Consider the impact of introducing focused fine motor skills training into the Nursery curriculum

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Abstract

This research has been driven by a desire to understand more fully how to meet the physical needs of young learners in my care. I was particularly interested in ways to support their fine motor development. The overall aim was to discover ways to enhance our Physical Development provision in the Nursery and then share any significant discoveries with my colleagues. If successful I hoped that a programme based on my findings could be continued through the Early Years Foundation Stage (EYFS). I also believe that there would be benefits as well for our Special Educational Needs (SEN) children in Key Stage 1 (KS1) who sometimes continue to experience difficulties in their fine motor development.

I devised a daily Fine Motor Intervention Programme for the Perse Pelican Nursery class of thirty two children using a combination of innovative ideas from Galina Dolya’s ‘Finger Gym’ (2011), Shonette Bason-Wood’s ‘Dough Disco’ and Alistair Bryce-Clegg’s ‘Funky Fingers’ (2013). The specific aim was for the children to develop greater control and strength of the muscles used for mark making attainment through regular quality adult intervention. I also wanted the exercises to be fun and intrinsically engaging so that the children were highly motivated and eager to participate.

This action research project used classroom observation to collect data on children’s physical development, engagement and progress. Planning for the Fine Motor Intervention Programme took place on a weekly basis. This allowed time for reflection on the observations and assessments that had been made and I was able to ensure that the environment and tasks planned for the next week met the needs of the class. Care was taken to ensure that activities linked in to and complemented our existing Nursery curriculum.

At every stage I discussed the work with my Nursery colleagues. My two teaching assistants were always present and observed, supported or participated in the tasks and activities. The qualitative data that they provided was extremely valuable as they often noticed tiny details that I could have missed whilst leading the class or small groups.

Throughout the project the children’s enjoyment and participation was evident. They relished being photographed during activities and informally interviewed at carpet times. To show actual physical progress data was collected at the beginning and end of the Lent Term 2014 using four different methods. The data demonstrated the children’s progress individually and as a class. In addition to much positive feedback from the staff and children, analysis of the data showed overall very good improvement in every child’s fine skills and their stage of physical development. This progress is quantified through the data collected but the limitations of this action research must be recognised and acknowledged.

Context

In my experience the majority of our bright, enthusiastic and curious children do already make very good progress in their fine motor skills in Nursery. Fun activities are planned each day to challenge and improve their dexterity. For example, daily play scenarios with construction equipment, play dough, chalks and puzzles provide opportunities for the children to practise and develop their fine motor control and hand eye co-ordination. I have always been very aware of the importance of getting the children’s little fingers working really hard to develop their muscles, so that ultimately they can control a pencil and go on to become a successful writer. At the Perse our expectations for the children to be able to manipulate small apparatus, including a variety of tools for early mark making, are high. I have observed first-hand how specific developmental and physical factors can make the technical process of learning to write much harder for some children. I also know that a number of children at the Pelican and Prep continue to find
handwriting difficult and require additional support in this area. For such children their script is often slow, awkward and messy. This can lead to a lack of confidence and have a negative impact on their writing in general, which can last for many years. I have experienced, when teaching in Year 2, that more handwriting practise does not always seem to help or resolve the problem. I have always been keen to find ways to further support the children’s fine motor control and hand eye co-ordination that complement our current provision.

The current Nursery consists of thirty two children aged three and four years. Our provision at the Perse is flexible and each child attends school on a part-time or full-time basis. The minimum requirement is five fixed sessions (a session equals a whole morning or afternoon) and then a wide variety of session configurations range up to ten sessions, or full-time Nursery attendance. Five of our children attend school on a full-time basis. Our Nursery is selective and all of the children have been assessed, prior to entry, against the typical development milestones expected of a child of their age. This assessment process looks at the whole child and includes physical development. Observations are made of their gross and fine motor skills that provide one element of the initial Nursery Assessment. More detailed observations and assessments are then made when each child starts school in September. This September, for the first time, a Nursery Baseline was completed which included assessment of the children’s fine and gross motor skills.

The research question

In seeking to answer our main research question, "Consider the impact of introducing focused fine motor skills training into the Nursery curriculum", we need to expand further on the meaning of “focused” within this context. Focused in this context means daily as part of the planned Fine Motor Intervention Programme. The aim of the planned provision was to ensure that it was accessible to all children and that they were all encouraged and supported to engage and take part in every activity. There have always been opportunities for fine motor development through adult led activities and further development through the continuous Nursery provision. However, when children are working independently, making and following their own choices, inevitably some children end up having far greater exposure to fine motor tasks and thus develop their fine motor skills at a faster rate. My plan to place focused fine motor tasks at significant times, such as carpet time or as a planned adult led activity, ensured that all children took part each day in focused and specific tasks and therefore they were all able to benefit from the intervention.

For the purpose of this research the following aspects have been considered:

- Is it possible to improve our youngest student’s fine motor skills and hand eye co-ordination through taking part in regular activities that involve a refined use of the small muscles in their hands, fingers and thumbs?
- What steps are needed to build the secure foundation required for our children to be physically prepared for writing?
- How does a Fine Motor Intervention Programme enhance our current provision?

Ethical considerations

Prior to the commencement of this study permission was sought from the head teacher. I wrote to the parents to tell them about my action research and I sought their consent, electronically via Perse Post, for their children to take part and for the collection of data in a variety of forms. It was understood that the children names would be removed from the data and replaced with a number so they are anonymous.
Methodology

Initially I considered a case study based on my full-time students. I quickly changed my mind and decided that case study was not the appropriate tool for the task as I did not want to get into such an in depth collection of data with a small group of children. I was keen to see the broader and more overall effects and benefits on the whole class. This together with a restricted time-scale for my study would further limit the benefit of case study design.

The action research cycle of identification of a problem; design an intervention; apply the intervention; capture and evaluate results worked for my study. Not only did I apply it to the project as a whole I was also able to use this model on a weekly basis as I planned the provision, or mini cycles, for the Fine Motor Intervention Programme for the following week.

Methods: Developing the daily Fine Motor Intervention Programme for the Perse Pelican Nursery

Finger Gym

In October 2013 I attended Osiris EYFS Conference and went to Galina Dolya’s 1 hour session on ‘Finger Gym (2011). She was also the keynote speaker on ‘Vygotsky in Action’ in the Early Years. I could see the potential of ‘Finger Gym’ for our nursery class.

It helps develop strong, flexible fingers, hands and arms. It promotes better hand-eye coordination, differentiated movement and manual dexterity. It fosters children’s use and understanding of spoken language. It builds cognitive abilities and provides opportunities to practise self-regulation. The charm of the programme is underpinned by sound pedagogical theory. (Dolya 2011 p.14)

I was keen to discover if the impact of such specific training in the form of Finger Gym would really be able to help our children’s small hands prepare physically for handwriting.

Dolya is very clear about the need for children to prepare their hands for writing, often long before they have to pick up writing tools.

When children start writing and drawing, their fingers and hands have to work as hard as a marathon runner’s legs. No one tries to run a marathon without doing some training first. (Dolya 2011, p.14)

Using Finger Gym (Dolya 2011) as a resource I was armed with an initial bank of developmental games, stories and rhymes to use with my class.

I began collecting the apparatus to create my Finger Gym Box which would be filled with the diverse equipment for developing ‘finger fitness’. The manipulatives were easy to come by or inexpensive to purchase. Items such as screws and bolts, colourful spinning tops and a bendy man, were aimed at developing the pincer grip. Activity with squishy balls and prickly balls developed hand grip and muscle strength, as well as being used to relieve stress and tension in the muscles and stimulate blood flow. Water squirters allowed the children to strengthen their finger muscles. Stretchy toys provided opportunities for the children to experience the feeling of tension. They could push against forces, testing and developing their own strength. Everyday objects, such as retractable pens, were also included. The spring resistance initially develops strength in the thumb but encouraging the children to operate the pen with other fingers, or the non dominant hand opens up the learning opportunities. Knowing that children learn best through play and the idea that they would be utterly absorbed in exploring and manipulating these small toys and objects their fine motor development would be stimulated and developed simply because they were using their hand and finger muscles in a controlled way.
The link between movement and rhythm and rhyme is also significant in Finger Gym. Every exercise is accompanied by movement as well as rhyme. Oral traditions linked to finger movements are embedded in society around the world; they form part of our linguistic heritage and have captivated children for generations. Scientific study by prominent Russian psychologists and physiologists such as Pavlov, Leontiev, Luria and Sechenov show evidence of the connection between children's fine motor skill development and their speech and language development:

**Rhythmic recitation helps children to co-ordinate speech and movement and to organise and regulate both movement and speech. It is a very useful way to encourage concentration, focused attention and memorisation.** (Dolya 2011, p.13)

I knew that rhyme combined with manipulatives would appeal to the Nursery class and be an excellent way for them to learn. They already loved joining in with familiar Nursery rhymes and poems and at that particular time humorous adaptations were a real hit. One of their favourites was Brian Moses’s, ‘Twinkle twinkle chocolate bar, your dad drives a rusty car…’  (Foster 2009, p.9) Simple catchy rhymes are compulsive to learn and very inclusive. The best part of Finger Gym is that the movement and speech support each other, making it easier for the child to remember the actions, finger movements and words.

With my aim in mind to create fun and engaging exercises that developed the children’s fine motor skills and complimented our current Nursery themes I felt the need to broaden my programme beyond Dolya’s Finger Gym (2011).

**Funky Fingers**

Through further research I found Alistair Bryce-Clegg’s, ‘Getting Ready to Write’ (2013) and his studies proved an extremely useful resource. He explores all of the crucial development stages a child makes on their journey to becoming writers, from the shoulder pivot to pincer grip. I included many of his inspiring ideas in the programme such as the concepts behind his ‘Funky Fingers’. Bryce-Clegg’s plans were aimed at Reception children and involved a carousel of groups taking part in specific differentiated activities, all based on their motor skill development needs. In group tasks the teacher would work with their target group giving direct input and the remaining children would be engaged in tasks that they were asked to complete independently. Typical activities include challenges such as: How many pompoms can you move from the pot to the egg box with the tweezers? How fast can you fill the skewer with beads and then empty it again?

**When it comes to Funky Fingers activities, the speed at which you ask the children to perform the activity or the number of times you ask them to complete the task in a given time frame can really increase the level of challenge.** (Bryce-Clegg, 2013 p.34)

The concept of differentiated groups and activities that carousel would have been too much to manage in a Nursery like ours. I did really like Bryce-Clegg’s ideas for differentiated group work and understood their place and value. With this in mind I tried to incorporate his concepts into our programme in a way that could work for our Nursery.

I decided to dedicate an area of the classroom to ‘Funky Finger’ style activities. Each activity would be introduced to the class and it would then be left out for the children to explore more independently during the week. At times one of my teaching assistants or I would work there to encourage participation and challenge. We decided to store our Finger Gym equipment in this area as well and make the manipulatives being used that week available in a basket for further investigation and exploration. The table was made to look attractive and appealing. We discussed as a class what it should look like and the children came up with the idea to use their hand prints as part of the background display.
The final element of my programme was Shonette Bason's, 'Dough Disco' that I observed in action with a Nursery class on a visit to Highgate School in December 2013. Her website shonettebasonwood.com gave a good insight into her work in and out of education and there was enough information and clips to be able to use her innovative idea 'Dough Disco' with my Nursery class. Dough Disco is exercise for the fingers, with play dough, to improve fine muscle control. It is good as a warm-up before long writing tasks and Bason claims that it is essential exercise for children in the foundation stage. The concept of Dough Disco fitted in brilliantly with the other elements of the programme. I initially planned to use it as another way of developing the muscles in the hands and fingers. Once established I utilised its potential for fine motor development and then extended to concept, by adding in gross movements, to provided and support those in need of a full body workout.

The children were always so excited to go to the Dough Disco. We would put up a real disco ball, dim the lights and allow them to choose their favourite music for us to dance to. The disco routine was quite specific. To begin with the fingers were introduced and then we would work through a series of moves to exercise the different muscles in the fingers and hands. The children would discuss Dough Disco time and their comments were recorded.

**Dough Disco at the Perse**
Methods: Data collection and analysis

Four different methods were used to collect data at the beginning and end of the Lent Term 2014:

1. **Base Line Data**

   Fine Motor Development data was extracted from our Nursery Base Line that was completed in September and then updated again post intervention.

2. **Fine Motor Challenge**

   Based on a typical child development activity I decided to set a simple challenge asking the children to put as many pegs as they could into a peg board in 1 minute. The children were also photographed taking part in this activity for their EYFS Observation Files. This activity was repeated at the end of the Lent Term and the scores were compared.

1 minute peg board challenge
3. **Assessing Grip Development**

This assessment was based on observations of the children’s pencil grip. Individual assessments were recorded on post it notes and stuck to the picture that represented their grip best. The pictures were ordered according to grip development (Erhardt, 1982). Photographs were taken each time showing all of the children’s post it notes and record progress made.

The above images represent the most common developmental progression of pencil grasp. This is not a complete list of grasp patterns that a child might utilise when holding a writing implement. Approximate age expectations were referenced from Erhardt Developmental Prehension Assessment.

4. **Can you move this finger?**

This was an assessment of involuntary finger movements from Galina Dolya’s Finger Gym. Left hand (LH) movements were recorded separately to right hand (RH) movements and then they were added together and divided by two to give an overall score each time.

Photographs below record children taking part in this assessment.
Validity

Before analysis it was important to confirm that the collated data is valid. Care was taken to ensure accurate collection of the raw data and its analysis. A maths teacher from the Perse Upper School supported my analysis and helped me to draw interpretations from the data.

Analysis and findings

1. Base Line Data

The data shows that generally every child's score has improved. There was one child who started with the maximum score of 5, who therefore stayed at 5 and another child who originally scored 4 stayed at 4. Apart from these two children every child moved on 1 or 2 marks.

From these results I decided that it would be interesting to consider how significant it is being an older pupil and see if the older children in Nursery do actually have a head start. The Base Line Data showed that on average all ages made the same amount of progress regardless of age. It was also clear that there were more older children with higher scores showing, as you might expect, that older children are at an advantage.
2. Peg Board Challenge

With the data put into age order I was able to compare the results of the oldest and youngest children and see if the children’s scores had improved at the same rate. The results from the data collected show that generally everybody improved with the Fine Motor Intervention Programme and the least able children, with the lowest scores, improved the most. After training being younger became less significant and the gap between the best and worst scores reduced.

The scatter graph below shows that the difference between the highest and lowest scores in January was not as great in March.

In January, prior to the intervention, just being older improved your score by 5.4.
In April, after training, the advantage of being older had reduced to 5.0.

The raw data from the Peg Board challenge seemed to have more anomalies. Whilst the majority of children’s scores post intervention improved, a very small number of children’s scores went down. The most interesting and striking observation was that the children with the lowest scores in January seemed to have made the greatest improvements by March.

As a test of dexterity I felt that there were a number of flaws in this challenge and this test demonstrated to me how difficult it is to collect data with young children, when motivation plays a significant role in the test. Some children were naturally more competitive than others. Particular individuals really relished the challenge of beating their previous score and working against the 1 minute timer. Other children simply went through the motions of the activity and were clearly not as engaged in the competitive element of the challenge. I noticed that a few children were completely distracted and I observed them making patterns with the pegs, only choosing pegs of one particular colour or continuously worrying about the sand timer. All of these distractions slowed them down.
3. Assessing Grip Development

The photographs quite clearly show the improvements from January to April in grip development.

January

![Finger gym image for January]

April

![Finger gym image for April]

Grip Development Results

<table>
<thead>
<tr>
<th>Date</th>
<th>Cylindrical Grasp</th>
<th>Digital Grasp</th>
<th>Modified Tripod Grip</th>
<th>Tripod Grip</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>2</td>
<td>3</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>April</td>
<td>1</td>
<td>12</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>
The results show that all children have maintained or moved on in their grip development, some children advanced through two development stages. It is most interesting because between January and April we did not explicitly teach the children how to hold their pencil correctly but through taking part in regular fine motor activities and tasks, particularly using their pincer grip, their pencil grip has ultimately improved.

4. Can you move this finger?

After ordering the involuntary movement data into age order I decided to show the improvements post intervention by displaying the data in quartiles. The scores go down which shows that less involuntary movements were made after the training.

<table>
<thead>
<tr>
<th>Quartile Groups</th>
<th>Average Score January</th>
<th>Average Score April</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.8125</td>
<td>3.6875</td>
</tr>
<tr>
<td>2</td>
<td>5.25</td>
<td>2.5625</td>
</tr>
<tr>
<td>3</td>
<td>5.125</td>
<td>3.8125</td>
</tr>
<tr>
<td>4</td>
<td>6.9375</td>
<td>4.9375</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>5.53125</strong></td>
<td><strong>3.75</strong></td>
</tr>
</tbody>
</table>

The youngest children in the fourth quartile had the greatest number of involuntary movements in January and in April. However it can be seen, again, that the gap between the best and worst scores has become less significant after the intervention.

Limitations

The results of each data set demonstrate progress in the children’s fine motor skills. It is of course impossible to say how much progress the children would have made through our typical Nursery provision.

Unfortunately with no previous data or expected data for comparison and without the possibility to compare the data to a parallel class it is impossible to measure the additional progress that they actually made because of the Fine Motor Intervention Programme that we introduced during the Lent Term.
I was aware that with a mixture of full and part-time students some of the children had had greater exposure to the Fine Motor Intervention Programme and this had not been factored into my results.

I was also mindful that my enthusiasm for the Fine Motor Intervention Programme and desire to see the children make good progress might inadvertently introduce bias. One of the steps that I took to help prevent this flaw was to collect a data utilising a variety of methods.

Despite significant improvements in all of the children’s motor development the small scale of this study necessitates further research if firm conclusions are to be drawn.

Discussion

From the initial assessments and observations I quickly identified that a small number of children were physically less advanced than their peers and actually needed a different type of support to be able to move onto their next stage of development. I found Bryce-Clegg’s (2013) research to be a very useful resource to support these children who were still using gross motor upper body movements to mark make. Although this was not part of my research question, gross motor development clearly links to fine motor development and a combination of the two are needed for writing. After further research and new knowledge I was able to provide additional provision to support their specific learning needs.

I found that some children lacked upper body strength and there were others who needed to support and extend their elbow pivot. As a result of these findings we provided additional brushes and brooms for sweeping in the classroom and playground. We created scenarios that supported this stage of development. One day we pretended that ‘Goldilocks’ had visited Nursery and left her porridge in our tough spot. The wet porridge and wooden spoons were then used for gross mark making opportunities. We encouraged the children to help our school caretaker ‘paint’ the outdoor fences with brushes and water. During one week the children relished the chance to be ‘Bob the Builder’, sawing real wood with real saws. Once the support provision was in place the challenge was to ensure that the children who needed to take part in these activities were able to do so and that they were not being dominated by their friends. I was also able to speak to parents at consultations, to ensure that the support we were providing in school could be continued at home, with those few individuals.

I was also aware that alongside the physical development of upper body muscle strength the children were developing their sense of proprioception and balance. Again, this was not formally part of my research but it was another area that of development that linked in to my study. Proprioception refers to the communication system between the brain and the muscles which provide information on movement and position of the body in space. Sometimes the centre of balance shifts suddenly and children become unable to control their bodies. It is essential for children to learn how to control and maintain their balance when making large physical movements. To support this development we planned activities with large physical movements of the arms and upper body. This was to essentially challenge the children’s sense of proprioception and upper body strength, so that through experience they could develop in this area.

During the research period we noticed at every stage how engaged and motivated the children were in the tasks and activities. They would ask interesting questions and seemed to have a very clear idea and understanding of why they were doing them. One child said, “I like to roll it to control our fingers and our brain.” Dough Disco was always very popular and the children realised that it was providing them with a good workout because afterwards their fingers felt as if they had exercised. Their comments included, “I don’t like the bit when you squeeze it, it’s hard for my fingers,” and, “My fingers get tired when I roll it into a ball.” We found that it also boosted their self-confidence and self-esteem as it was a fun and inclusive activity that everyone, including the adults, could enjoy together. Afterwards the children would talk about their experiences together, which in turn fostered their social and communication skills.

It was evident that through participation of regular poems and rhymes the children’s language was being enriched. Learning poems and actions also helped with the children’s memory skills and their ability to
follow verbal instructions. The poetry also reinforced their sense of rhythm and beat. Through teaching poetry and rhymes I was also able to promote clear articulation and expressive speech. Through active listening and participation we noticed that the children became more focused at carpet times and their attention span seemed to increase. I also found that if I needed to gain their attention quickly I could just recite one of their favourite poems or rhymes and very quickly they would all join in.

It was also unexpected how much the Nursery children enjoyed learning the simple stretches and relaxation techniques. Although they did not really understand the concept of muscle relaxation we were able to show them muscle tension, followed by muscle relaxation, and compare how this felt. I explained to them that these exercises would be useful when they got older, especially if they needed to take a rest from writing because their hands or fingers were tired or sore.

**Summary and development**

This action research project has extended my knowledge of the development stages from mark making to writing. I now feel able to accurately assess the children in their physical development and most importantly know how to reflect this assessment in the Nursery environment. This has ultimately enhanced our Nursery provision as now we are able to support all of the children with their physical development, including those which are working at a lower level, with engaging strategies that work.

The results of my small study show very good improvement for the majority of the Nursery class in just one term. Generally everybody improved with the intervention and the least able children, with the lowest scores, improved the most. Therefore after training being younger became less significant and the gap between the best and worst scores had reduced.

This project has raised the profile of Physical Development in our Perse Nursery. Physical Development is one of the Prime Areas, identified by the government, within the EYFS. With greater knowledge, understanding and strategies my planning in Physical Development from September 2014 will be as detailed and differentiated as the other Prime Areas, which are language and mathematics. I am aiming to extend the Fine Motor Intervention Programme into a Physical Development Plan that will span the entire Nursery year.

As identified this study only touched on upper body support and I recognise that if I had started my research in September, with younger children, there would have been a greater number of children who were still relying on gross motor upper body movements. With this in mind, planning for the new cohort in September, I am keen to create areas of our provision, both indoors and out that will consolidate and further develop that range of movement and enable the child to move onto their next stage of development.

Further research was needed and this has been considered in detail below:

**Supporting and extending a shoulder pivot**

For children pivoting from their shoulder with a Palmer supinate. 'Palmer' meaning palm of the hand and 'supinate' is to turn the palm upwards, that we commonly call a cylindrical grasp. Large spaces need to be provided that can accommodate full motion mark making. A3 art easels do not provide this provision so I need to consider how this will be achieved. Large boards at child height such as whiteboards, chalkboards, Perspex and plastic mirrors.

Another strategy worth considering is upside down mark making. This uses the same upper body movement as if the child was standing up. By asking the child to lie on their back there is the added element of fun, and thus engagement for perhaps the more reluctant mark makers. A dark den could also be created with a tablecloths and torches to add to the adventure and encourage children to work together.
Bryce-Clegg (2013) suggests that for children we know who are at this stage of development we should engage them daily in activities such as:

- Washing walls with soap and brushes
- Painting with mops
- Playing swing ball with a pair of tights
- Lolly stick tracks
- Swing painting (tights and teabags)
- Foam bike tracks
- Big digging in sand and soil

Supporting and extending an elbow pivot

When the back, upper arms and shoulder muscles strengthen, children then develop movement and control at their next pivot, the elbow. The elbow pivot has two noticeable stages. The initial 'emergent' stage is when the elbow bends which allows a greater range of movement but essentially the shoulder still powers the movement. It looks like a sawing motion. After this has been mastered children next use muscles in their upper and lower arm to essentially swing their arm in and out in a kind of semi-circular motion. Once again increasing the full range of movements they can achieve with control. As the elbow pivot develops the wrist can remain quite stiff and children still tend to use a cylindrical grasp.

Bryce-Clegg (2013) suggests different activities for 'emergent' and 'proficient' elbow pivoters.

Activities suggested for 'emergent' elbow pivoters need to encourage full motion, with bending at the elbow. For example, the use of large rollers, saws, brushes going up and down and sweeping with a stiff brush. Bryce-Clegg (2013) suggests with hand brushes children could take part in sweeping races with leaves or create their own foam tracks on a wet day with washing up liquid. He suggests transforming a cheap wooden table with blackboard paint and allowing children to literally chalk all over it from every angle.

For children who are more 'proficient' and have a secure elbow pivot their next stage is to develop their circular 'push/pull' movement with their upper and lower arm. Activities to support this stage require less space and simple resources. Drawing circles with paper, pens or ribbons in the air, perhaps with musical accompaniment. Creating tracks for cars in salt, sand or rice with lolly sticks (turned on their side), or with glitter and sequins to appeal to different children’s interests. Simple throwing and catching beanbags and balls and writing on the interactive whiteboard are also good activities to support this stage.

Supporting and extending a wrist pivot

As the arm muscles and sense of balance develop further the pivot changes again, allowing an even smaller range of movements. At this stage typically the elbow tucks into the side of the body and the shoulder movement is minimal. As children reach this stage their grip changes to palmer supinate to digital pronate ('digit' meaning finger and 'pronate' meaning to grasp with the palm turned down) and we commonly call it a modified tripod grip (a classic tripod grip with an extra finger tucked in for support). When using a digital pronate grip the wrist bends to nearly 45°. Once this is established and the muscles strengthen children can then mark make proficiently with three fingers, using their first finger to manipulate the end of the pencil to 'write' with a tripod grip.

Our intervention from January to March really focused on and supported this development stage. We knew that children enter this stage of development needed activities that encouraged a whole range of wrist movements. They were able to work on a smaller scale and reducing everything in size actually helps them to focus and improve.
Once the larger pivots are controlled the smaller pivots in the fingers and finger tips need developing. As we have seen engaging activities are needed so that greater muscle control is developed in the wrists and fingers. Ultimately if good fine motor strength and control is attained a child will have the greatest and most dexterous range of movements that their bodies can provide.

Reception and Year 1

It seems that there is scope for the Fine Motor Intervention Programme to be extended and developed through to the Reception classes. Physical development is very individual and once the journey has been made down through the larger pivots for many children this is when it gets much harder and often when they get stuck.

As discussed Bryce-Clegg’s research (2013) was predominantly based on Reception aged children and his ideas for differentiation and group work would be achievable, beneficial and well suited for our Reception classes. I feel strongly that the emphasis we have placed on physical development in Nursery should be continued through our EYFS for maximum benefit. Ideally a rigorous programme should be planned and developed for our Reception children, by their teachers. I hope to convey this message to my colleagues and be able to explain to them my results and findings, when I share my research at a staff meeting early in the Michaelmas Term.

Finger Gym (Dolya, 2011) also has an enormous wealth of ideas and support for children up to 9 years of age. In Nursery we only really used the most basic parts of the programme. It is apparently very good for coordination for children and adults who are learning to play a musical instrument and it has even been used with Russian astronauts to retrain their muscles when they have come back from a mission having experienced long periods of time with zero gravity!

As with all other areas of the curriculum the rate of physical development varies with every child and some children find some specifics much harder than others. It seems there is scope for these ideas to be used and developed by our SENCO, to provide SEN support individuals in KS1. For older children Dolya (2011) there are assessments that could be a useful tool to show strengths and weaknesses in a child’s motor skills, hand-eye coordination, their listening skills and self-regulation. Finger Gym can also be used to support children with speech, language and communication difficulties.

At the Perse the majority of our children are writing at quite an early age, sometimes in Nursery or Reception. It is our expectation that they will be able to write quite fluently by the time they leave us in Year 2. Nationally the majority of children start writing later than our Pelicans, usually in Year 1. By Year 1 children in other settings would have had an extra year or two to develop the physical skills needed for writing. It is therefore extremely important for us as a setting to be knowledgeable about the stages of physical development for writing and know how to support children in the most effective way.
References:


