands to include the whole body. This is the space where different types of massage activities can be used to create awareness that something is happening to the body.

Coactive - McInnes and Treffry, (1982) moving through resistance to tolerance and passive co-operation. The adult works co-actively behind the learner to hold or begin to manipulate an object.

Co-operative - McInnes and Treffry, (1982) the adult works behind the learner to hold and manipulate features of an object, and may move to the front of the learner when he/she begins to respond co-operatively and finally begins to lead.

Comprehension - Gleason, (1984) with regard to auditory stimuli the learner recognises sound and related meaning, e.g. puts on coat when he/she hears a car/bus horn.

Contingency awareness - the learner knows that one action will cause one particular response to happen.

Contingency responding - the learner realises that performing a particular action causes an effect but has not yet made the 1:1 association, i.e. one switch press = one response.

Discrimination - Gleason, (1984) with regard to auditory stimuli the learner knows if sounds are the same or different, e.g. he/she may smile to a favourite song.

Early associative learning - this occurs when the learner learns to anticipate a significant event through an earlier cue which can be reliably associated with it, e.g. the learner hears the dinner trolley and smacks his or her lips, looking forward to lunch.

Environmental factors - work should normally take place in a quiet room, free from distractions. Consider lighting level, reflection or glare, background noise, acoustics, visual clutter and familiarity with and actions of staff present.

Experiential signifiers - many learners with PMLD who have not attained symbolic understanding may use objects as 'experiential signifiers' rather than full objects of reference. This means that learners are given a means of understanding and anticipating events such as a piece of towel to signal that they are about to go swimming.

Eye contact/orientation of visual regard - Coupe O'Kane and Goldbart, (1998) the communication partner should consider when starting an interaction or introducing an object to the learner whether their position is appropriate to help eye contact and joint regard of object.

Face space - McLinden & McCall, (2002) adapted from Best, (1992) the focus of children's interest is mainly their face and tactile experiences will involve the tongue, lips and the hands near the mouth.

Facial expression - Coupe O'Kane and Goldbart, (1998) the communication partner reacts to the learner's facial expressions, initiating smiling, frowning, etc., and looking for learner's responses.

Fluency - Haring *et al.*, (1981) learners, through repetition, reach a level of mastery combining speed and accuracy. The action still takes time to complete.

Generalisation - Haring *et al.*, (1981) learners develop and achieve mastery in different settings or contexts, with different stimuli or materials or with different staff.

Group space - McLinden & McCall, (2002) adapted from Best, (1992) the child may start to share an activity under direction with another child and then take part in group activities.

Gustatory input - sense of taste.

Habituation - this occurs when a regularly presented stimulus eventually fails to gain a response as the learner grows used to it.

Haptic perception - direct touching via hands.

Homeostatic system - Brown, McLinden and Porter, (1998)

Intensive interaction - is a process-based approach to adult engagement with learners with PMLD which emphasises the relationship between the adult and the child as well as the need to value and respond to the child's actions, movements and sounds.

Imitation - Coupe O'Kane and Goldbart, (1998) communication partner imitates the learner's actions/sounds back to him/her.

Localising - Aitkens and Buultjens, (1992) finding/retrieving by touch.

Localisation - Gleason, (1984) with regard to auditory stimuli the learner identifies where a sound comes from. Responses become increasingly consistent.

Maintenance - Haring *et al.*, (1981) learners consolidate and maintain a high level of competency and fluency over time by learning through repetition and familiarity. They will remember how to do the task after a break.

Moro reflex - (see Appendix 7) this causes a startle movement (arms upward, hand open, momentary freeze) in response to a perceived threat which also activates the stress hormones.

Neck righting - (see Appendix 7) when the head is rotated to one side the whole body rotates in the same direction.

Objects of reference - objects which stand for activities, places, people and bridge the gap between non-symbolic and symbolic communication as they place lower demands on cognitive abilities, memory and visual skills.

Object permanence - (see Appendix 6) the learner knows that an object continues to exist even when it is out of sight.

Olfactory input - sense of smell.

Operant conditioning - this occurs when the consequences of an action alter the probability that it will be repeated, e.g. a learner hits a toy which plays a tune. This increases the likelihood of the learner hitting the toy again as he/she begins to make the link between the stimulus and the response. A learner may also stop an action to prevent a negative consequence, e.g. touching a toy triggers a loud, frightening noise so the learner doesn't touch it again.

Palmar reflex - (see Appendix 7) this grasp reflex occurs in response to pressure on the palm of the hand.

Passive touch - meaning not involving independent exploration.

Personal space - McLinden & McCall, (2002) adapted from Best, (1992) the child's awareness of the world expands to include the space around the body and people and objects within that space. An element of manipulation of these will emerge as an increasing feature of the child's activity.

Physical contact - Coupe O'Kane and Goldbart, (1998) the communication partner needs to take into account the learner's likes/dislikes.

Plantar reflex/foot grasp - (see Appendix 7) a grasping response occurs if the sole of the foot is pressed behind the toes.

Proactive behaviour - Coupe O'Kane and Goldbart, (1998) the communication partner recognises behaviours as signals and assigns communicative intent and meaning, becoming increasingly selective about behaviours to which they respond, shaping intentional communication.

Proprioceptive - quick stretch movements which pull on muscles e.g. tapping on stomach muscle.

Reactive - McInnes and Treffry, (1982) the learner imitates then initiates. The adult works reactively in front of the learner, who begins to independently locate, grasp and manipulate an object.

Reactive level - Coupe O'Kane and Goldbart, (1998) the communication partner assigns social significance to reactive behaviours which are produced in response to a wide range of stimuli through all available sensory channels.

Recognising - Aitkens and Buultjens, (1992) knows familiar people/objects.

Recognition - Gleason, (1984) with regard to auditory stimuli e.g. of own name - the learner remembers sound and meaning.

Reflexive level - Coupe O'Kane and Goldbart, (1998) the communication partner assigns social significance to a small range of very early behaviours, sounds and reflexes which occur in response to a limited range of internal and external stimuli through all available sensory channels.

Respond - Nind and Hewett, (2001) reacts pleasurably to a behaviour, and your responses create interest from the pupil.

Repetition - Nind and Hewett, (2001) provides rehearsal and consolidation of known games and activities, and a continuous secure base and reference points. Through repetition variations occur, leading to new games and activities.

Repertoires - Nind and Hewett, (2001) known and familiar activities are built up, created through the interactions. Natural variations and divergences create continuous and progressive additions of new activities.

Social space - McLinden & McCall, (2002) adapted from Best, (1992) this refers to a wider area around the child and may include the whole room.

Static touch (passive but aware) - may provide information about characteristics of objects such as temperature, texture and movement although active touch is usually necessary to gain detailed information.

Tactile defensiveness - learners who are tactile defensive may avoid touch or experience aversive responses to some textures or stimuli.

Tactile perception - when the whole body receives information through touch, e.g. mouthing, skin-sensitivity to temperature, pressure, pain, etc.

Turn-taking - Coupe O'Kane and Goldbart, (1998) the communication partner allows the learner time to respond and then provides feedback.

Understanding - Aitkens and Buultjens, (1992) using touch for greater understanding of/appropriate use of objects.

Vestibular- Rosen, (1997) sense of equilibrium.

Vocalisation - Coupe O'Kane and Goldbart, (1998) communication partner responds to the learner's vocalisations by saying his/her name, singing, whispering, etc.

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Appendix 1

Who are learners with PMLD/complex needs?

A definition is provided by Penny Lacey (1998). This says that people with PMLD can be described as having both of the following:

- profound intellectual impairment;
- additional disabilities, which may include sensory disabilities (for example, sight problems/blindness or hearing loss), physical disabilities and/or autism or mental illness. Challenging or self-injurious behaviour may also be present.

Accessed at www.mencap.org.uk

A second definition of learners with profound and multiple learning difficulties was compiled by a General Teaching Council for Wales network group to guide their discussions and enable them to plan appropriate outcomes for the aspects of the PSE Framework:

Learners with PMLD will have a profound cognitive impairment/learning difficulty, leading to significant delay in reaching developmental milestones. Such learners will be operating overall at a very early developmental level and will display at least one or more of the following:

- significant motor impairments;
- significant sensory impairments; and/or
- complex health care needs/dependence on technology.

The inter-relationship of these disabilities increases the complexity of need, in turn affecting all areas of learning.

The dangers of labelling learners are recognised and flexibility is required to avoid limiting expectations.

Learners with PMLD will have a Statement of Special Educational Need and are likely to be working on the behaviours shown on the Questmap for most or all of their school life.

Staff may find it difficult to establish reliable and consistent methods of communicating with them. Owing to high levels of dependency for basic self-care (such as dressing, toileting and feeding) they are also likely to require extra resources in school such as:

- specialist staffing and substantial support;
- adapted curriculum and Education Plans;
- mobility aids and therapy programmes; and/or
- frequent assistance and medical support.

N.B. These definitions do not include those whose difficulties are believed to result from ASD, unless this is also combined with a profound level of general learning difficulties.

These definitions draw on earlier work by:

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Appendix 2

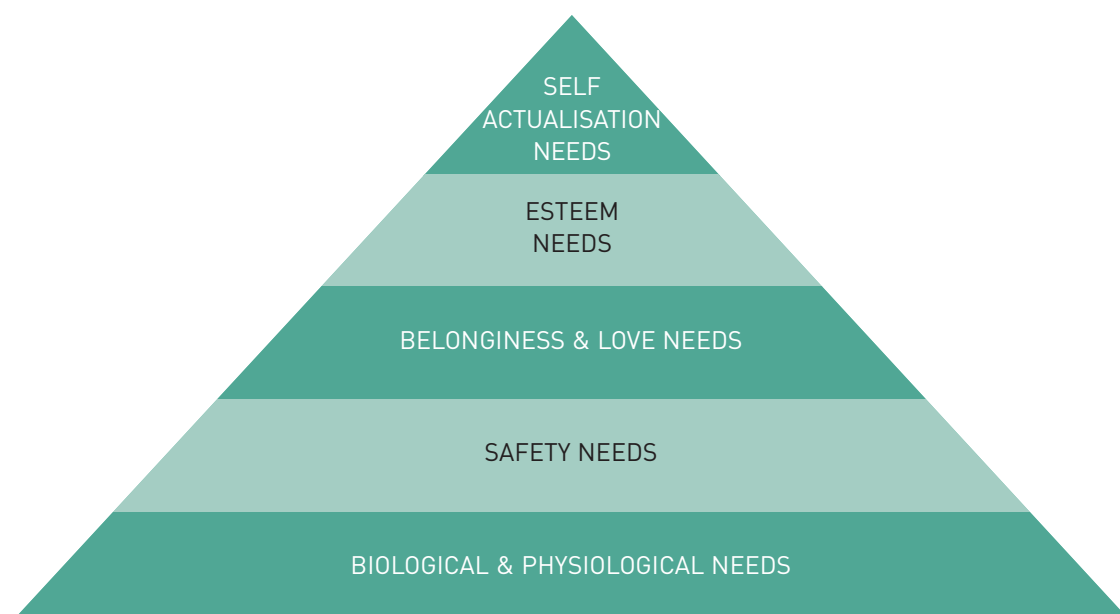
Key Questions for curriculum design

- What are our aims/principles/values?
- What makes up a relevant curriculum for our learners? What are their priority needs?
- What, in addition to statutory elements, do we need to include? (These could include, for example, therapies.)
- What theoretical models have influenced our thinking? What commercially produced materials have we drawn on? Have we developed a clear rationale for their adaptation and use?
- How does the whole curriculum, including the 'hidden' curriculum, promote the social, moral, cultural, spiritual development of learners?
- How can we draw on the expertise of parents and other professionals?
- How do we maximise learner participation and capitalise on learners' interests?
- How can we ensure breadth and balance?
- What staff expertise do we have available? What further outside support and training might be needed?
- How does the location of the school impact on the curriculum? How can we make best use of the local community?
- How are learners grouped? Why?

- Is there a balance between individual and group activities? Is there one between different teaching approaches, e.g. experiential or interactive?
- What variations exist between key stages? Why?
- How is the Revised Curriculum used to ensure that learners receive their minimum entitlement? Is there a clear rationale for the selection of content to be covered in depth or in outline? Is provision made for planned revisiting where this is necessary?
- What use is made of the Access (including all learners) Statement and the flexibility it provides to meet learner needs?
- How is the Thinking Skills and Personal Capabilities framework used to ensure that priorities are addressed across the curriculum?
- Does the curriculum recognise the value of the process of learning as well as the *product*?
- Is social interaction valued and is maximum benefit gained from time used for personal routines, lunchtimes, etc.?
- Is the curriculum providing a coherent experience for our learners?
- What strategies are in place to support consistent teacher assessment and ensure this informs further planning (Assessment for Learning)?
- How is the progress of each learner recognised and reported to parents?
- What data are collected to monitor and evaluate the effectiveness of the curriculum and teaching/learning for our learners?

Appendix 3

Maslow's hierarchy of needs



Abraham Maslow, (1970) established a hierarchy of needs, writing that human beings are motivated by unsatisfied needs and that certain lower needs must be satisfied before higher needs can be addressed.

Physiological needs are the most basic needs of air, water, food, sleep, etc. If these are not satisfied we are unable to think about or do other things. Safety needs relate to the need we all have for some stability and consistency in our world, e.g. security of home/family/work/routines. On the next level is the need for love and belonging. We need to feel accepted by others. Esteem needs can be divided into two types. Self-esteem comes from being competent in a task. Secondly there is the esteem, recognition and respect that come from others. Finally, self-actualisation is about maximising our potential.

The relevance of this to all learners is clear - learning is unlikely to take place while learners are pre-occupied by unmet physiological needs or upset by a lack of stability, changes in routine, etc. For learners with PMLD, this highlights the importance of establishing a routine and enabling them to have some control over their otherwise chaotic environment. It is also essential that learners feel safe with staff and adults

around them and have a sense of belonging to family/school groups and communities. Finally, all learners need to experience success and have this recognised and celebrated.

References

Maslow, A. H. (1970) *Motivation and Personality*. New York: Harper & Row.

Appendix 4

Alerting and discriminative descriptors of the sensory system

[Adapted from 'The Sensorimotor Systems: A Framework for Assessment and Intervention' by Winne Dunne pp40-41, Chapter 2 in *Educating Children with Multiple Disabilities: A Transdisciplinary Approach*, Third Edition (1996) by Fred P. Orelve and Dick Sobsey. Baltimore: Paul H. Brookes Publishing Co. Adapted by permission.]

Sensory system	Alerting descriptors	Discriminating descriptors
All systems	Unpredictability - unfamiliar task, learner cannot anticipate the sensory experiences that will occur.	Predictability - sensory pattern in task is routing, learner knows what is happening and what will come next.
Vestibular	<p>Change in: Head position - learners head orientation is changed, e.g. from lying on back to sitting;</p> <p>Speed - movements change pace, e.g. wheelchair stops as teacher pushing pauses to talk to other staff;</p> <p>Direction - movements change planes, e.g. adult carrying learner bends down;</p> <p>Rotary head movement - head moving in arc, e.g. spinning, turning side to side.</p>	<p>Linear head movement - head moving in straight line e.g. bouncing up/down, moving forward in a wheelchair.</p> <p>Repetitive head movement - movements repeat in simple sequence, e.g. rocking in rocker.</p>
Proprioceptive	Quick stretch - movements which pull on muscles, e.g. tapping on stomach muscle.	<p>Sustained tension - steady, constant action on muscles, pressing/holding, e.g. playing with heavy object.</p> <p>Shifting muscle tension - constant change in muscles, e.g. walking, lifting.</p>

Sensory system	Alerting descriptors	Discriminating descriptors
Touch	<p>Light touch - gently tapping on skin, e.g. touch from loose clothing.</p> <p>Pain - pinching, contact with sharp object.</p> <p>Temperature - hot/cold.</p> <p>Variability - characteristics change during task, e.g. dressing.</p> <p>Short duration stimuli - brief touch, e.g. water splash.</p> <p>Small body surface contact - using only fingertips to touch object.</p>	<p>Touch pressure - firm contact on skin, e.g. patting, grasping - objects/people.</p> <p>Long duration stimuli - holding, grasping, e.g. carrying learner.</p> <p>Large body surface contact - holding, hugging, holding object with whole palmar surface of hand.</p>

These stimuli may be divided into:

- those which can raise the learner's levels of arousal (alerting), where care must be taken not to risk fear/anxiety;
- those which prepare learners to notice similarities and differences between stimuli (discriminating).

Appendix 5

The work of Lili Nielsen

To maximise the feedback from the learner's immediate environment, Nielsen developed a wooden resonance board - a plywood board raised from the ground on wooden supports. Any movement causes vibrations, which are amplified through the board. This provides learners with an increased awareness of their body space in relation to the surface beneath them.

Nielsen also developed a 'little room' to enclose the learner. This consists of textured panels of various materials, which can be organised to encourage learners to perform movements and gain feedback about objects and spatial relations. Nielsen found that learners particularly liked to touch objects with acute points and irregular surfaces.

Further reading

Nielsen, L. (1979) *The Comprehending Hand*. Copenhagen: Socialstyrelsen.

Nielsen, L. (1990) *Are you Blind? Promotion of the Development of Children who are Especially Developmentally Threatened*. Copenhagen: Sikon.

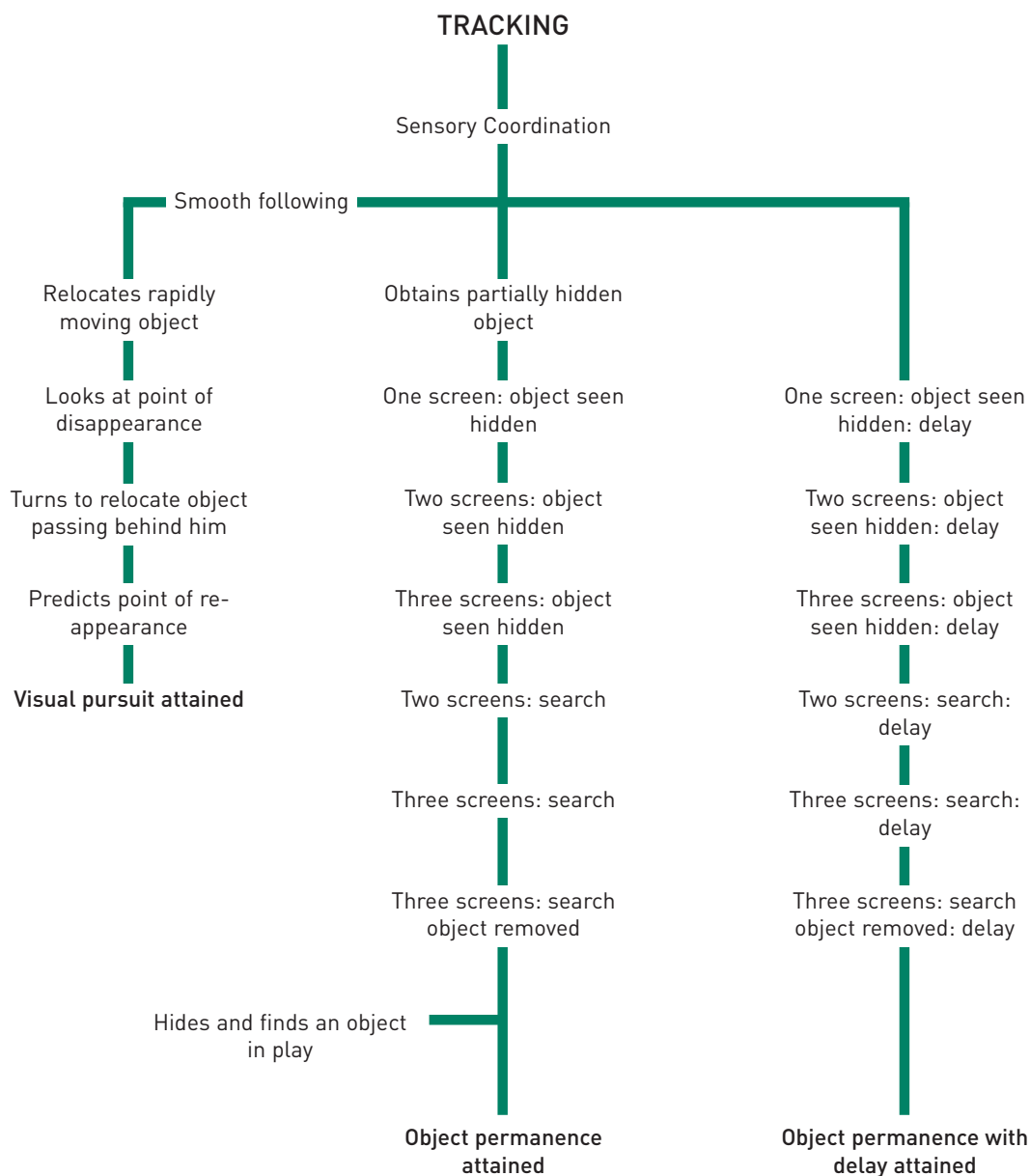
Nielsen, L. (1991) 'Spatial relations in congenitally blind infants: a study'. *Journal of Visual Impairment and Blindness* 85: 11-16.

Nielsen, L. (1992) *Space and Self-Active learning by means of the Little Room*. Copenhagen: Sikon.

Nielsen, L. (1993) *Early Learning Step by Step*. Copenhagen: Sikon.

Appendix 6

Attaining object permanence



(Reprinted from: Kiernan, C. C., (1981) Analysis of Programmes for Teaching. Basingstoke: Globe Education.)

The diagram above illustrates how object permanence is attained in sighted learners. The sequence begins with 'Tracking' and shows development downwards on the diagram.

Appendix 7

Reflexes

Many reflexes, present in new-born babies, disappear as the baby matures. In children with cerebral palsy, in particular, these reflexes may still be present long after the ages when they should have become integrated in the nervous system. Some children may 'harness' these reflexes to achieve results (e.g. movement).

The following are the main reflexes that may still be present and affect learners with PMLD, particularly as regards motor function and speech. Their presence may also be an indication of the physical or emotional state of the learner. Physiotherapists should be consulted regarding positioning, posture and movement which may minimise the effects or overcome any inhibiting reflex actions.

Moro reflex

This causes a startle movement (arms upward, hand open, momentary freeze) in response to a perceived threat which also activates the stress hormones.

Palmar reflex

This grasp reflex occurs in response to pressure on the palm of the hand.

Asymmetrical tonic neck reflex

Movement of the child's head to one side will cause reflexive extension of arm and leg on the side to which the head is turned and flexion of limbs on opposite side.

Plantar reflex/foot grasp

A grasping response occurs if the sole of the foot is pressed behind the toes.

Neck righting

When head is rotated to one side, whole body rotates in the same direction.

References/further reading

Cotton, E., (1994) *The Basic Motor Pattern*. London: Spastics Society.

Levitt, S., (1994) *Basic Abilities - A Whole Approach*. London: Souvenir Press.

Levitt, S., (2004) *Treatment of Cerebral Palsy and Motor Delay* (4th Edition). Oxford: Blackwell.

Appendix 8

Stages of expanding space

(from McLinden & McCall, (2002) adapted from Best, A (1992))

1. Face space
The focus of children's interest is mainly their face and tactile experiences will involve the tongue, lips and the hands near the mouth.
2. Body space
The child's world expands to include the whole body. This is the space where different types of massage activities can be used to create awareness that something is happening to the body.
3. Personal space
The child's awareness of the world expands to include the space around the body and people and objects within that space. An element of manipulation of these will emerge as an increasing feature of the child's activity.
4. Social space
This refers to a wider area around the child and may include the whole room.
5. Group space
The child may start to share an activity under direction with another child and then take part in group activities.

Appendix 9

Hearing impairment (HI)

HI learners may move through a sequence similar to the one below in relation to each new experience. With regard to auditory stimuli Gleason, (1984) outlined six levels of responses:

- **Awareness** - the learner gives an unintentional or reflex response.
- **Attention** - the learner gives a voluntary response such as stilling or vocalising showing an awareness that something is happening. This response may be fleeting or inconsistent.
- **Localisation** - the learner identifies where a sound comes from. Responses become increasingly consistent.
- **Discrimination** - the learner knows if sounds are the same or different, e.g. he/she may smile to a favourite song.
- **Recognition** - e.g. of own name, the learner remembers sound and meaning.
- **Comprehension** - the learner recognises sound and related meaning, e.g. looking at coat when he/she hears a car outside.

Visual Impairment (VI)

Vision is used to integrate and help make sense of information gained through other senses. VI learners may smile later, be slower to develop object permanence, shared attention and sense of self. They will need to be given alternative strategies to help them to organise and use incoming information from all available senses. These support the need to move outwards from activities based close to the learner, to those taking place in a wider area and involving others.

To help staff provide such structure, it may be useful to refer to the five stages of expanding space described by Best, (1992). See Appendix 8.

The development of purposeful hand movements for learners with VI is crucial and activities need to contain possibilities for development in this area.

For further information see tactile development in the next section.

Cortical Visual Impairment

Cortical Visual Impairment (CVI) often causes sight to be inconsistent or fluctuating. Learners may rely more on peripheral than central vision, so correct positioning is essential. Learners may need to adopt different head positions to make best use of their vision. Extra time must be allowed for learners to respond and they may look at an object, touch it then look away, finding it difficult to perform both actions at the same time. They may 'shut down' if over-stimulated and may become tired. Frequent repetition and prompting will be needed to help learners to co-ordinate touch and vision.

Learners with CVI will need carefully planned and consistent presentation of objects and people if they are to become recognisable to them. They may have difficulty recognising faces and a range of cues may be used to support this development.

These learners may have difficulties such as distinguishing objects from background, judging depth and distance and will need a simple uncluttered environment and good contrast. They may show distinct colour preferences and may see moving objects better than static. As for most learners with PMLD, no single approach will be appropriate for all learners; trial and error, linked to careful observation, will be needed to establish the most effective approaches to learning.

Further reading

Southwell, C., (2003) *Assessing Functional Vision - children with complex needs*. London: RNIB.

Appendix 10

The development of manual behaviour

The figure below shows the early stages in the development of manual behaviour.

Phase 1 (0 - 4 months)

- Infants clutch an object lightly in one or both hands and possibly bring it to the mouth. This behaviour is considered to be largely controlled by the palmar grasp reflex which is present even before birth.
- There is limited movement of the fingers, which are restricted to opening and closing synergistically, in a 'kneading' pattern.
- The 'clutching' behaviour is considered to be similar to the 'enclosure' Education Plan (EP) identified by Lederman and Klatzky, (1987). The 'kneading' behaviour is considered as a rudimentary form of the 'pressure' EP.
- Oral exploration can be considered as a separate modality to manual exploration, as the movements young infants make with their mouths are more 'intricate' than the clutching they are able to engage in with their hands. Particular tongue movements (i.e. pressing the tongue against the roof of the mouth and drawing it backwards over the surface of the mouthed object in a cyclical fashion) can be considered to be analogous to the 'pressure' and 'lateral motion' EPs described for the hand.
- Infants in this phase might be able to haptically perceive temperature, size and perhaps compliance, but would not be expected to perceive texture, weight or exact shape with any precision as they are unable to perform the hand movements related to the EPs necessary to perceive these properties, e.g. lateral motion, contour following. However, active tongue movements could permit young infants to perceive hardness and texture orally.

Phase 2 (4 - 9 months)

- Manual behaviour with objects is characterised by repetitive finger and hand movements and includes scratching object, rubbing, waving, banging, squeezing and poking, passing from hand to hand.
- These manual behaviours are carried out with just one hand - the other hand serves to stabilise the object against a surface or helps to maintain the infant's sitting posture.
- Manual behaviours are considered to be similar to a number of EPs and are more intricate than the clutching and kneading described in Phase 1, i.e. poking objects is considered to be similar to the 'pressure' EP; kneading, scratching and rubbing similar to the 'lateral motion' EP; waving, banging and passing objects hand to hand is considered similar to the 'unsupported holding' EP.
- Infants may be expected to haptically perceive texture, hardness and weight with some precision, as well as temperature and size. However, these hand movements are not yet sufficient for accurate haptic perception of exact shape.

Phase 3 (9 - 10) months)

- By 9 - 10 months infants have developed torso strength and postural control which is necessary for independent sitting, allowing the second hand to be used in object manipulation.
- This phase is characterised by 'complementary bimanual' activities where one hand supports or positions the object while the other hand either manipulates it or acts on it with a second object.
- Bi-manual activity is considered to relate to the 'contour tracing' EP, enabling infants in this phase to haptically explore and perceive shape.

Summary of development of manual behaviour during infancy (adapted from Bushnell and Boudreau, 1991).

(Reprinted from McLinden, M. and McCall, S., (2002) Learning through Touch - Supporting children with visual impairment and additional difficulties. London: David Fulton.)

Encouraging tactile development

If the learner's hands are closed, try to open them by gently pressing the base of the wrists against a table or hard surface and take the thumb out from the palm. The learner's head should be in the midline, with elbows straight. Try stroking the outside edge of the hand or the fingertips to encourage hand-opening.

N.B. Advice should be sought from a therapist prior to work in this area.

Avoid pushing toys into the learner's hands or pressing fingers around objects as this may cause the learner to withdraw. To encourage the learner to release an object, press down gently on the top of the hand. Encourage controlled letting go, rather than a throwing action.

The following activities may encourage the learner to use hands/fingers:

- Blow on or brush hands;
- Massage, use vibration;
- Decorate hands, fingers;
- Open hands in different textures, e.g. water, cool gel, different gloves, warm sand, wax;
- Clasp/unclasp hands covered with oil;
- Move hands in rhythm (with noisy toys);
- Support learner to hold an object in both hands - move object from hand to hand;
- Encourage reaching towards sound or visual stimulus;
- Tie objects on to box/table/frame, etc., with elastic;
- Place weight on hands;
- Point, prod, play finger games;
- Press fingers into different substances - push buttons;
- Feel own face, hair, mouth - moisten and dip in icing sugar, etc., use different smells;
- Use one hand at a time - note dominance?
- Support grasping - ensure reaction, e.g. noise from toy. Note progress towards;
- judgement of distance;
- Progress to early play skills - shaking, banging, dropping, pushing/pulling, squeezing to explore objects, exploration of parts of objects, throwing.

References/further reading

Bushnell, E., Boudreau, J., (1991) 'The Development of haptic perception during infancy', in M. Heller and W. Schiff (eds), *The Psychology of Touch*. New Jersey: Lawrence Erlbaum Associates.

Lederman, S. J. and Klatzky, R. L., (1987) 'Hand movements: a window into haptic object recognition'. *Cognitive Psychology* 19, 342-68.

Appendix 11

Affective communication assessment (observation recording sheet)

ACA OBSERVATION Recording sheet		S T I M U L I															
Date																	
Child's name																	
HEAD	Turn: R-L U-D																
	Activity																
	Rotating																
	Other																
FACE	Frown																
	Smile																
	Anguish																
MOUTH	Activity																
	Open / close																
	Tongue activity																
	Contact																
EYES	Activity																
	Open / close																
	Gaze																
	Localise / search																
HANDS	Activity																
	Finger activity																
	Contact																
ARMS	Reaching																
	Activity																
LEGS	Activity																
	Activity																
VOCALISATION	Utterance																
	Cry																
	Laugh																
	Other																
AFFECTIVE COMMUNICATION Interpretation of child's behaviour																	

(Reprinted from: Coupe, J., Barton, L., Barber, M., Collins, L., Levy, D. and D. Murphy (1985) Affective Communication Assessment. Manchester: Melland School.)

The Affective Communication Assessment (ACA) was developed by Coupe and colleagues, (1985) in a school context to fulfil the need for an assessment for learners at an early stage of communicative development. Through observation, they felt that sensitive communication partners could identify consistently occurring behaviours as a basis for programmes of intervention. This would then lead learners to extend their affective communication (i.e. where adults interpret and place communicative meaning on the learner's responses to the environment) and move towards intentional communication.

Stimuli that bring out strong positive or negative responses from the learner can be observed to determine their pattern, frequency and consistency. This observation can then be used as a basis for extending affective communication.

The above observation sheet can be used to note responses to a range of stimuli. Video or joint observation may be used and stimuli may need to be presented twice in succession with a pause in between to establish the consistency the learner's response.

Following these initial observations, the strongest responses of like, dislike, want and reject can be noted. Stimuli can then be re presented and behaviours further analysed. It may be possible to identify clusters of behaviours which are reliably linked to one specific interpretation of the learner's response (e.g. dislike).

Situations can then be planned to allow the learner to communicate with staff, who are alert to the behaviours and able to respond in appropriate ways. This will increase the frequency and quality of the learner's responses and shape the development of intentional communication.

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