

YOUNG CHILDREN COUNTING AT HOME

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This small-scale study sent a film crew to twelve families with children under five and asked them to show us some of the things they did to help their children learn to count, to use in a DVD for other parents. The film clips provided examples of children aged 2, 3 and 4 engaged in counting with a parent, sibling or on their own. The clips were analysed to see what the parents considered important, and how they supported their children's learning. Parents' and carers' support for their children's learning included aspects that are perhaps not seen as often in a classroom setting (including individual attention for sustained periods). There was also evidence of wide differences between families in children's and parents' favoured activities.

INTRODUCTION

This paper describes research conducted as part of a practical project to make a DVD about helping children learn to count, for an audience of parents and carers with children under five, and practitioners who work with young children. The DVD would be used by local Sure Start programmes (which became Children's Centres in 2006). These aimed to provide integrated services in education, health and social care for families in defined geographical areas, each area being in the bottom 10% of English local government wards in the Index of Multiple Deprivation (Department of Communities and Local Government, 2006).

Previous experience had indicated that many adults think about counting as simply reciting the number names in order, and one initial consideration was whether the DVD should attempt to indicate to parents any component elements of successful, accurate counting: in particular, that children needed to learn the number names, in the right order; that we count one number, one thing (one-to-one correspondence); and that the last number in a count is the one we are most interested in, because it is the answer to the question "How many ...?" (cardinality). Using the "how-to-count principles" of Gelman and Gallistel (1978), it might also be useful to consider the *abstraction principle*, or realising that it is possible to count any array or collection of entities (physical or non-physical), and the *order-irrelevance principle*, which says that the order in which things are counted does not matter: the final answer should still be the same.

It was decided that the best starting point was to film the kind of activities which parents in the two participating local communities were already doing with their children at home, to establish what the parents saw as important. A selection of these film clips could be used in the final DVD, showing children and adults engaged in "good practice", with a voiceover to highlight important points.

BRIEFING THE PARTICIPANT FAMILIES

Fourteen families were approached to take part in the project, and twelve agreed.

They were chosen from families who were currently using the services of the two community projects facilitating the DVD, who lived in the Sure Start areas, who had children in the age range 1 to 5 years old, and who provided between them a mixture of family structures and home languages. Each adult was told about the aim of making an educational DVD, and that we would like to send a film crew (two women) with a local worker whom they already knew, to spend a morning or afternoon with them and their child, to film examples of any things they did which they felt were helping the child to learn to count. The local worker gave examples to each adult of the things we thought this might include, encompassing counting forwards or backwards out loud together, perhaps singing, looking at books or television, and counting things or actions. It was emphasised that we did not want them to try new activities for the filming, but just to show us things they had already done, so that their children were not being asked to do anything unfamiliar or stressful.

ANALYSING THE FILM CLIPS

The film from each family provided between 15 minutes and 75 minutes of footage to watch, mostly filmed in the children's own homes. The counting activities from each family were listed with a description of each activity, and an account of what the focus child did. This provided a listing of between three and thirteen activities per child, making 94 "activity clips" altogether. In seven families, another child (usually a younger brother or sister) was evident as well, usually watching their older sibling, and sometimes joining in.

The activity clips were analysed according to the type of activity they show. Table 1 shows the children listed in ascending order by age, and indicates where a type of activity was featured in the activity clips for that child. No attempt was made in this analysis to judge any child's confidence or accuracy when counting, although in many cases some evidence of this was shown in the film clips.

Counting out loud, forwards, without simultaneously counting objects or actions, was a common activity for nine children. Only one child counted backwards – and that was self-initiated, counting from four down to none as he rolled footballs away from him. The two local workers asked each family about counting backwards, but none practised doing so with their child. Three families did count backwards when singing some songs, but in that context the sequence was taken slowly, usually only from five down to none, and strongly guided by the adult. This may indicate that counting backwards would be a useful activity to suggest to parents and carers for practising at home, perhaps especially with children who have become confident counters up to about ten, forwards.

Six children had counting books showing numbers 1 to 10, and two had other books that included pictures they counted. One parent reported that her son had had a book with pictures of trucks for over a year, and he still enjoyed counting the wheels.

Table 1: A Categorisation of Children’s Counting Activities at home

Family	1	2	3	4	5	6	7	8	9	10	11	12
Child’s Age	2	2	2	2	3	3	3	3	4	4	4	4
Counting aloud, forwards	Yes		Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes
Counting backwards						Yes						
Counting things in counting books	Yes	Yes		Yes	Yes			Yes				Yes
Counting things in other books	Yes						Yes					
Counting bricks or beakers	Yes	Yes	Yes		Yes				Yes		Yes	
Counting other toys	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes			Yes
Counting food						Yes		Yes	Yes		Yes	
Counting on child’s body		Yes	Yes		Yes	Yes	Yes	Yes				
Counting other items							Yes					
Counting actions		Yes	Yes		Yes		Yes		Yes			Yes
Singing counting rhymes/songs	Yes			Yes	Yes		Yes					Yes
Counting on computer/other ICT toy			Yes								Yes	
Counting along on TV/DVD/video	Yes											
Reading numbers on toys or in books	Yes	Yes			Yes			Yes			Yes	Yes
Reading numbers elsewhere			Yes							Yes	Yes	Yes
Sorting numbers into order										Yes	Yes	Yes
Writing numbers										Yes	Yes	Yes

Ten of the twelve children counted toys of various sorts, including cars, dolls, skittles, plastic cups and saucers, and animals. Bricks and stacking beakers featured so often that it was decided to list these separately on the table. A discussion with a group of five parents suggested several reasons for their popularity. Many children in this age group enjoy stacking things up and knocking them down, and counting the

number of bricks or beakers as they build “seems a natural thing to do”, said one parent. Another said: “Stacking beakers are quite cheap. They are sold as educational, aren’t they. I’ve bought some with numbers on, so my little girl can learn her numbers.” Two parents mentioned that their health visitors had asked their children to stack three or four wooden bricks on top of each other as part of their “developmental check” at age three, and one said: “so I knew it was a good thing to do.”

Counting arms, legs, fingers, toes and plaits was a warm and comforting personal activity which children obviously enjoyed. Rahma, aged 3, whispered “It’s tickly” as her big sister counted her plaits, and wanted her to count them again. This is an aspect of counting practice that has a particular place in a family setting.

Stephanie (aged 3) tried to get her mum to take off her shoes so that she could count her mother’s toes, but her mother refused, not wanting other people to see her feet: “No, not on film. You can do it another time.” Similar shyness about singing on film was evident with one other parent, but six others did not include the singing of counting songs in their repertoire of activities.

Counting actions or events seemed more common at home than the researcher has seen in educational settings, and will be an area for further investigation. Perhaps the higher perceived frequency at home is because of the time, space and individual attention it requires to count as a child skips, hops, swings, bounces on a “space hopper” or demonstrates karate kicks. Counting actions provided a context for counting to higher numbers than counting objects for Achayla, aged 4, who counted up to a maximum of five with objects, but counted to twenty confidently when hopping, and extended her counting while on the garden swing: “37, 38, 39, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 30”.

Sometimes it was difficult to decide whether to categorise an activity as counting actions or objects. Stella, aged 2, was drawing snails, and counted the little swirly flourish with her crayon as she drew each one: “1, 2, 3, 4”. Then she counted finished snails. It was clear in the latter case that she was counting the drawings, but it seemed more appropriate to describe her initial counting as counting her own actions. Perhaps it does not matter what category is used; but the activity of counting while you draw, and then counting your drawings, seemed to have more potential for learning than just counting items on a picture.

Counting as you go up or down stairs provided another example where the action (stepping) and object (each stair) needed to be considered separately. If the activity is seen as counting the stairs, then Jamie and his mum get the wrong answer every time they go up or down, because they miss some stairs out as they talk about what they can see through the banisters – but if it is seen as counting their own stepping actions, they are very successful. When going up the stairs, Jamie’s mum said the number first, and he copied each time, counting out loud from one to nine. Later on, when they counted from one to nine again whilst coming down the stairs, Jamie counted first and his mum followed, correcting when needed:

Jamie: Eight
Mum: Eight
Jamie: Seven
Mum: No, nine!
Jamie: Nine.

This pattern of a parent leading by saying one number at a time when counting, “call and response” style, and later giving the child the opportunity to lead and the parent (or other adult) to follow, was evident in the counting that Rahma (aged 3) did with her teenaged sister, counting both in Somali and English. Ahmet (aged 4) and his mum followed a similar pattern when looking at written numbers and saying the names out loud in Turkish, and then later in English.

Our brief to the families had not encompassed reading or writing numerals, but eight of the twelve families felt this was an important aspect of their child’s work on counting, so it has been included in the table above. Elsewhere, Penny Munn’s interviews with children aged 4 and over, showed children themselves associating counting with reading and writing numbers (Munn, 1997). Five of our children aged 2 or 3 had started to recognise written numbers, and one two-year old could find numbers one to ten without difficulty. Not unexpectedly, the older children were more likely to have started writing than the younger ones. One parent asked about the “correct way” to write numerals one to nine.

The difference between numbers and letters formed an interesting discussion between Achayla (aged 4) and her mother. When asked to write a number 4, “because that’s your number, your special number”, Achayla wrote a letter A. Child and mother then spent some time sorting magnetic numbers and letters, deciding which was which.

The five families (on Table 1, families 4, 8, 9, 10 and 11) who were multilingual all used two languages interchangeably for counting, and all the children seemed happy to swap from one language to another. Parents in one family asked whether it would be better if they just practised in English until their child started school (and were told no, that counting was much more than just learning the number names, so practice in every language was helpful).

DISCUSSION

The contributions of home and educational settings to children’s learning are undoubtedly different, and, of course, vary from one family to another as they do from one educational setting to another. Research that compared the contribution of home with that of nursery or school to young children’s learning (for example, Tizard and Hughes, 1984) has previously raised the question of whether home can provide educational experiences of a rich and varied nature, the importance of which may be underestimated by professional educators. More recently, the Home School Knowledge Exchange Project (Winter, Salway, Yee and Hughes, 2004) has explored issues of children’s learning at home and at school, and has commented on the

likelihood that activities which involve communicating from school to home are more common than those which go from home to school.

Even though the sample of families involved in the project described in this paper was very small, it has raised some issues that the researcher would like to explore further. The families were all interested in how to help young children learn to count; they enjoyed seeing the progress their children made, and often noticed common patterns in children's learning about numbers. For example, four year old Rahma's adult sister noticed her making up big numbers as she counted: "sixty thirty one" as the next number after eleven or twelve.

If we want to support children's learning at home, shouldn't that support celebrate what commonly happens already, and share good practice amongst families (whilst acknowledging that different children and adults enjoy different activities)? Perhaps teachers and practitioners also need to consider parents' "frequently asked questions" in the light of the value of family activity, rather than starting from the assumption that what school or nursery does is best.

The children's learning at home was personalised in a way that is not possible in many other settings. Activities were characterised by a high level of individual attention (including when a sibling joined in or watched) from a person with whom the child had a strong emotional bond, often shown through physical closeness and concentrated eye contact. Many activities (which might only take a few minutes to do) were reported to be repeated over and over again over a period of months, until the child tired of them or moved on to something more ambitious. The children often initiated activities they were interested in, or continued to work on activities after their adult had stopped – sometimes taking on the role of the adult with a younger sibling. Individual encouragement was frequent. The objects and actions being counted were ones in which the child had an interest, so there was a purposefulness about the counting. We need to build on these strengths.

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