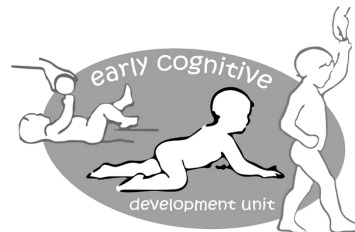




THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

ECDU 2009 UPDATE

RESEARCH RESULTS

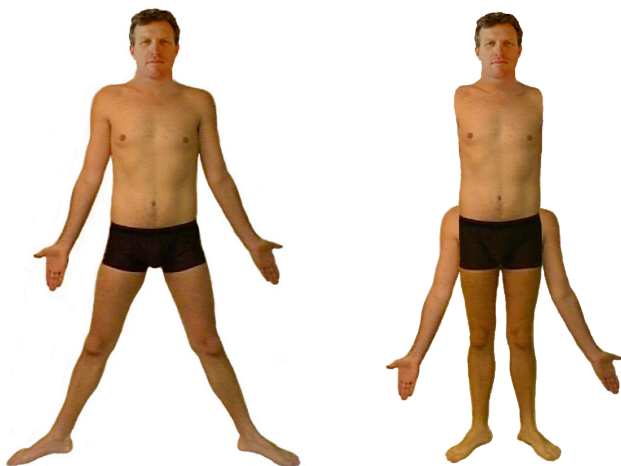


Over the last six months we have been conducting studies on a wide range of social and behavioural development. This update describes our current results. We have also included commentary by Dr Mark Nielsen entitled: "Should we throw out the idiot box?"

As 2009 draws to a close, all of us at the ECDU would like to sincerely thank you for participating in our studies. You have not only increased our knowledge about children's development, but also assisted our students in obtaining their degrees at both the postgraduate and undergraduate levels. We all would like to take this opportunity of wishing you and your family a happy and safe festive season and look forward to welcoming you and your delightful children again in 2010, which promises to be an equally exciting year ahead for us all.

Early Knowledge about the Human Body Shape

This year we have been conducting a thorough investigation into what infants know about the appearance of the human body shape. This is important since recognising one's own species, and individual members, is fundamental to being human. We have run several studies where infants are presented with a series of normal men, then following this are presented with scrambled men.



We are interested to see whether infants increase their looking times to the scrambled men, indicating that they have noticed something is different or wrong with these body shapes. We have run several different studies where we have varied how realistic the human body stimuli are.

We have found that when infants are presented with static pictures (either facing front or with the head in profile) infants do not respond to (look longer at) the scrambled until 15 months of age.

However when these same body photographs are presented with a human voice playing in the background, infants notice as early as 9 months of age (but not at 6 months).

Next, we needed to check that infants really were responding 6 months earlier because of the qualities of the human voice, and not just because it directed their attention to the body stimuli, thus encouraging them to notice the scrambled body parts. We did exactly the same study with another group of babies, but instead of hearing a human voice they heard an interesting musical tune.

These babies did not respond to the scrambled bodies at 9 months of age, confirming the result that there really is something unique about the human voice which allows infants to access their knowledge about the human body shape.

We also ran yet another study where the human body photographs were made more realistic by animation, so that the person moved their arms and legs. In this study we presented pairs of pictures containing one normal body and one scrambled body, and we wanted to see whether infants preferred to look at normal or scrambled bodies.

We found that 12-month-old infants looked longer at the scrambled bodies, while 9-month-old infants looked longer at the normal bodies. Six-month-old infants spent equally long looking at both types of bodies.

These results indicate that the 9- and 12-month-olds can tell the difference between the normal and scrambled bodies when the bodies are moving; however the 6-month-olds cannot.

Overall, it appears that the more realistic the body stimuli, the easier it is for babies to access knowledge about the human body shape. We are the first lab in the world to discover these exciting results about how infants recognise the human body shape.

Foresight in Children

The Development of Foresight in Early Childhood

Much of human discourse is about past and future events. Little is as yet known about how children start to draw on past events to imagine what will be useful in the future. We have conducted a series of studies examining children's abilities to remember a past problem and to prepare for its future solution.

In our initial study children were presented with problems in one room (e.g., a toy elephant that wants a banana; or a puzzle box without a key to open it).

In an instant condition, children could select the solution from a range of options right after presentation of the problem.



In the foresight condition, however, they were presented with those options only after a 15-minute delay and distracting games in a different room. We found that both problems were easily solved by 3- and 4-year-olds when presented with the options instantly. However, only the 4-year-old children tended to succeed on this task when there was a 15-minute delay.

Subsequently, we conducted a study to find out whether children's difficulties in the foresight condition were due to the time delay or the room shift. Results revealed that children's difficulties were due to the delay and not the room shift.

Together, these findings show that by age 4 children can remember a novel problem sufficiently to secure its future solution.

We have begun to examine how children with autistic spectrum disorder perform on this simple foresight task. Preliminary results suggest that these children can solve such tasks, but that competence develops later than in clinically normal children.

We are also currently examining other facets of normal development of foresight. In one series of studies we want to know when children begin to practice for the future.

We build on the previous experimental paradigm, but this time, rather than allowing children to select a solution to take from one room to another, we give children the opportunity to learn how to construct a solution. The goal is to document when children begin to prepare for a future situation by practice and learning.

These basic skills are fundamental to schooling and, of course, to human success more generally.

Newborn Imitation Study

This year, the ECDU started a large-scale project investigating whether newborn babies have the ability to imitate facial expressions, hand gestures and vocalizations as a means to communicate with other people, or whether these "imitative" responses are purely reflexive. This research is important, as it will provide new knowledge about early human social-cognitive development.

Early results suggest that 1-week-old babies can imitate tongue protrusion and grasping.



Results also suggest that newborns with an "easy" temperament are more likely to imitate than newborns with a "difficult" temperament.

Since easy temperament babies are generally more sociable than their more difficult peers, this finding supports the idea that newborn imitation reflects the infants' social and communicative tendencies, and is not due to a reflexive response.

We now plan to see if babies will continue to use imitation as a tool to communicate once they get older and begin to smile.

Learning from Others

Our children grow up in environments saturated with tools and objects that, one way or another, they will eventually need to learn how to use. How they do so is something we have been exploring.

In past studies we have shown that, when learning a novel skill, young children will copy all of an adult's actions, including actions that clearly have no function or purpose.

Recently we were interested in whether or not young children would display this behaviour if they are directly shown how to do something or if they observe a 'teacher' showing someone else what to do (this study was run by Jumana, for those of you who participated).

Children watched an adult show another adult how to open a novel box using a series of actions. One of the adults then left the test room while the other gave the box to the child and asked him or her to get the box open. Children learned just as well in these circumstances as when they are shown directly and explicitly what to do. And it didn't matter if it was the 'teacher' or the 'student' who gave the box to the child.

In another experiment, children and their parents played with the boxes first and many were able to discover how to open the boxes. Yet when the children subsequently observed an experimenter showing another experimenter



what to do children copied what they had seen – even if the demonstrated actions clearly had nothing to do with getting the box open.



Why might children behave in this way?

To answer this, in a study run by Conny, we tested contrasting ideas that children do so either because they think all adults' actions have a purpose or because they naturally want to connect socially to others.

Preschoolers watched two adults take turns opening a novel box: One adult used only causally relevant actions whereas the other incorporated redundant actions into her demonstration.

After both adults had a turn, one left the test room and the remaining adult gave the child the box. Children omitted the redundant actions so long as the remaining adult had not used them to open the box.



However, if the remaining adult had demonstrated the redundant actions children persisted in producing them – even though they had seen the alternate adult emphasise that such actions were irrelevant. This is the clearest demonstration to date that children will imitate for social reasons.

Together, these studies show how strongly young children are inclined to copy the actions they see adults perform; something that has profound implications for our understanding of the way children learn and for our understanding of the intergenerational transfer of cultural traditions.

Should we Throw out the Idiot Box?

comment by Dr Mark Nielsen

In October of this year the Federal Government released the *Get Up and Grow* guides. These are free to every parent and contain advice on healthy behaviour for children up to age 5. I myself as a parent know how challenging it is to make sense of the constant flow of advice we get bombarded with, and when recommendations come from the government it is difficult not to take notice.

As a developmental psychologist, sometimes I'm fortunate enough to know something about the advice being given. For several years, I have been researching and lecturing on the impact of television exposure on children's development.

It was with interest that I read the guide's suggestion that toddlers younger than 2 years should not watch television or use computers at all. What are my thoughts?

Putting age aside, there are some alarming links between TV exposure and a range of health-related measures. Children's school performance declines with every extra hour of TV watched if they watch at least 10 hours of TV per week.

(Should we throw out the idiot box? ... cont'd)

TV viewing has also been linked with obesity, sleep disturbances and poorer social relationships in children. However, the studies reporting these findings can't tell us if TV viewing causes these behaviours; just that they are linked in some way. We may want to be aware of these issues, but they don't mean that we should throw out the idiot box altogether.

What about TV for young children? As they get older, children look more at the TV when it is on. Of all their time spent looking at what's around them, 6 month olds spend around 11% of watching a TV, and this increases to 39% of their looking time by 3 years of age. If the show on TV is deliberately designed for young infants (e.g., *Teletubbies*) these percentages are substantially higher (e.g., up to 74% for 12 to 15 month olds).

From around 6 months of age children can also learn, in a very basic sense, from what they see on TV. So from very early on, children will pay attention to a TV screen and they can make sense out of what they see. This doesn't mean we should throw out the idiot box either.

There is still a lot we don't know. One of the reasons stated for the government's recommendation is that screen-time exposure may reduce the amount of time children have for active play. The evidence for this is not strong (one study published in the prominent journal *Paediatrics* even reported no relation at all).

The guide also suggests that exposure to TV reduces chances for language development. There is some support for this connection – but only in children whose families are heavy watchers of TV (i.e, where the TV is “always on” or on “most of the time”). Again, things to be aware of, but not convincing reasons to ... well you get the picture.

I have a 6 month old. Do I monitor her exposure to TV? Yes, and I will for as long as it is my responsibility. I don't want her watching excessive amounts of TV, nor shows that I don't think suitable for children. But these new recommendations won't make me stop her sitting with her older brothers when they watch TV until she is older than 2 years.

Like many guidelines, these ones have some value, but they need to be treated with a healthy dose of commonsense. I'm not yet ready to throw out the idiot box.

[The views expressed here are those of the author alone and not of the ECDU or the University of Queensland]

Early Learning from Books

In June this year we commenced a study investigating if 6- and 9-month-olds can learn and remember information from a picture-book.



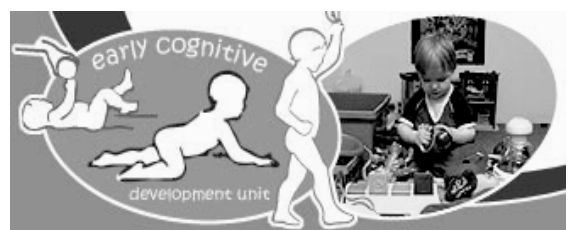
Infants are being shown a book containing either six Caucasian or six Chinese faces, over either a 3-month-period in their own home or during a one-off visit to our laboratory.



Following this, the infants are “tested” to see what they can remember from the book. This is done by showing infants pairs of faces on a television screen and assessing the amount of time spent looking at the familiar faces from the book versus faces which are completely new.

We are capitalising on the fact that at this age infants prefer to look at people who are familiar to them. This study is still in progress; however we are very eager to discover whether infants can learn from a picture-book over a short and long-term period in the first year of life.

An investigation into early learning from books is important and timely given the wide-spread use of books as an educational tool from very early in development. This research will also shed light on the development of our expertise in processing and recognising faces, which is a vital skill as a human being.



We currently have studies in progress involving children aged from newborn to 5 years. If your child/ren fall into any of these ages, we would love to have you participate in our studies again.

If you have friends with children aged from newborn to 5 years who might like to get involved, we would appreciate it if you would refer us to them. For more information, please call us on (07) 3365 6323.

***You can also register your interest on:
<http://www2.psy.uq.edu.au/research/ecdu/>***

