

Empowering Local Learners Newsletter

A pre-school to secondary approach to improving executive functioning through a mathematics lens

ISSUE 4 — TERM 3 2015

Inhibitory Control

In recent sessions we have been shining a spotlight on particular executive functions to help unpack them more. Inhibitory control was the first of these to be tackled. However due to the highly related nature of the executive functions you may see others coming into the discussion.

We were asked about inhibitory control and our understanding of it, whether it can mean different things. Below is just my response but there were many others.

For me inhibitory control can be split into

- Making a start
- Persisting or Pivoting
- Reflecting

For me it is interesting to think about what are the differences in inhibitory control at each point.

Making a Start

In working in tasks in class a child's inhibitory control first presents at the beginning of a task, and sometimes it is just as simple as do they see it and give up on it, or do they see it and try to make a start. There are many complex thought processes at play during this time such as their own self-concept as a learner of mathematic, their ability to be able to recognise something 'familiar' in the question or their willingness to take risks on something they may not have encountered.

Persisting or Pivoting

Inhibitory control in the middle of a task sometimes presents as persisting or pivoting. When students have made a start, and are working through the process can they maintain their efforts

even if they feel it is taking too long or do they recognise that what they are doing is not working and think about how they may change it. It is only in being very aware of what we are doing in-task that we can decide if we need to persist or to pivot on our approach.

Reflecting

Another place inhibitory control falls down is at the end of a task. They have got their answer and therefore the question is done in their eyes. But an important part of the process is to stop and think about the answer. Does it make sense? Have you actually answered the question? How could you check your answer?, What might be other possibilities? How does this add to my understanding? These are important to consider to consolidate learning.

INSIDE THIS ISSUE:

Into the Classroom 2

Adventures of You—Executive Function Resource 3

Transforming Tasks Resource 3

ELL Project Focus Teachers 4

Term 4 Dates to Remember

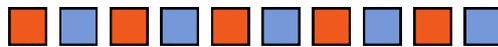
Wk	Day	Date	Who	Activity	Where	Start Time
2	Thursday		Any Interested Staff	Between Visit Session	Port Augusta Secondary School	3:45 pm
4	Monday and Tuesday		Focus Teachers	Flinders University Visit	Willsden Primary School and Willsden CSC	8:30 am
6	Monday and Tuesday		Focus Teachers	Flinders University Visit	Willsden Primary School and Willsden CSC	8:30 am
6	Thursday		Any Interested Staff	Between Visit Session	Port Augusta Secondary School	3:45 pm

Into the Classroom

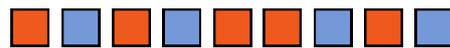
Below is a brief summary of some of the work done in the observation lessons with the Monday group over the course of the term.

Early Years Group

This term in for the early years group I was only able to attend one of the two sessions. One of the activities looked at during some time was some work on patterns. The children were shown a pattern such as the one below. I was asked to turn around so I could not see what Deb was going to do



When I turned back around there was a block missing from the pattern and I was asked to determine what block was missing



Questions focused around the idea of how do we know what colour block is missing and how do we know where to put it back.

In another activity done this term children were given a handful of buttons that they worked with a partner and an adult to sort.



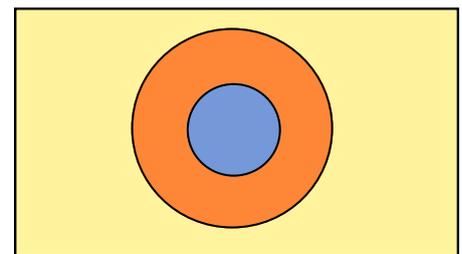
Buttons were a really good choice for this task as there are many criteria that you can use to sort buttons whether that is size, colour or number of holes. For most children the most common way to sort initially was based on colour and for some sorting by other criteria was not immediately obvious.

One of the benefits of using objects such as button is that there is not a clear cut boundary on what is considered a big and a small button, these are criteria that the children need to come up with and justify themselves.

Middle Years Group

In the week 4 session of this term, again I could not be at the whole week 8 session, the lesson focused on 2D shapes. There were a range of activities that were done during the lesson but in focusing on two one of the first was to get children to draw a four-sided shape where none of the sides were the same length. They found this to be incredibly difficult, with most drawing variations on rectangles. However in thinking about it, it was evident to me that students lack a model on which to base it. If we look around us there are very few, if any, four sided shapes with all sides different length, it is just something people would not manufacture.

The next activity focused on sorting some shapes such as the one s below into a bullseye target as shown below the shapes.



As the children brought up the shapes they were sorted into the blue red or yellow area depending on a criteria of those shapes. They were not told what the criteria was but had to discuss with others what they feel the criteria used to sort them may have been. Initially the yellow was no sides the same, the blue was all the same and the red was some sides the same.

The shapes were then taken and resorted according to a different criteria and students again had the discussion, this time however it was sorted on the angles.

Adventures of You—Executive Function Resource

During the sessions for both new and continuing teachers on the Monday and the Tuesday we have looked at a video from the MyFuture website that looks at executive function. There are a range of resources on the site and a number of other videos but the video we have focused on is called 'A brain full of lasers' and focusses on the 3 core executive functions. The link to the resources and the videos is below.

The video are accessible enough to be useful for a reasonably wide range of students and adults alike. Being on the MyFuture website they have a bit of a focus around career development but what I like about them is that they do not focus specifically on executive functions at school. The focus also on the role they play in their lives beyond school.



One interesting part of the video is talking about the executive functions as levels from level 0 which is sleepwalking to level 3 that focusses on cognitive flexibility. We know that executive functions are not levels, they are highly interrelated as mental processes, but I think it is useful to think about them in that way. For most the level 1, impulse control, must be the first step. If you see a difficult problem and then give up it will not trigger your working memory or flexible thinking, Nor will it trigger if you rush to an answer. Once you have impulse control you can then begin to access your working memory and flexible thinking. The level 2, working memory I feel is an important prerequisite to flexible thinking. It is hard to think flexibly if you are unable to keep ideas in your head that you can manipulate mentally.

Web Link

<http://myfuture.edu.au/tools-and-resources/learning-tools-for-secondary-students/the-adventures-of-you>

Transforming Tasks Resource

In recent weeks the Tuesday group in particular has been using the resource below on transforming task from the AC leaders resource website.

It provides a very useful framework for how we can take existing tasks and tweak them to increase

the amount of thinking that students are doing in the task,. The approaches work very well with the work on executive function we are focused on and also within lots of aspects of the AC and the EYLF.

http://www.acladersresource.sa.edu.au/index.php?page=into_the_classroom

Strategies	Techniques			
From closed to open	Different perspectives	Many entry points	Many pathways	Many solutions
	Have students explore different points of view in the task.	Have students work backwards by beginning with the outcome.	Ask for one problem to be solved in multiple ways.	Ask questions which have many solutions. Add or remove constraints.
From information to understanding	Many ways of knowing	Compare and contrast	Make connections, find relationships	Generalise
	Ask students to show what/how they know in more than one way.	Ask students to identify similarities and differences.	Have students make meaning by asking them to connect pieces of information.	Ask students to construct general rules by identifying patterns.
From tell to ask	Socratic questioning	Explore before explain	Use dialogue	Student voice
	Ask questions that help students dig deeper.	Ask students to try their ideas first.	Ask students to interact and build meaning through learning conversations.	Ask students to decide how they might do this best.
From procedure to problem solving	Students identify the 'problem to solve'	Provide insufficient information at first	Provide only some of the steps	Include some irrelevant information
	Present a provocation and ask students to determine the problem to solve.	Give a perplexing problem and slowly provide information as needed.	Provide multi-step problems and do not state all the steps.	Give additional information that is not required to do the task.

Empowering Local Learners Project Manager

Shane Loader

8647 3300

shane.loader53@schools.sa.edu.au

After More Information? Speak to a focus teacher at your site

Heather	Cargill	Augusta Park Childhood Services Centre
Raman	Bhangu	Augusta Park Primary School *
Ros	Edwards	Augusta Park Primary School
Lisa	Elliot	Augusta Park Primary school *
Scott	Welfare	Aaugsta Park Primary School *
Trisha	Gwinnell	Augusta Park Primary School
Brenda	Forbes	Carlton School
Kiran	Nand	Carlton School *
Lynette	Geerling	Carlton School
Maggie	Kamin	Flinders Children's Centre and Tji Tji Wiltja Pre-School
Melanie	Ellison	Flinders View Primary School
Daniela	Welfare	Flinders View Primary School *
Troy	Welfare	Flinders View Primary School *
Sue	Gerschwitz	Port Augusta Children's Centre
Shane	Loader	Port Augusta Secondary School *
Simone	Anderson	Port Augusta Special School *
Meredith	Green	Port Augusta West Childhood Services Centre
Pennie	Boscence	Port Augusta West Primary School
Natie	Keeler	Port Augusta West Primary School
Michelle	Densley	Quorn Area School *
Mari	Ikiua-Brooks	Quorn Area School
Kapil	Pande	Quorn Area School *
Nicole	Downing	Quorn Kindergarten
Balbir	Grewal	Quorn Kindergarten
Kimberley	Brown	RICE
Courtney	Rogers	Stirling North Childhood Services Centre
Lisa	Hardbottle	Stirling North Primary School *
Lesley	Martin	Stirling North Primary School
Jessica	Goddard	Willsden Childhood Services Centre
Tanya	Bahnisch	Willsden Primary School *
Brittany	Burton	Willsden Primary School
Jenn	Nancarrow	Willsden Primary School *
Sally	Niedorfer	Willsden Primary School

* = attending the Tuesday session for continuing teachers