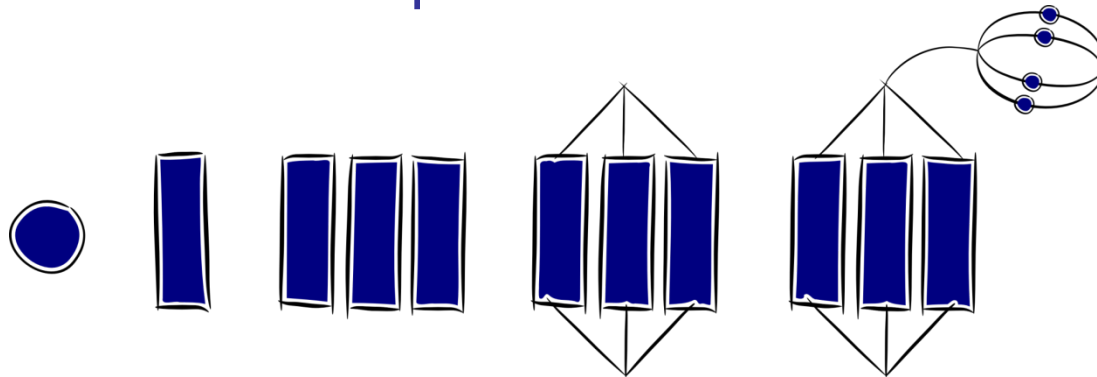


# SOLO Taxonomy and Inquiry Learning

[Part 1]

Pam Hook

[www.pamhook.com](http://www.pamhook.com)



# The Three Stages in Inquiry Talk:



“Our model of inquiry learning”

“The “right way” to do inquiry learning”

“Our student learning outcomes in inquiry learning”



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Conversation shifts from ownership to righteousness to responsibility

**Inquiry** is an approach to learning that evokes a process **exploration**, and leads to asking **questions** and making **discoveries** in search of new understandings

Ton de Jong University of Twente 2006



# Inquiry

Enabling the learner since the end of the 19<sup>th</sup> Century

scientific discovery

constructivist

student research

experiential

case based

project based

Bruner

self directed

exploratory

Dewey

inquiry

collaborative

problem based

knowledge building



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# Commonalities

Constructing knowledge

Collaboration - social sharing

Concrete realised experiences -  
real, situated, authentic.

# Caveat ...

Learners have problems with ALL of the processes associated with inquiry

# Inquiry learning is most effective when ...

The right kind of domain is used

Intuitive deep conceptual knowledge rather than  
operational factual procedural knowledge

Direct instruction and practice should be used for  
factual and procedural knowledge

# ...and

Relevant cognitive processes are triggered and scaffolded for.



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de Jong, T. (2006) Technological Advances in Inquiry Learning  
VOL 312 SCIENCE pp532-533



# ...and

Appropriate prior knowledge is available either with the co learner or in the system.

# ...and

Learners have a clear goal to work to.



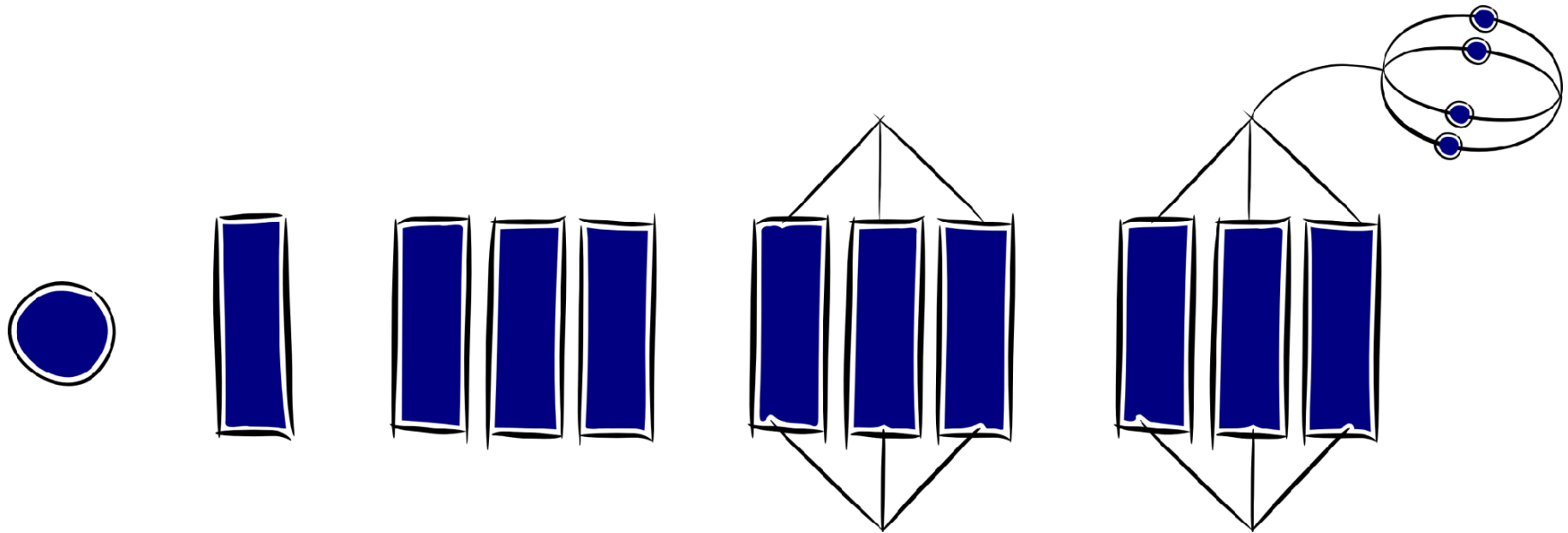
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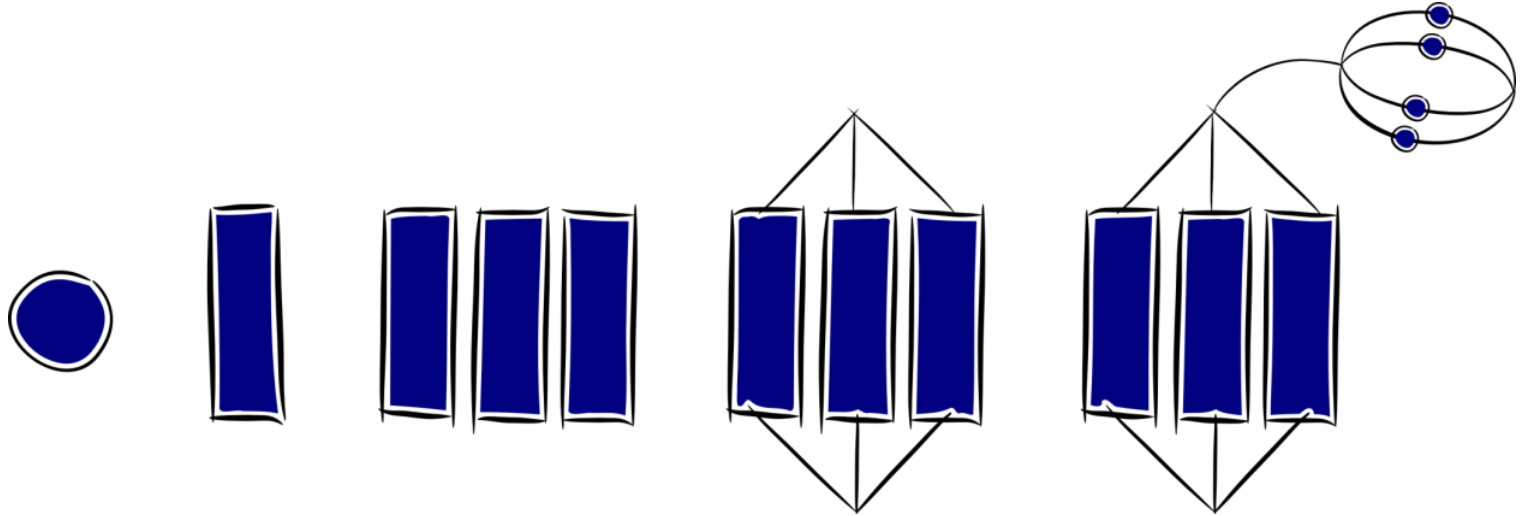
de Jong, T. (2006) Technological Advances in Inquiry Learning  
VOL 312 SCIENCE pp532-533

# SOLO Taxonomy - Biggs and Collis 1982

## The Structure of Observed Learning Outcomes



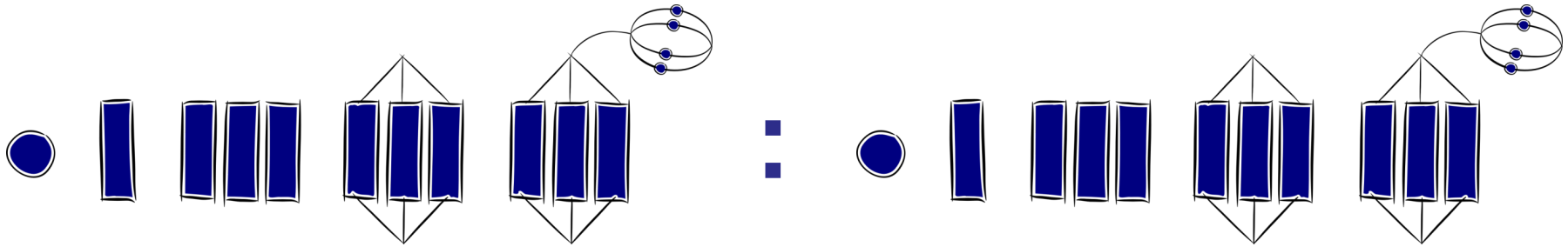
# Process of learning is also process of inquiry



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# Stages in learning : Stages in inquiry



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“If we inquire to learn, how  
should we learn to inquire?”

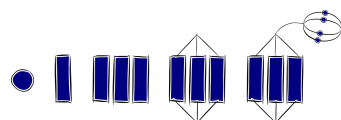


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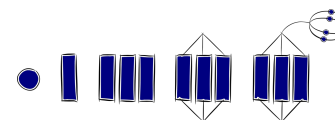
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# Negotiating Time Frames

**Deliberate acts of teaching**



**Student inquiry**



HOT Differentiated  
Curriculum Model<sub>t</sub>

Supported  
Beginning  
Proficient  
Expert  
Autonomous

# Deliberate acts of teaching: The HOT Differentiated Curriculum Model

A learning design curriculum model that uses SOLO Taxonomy to scaffold “deliberate acts of teaching” for building deep student learning outcomes **prior to student inquiry**.



## Deliberate acts of teaching

## Student inquiry

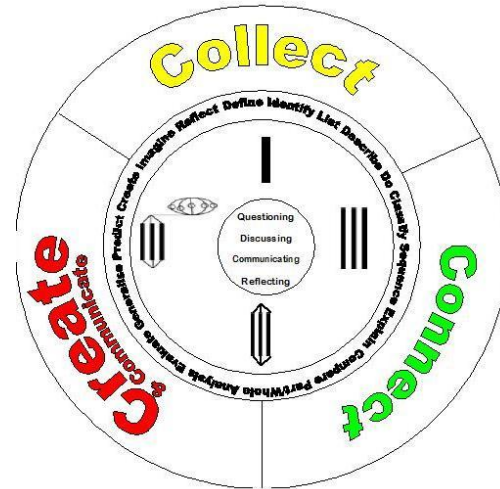




# Inquiry Learning Models based on Learning Outcomes in SOLO Taxonomy



# Red Beach School



# Vauxhall Primary School



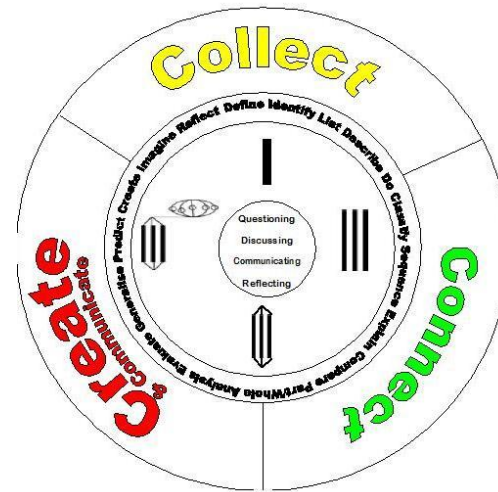
## Inquiry Model

### Red Beach School

**Get it:** SOLO Multistructural LO

**Sort it:** SOLO Relational LO

**Use it:** SOLO Extended abstract LO



## Inquiry Model

### Vauxhall Primary School

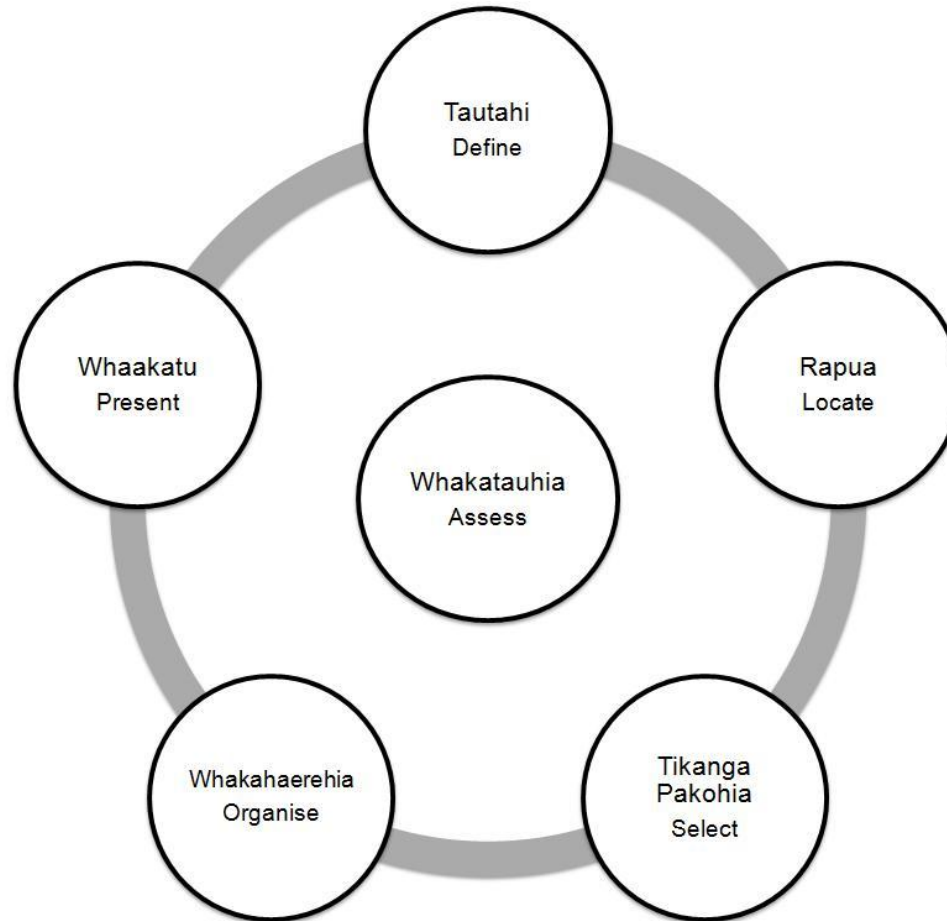
**Collect:** SOLO Multistructural LO

**Connect:** SOLO Relational LO

**Create: Communicate:** SOLO  
Extended abstract LO



# PBL Inquiry Learning Model based on Learning Outcomes in SOLO Taxonomy



St Mary's School



## PBL Inquiry Model St Mary's School

**Tautahi** (Define):

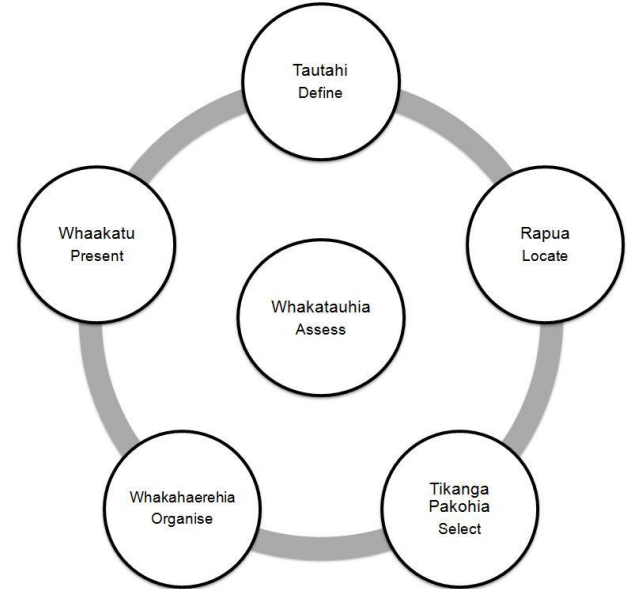
**Rapua** (Locate) :

**Tikanga Pakohia** (Select):

**Whakahaerehia** (Organise):

**Whaakatu** (Present):

**Whakatauhia** (Assess):



SOLO Multistructural LO

SOLO Multistructural LO

SOLO Multistructural/Relational LO

SOLO Relational LO

SOLO Extended abstract LO

SOLO Extended abstract LO



# Self Assessing Learning Outcomes at each stage of Student Inquiry



## Vauxhall School - Hooked on Thinking SELF ASSESSMENT RUBRIC FOR INQUIRY



| STUDENT INQUIRY   | Inquiry Question  | Planning the Inquiry  | Collect  | Connect  | Create and Communicate  | Reflection (formative and summative)  |
|---|---|---|--|--|---|---|
|   | Formulating focus questions                                 | Finding resources<br>Complete a timeline for the inquiry stages   | Identifying and recording relevant information   | Connecting the information   | Creating new knowledge<br>Communicating to an audience  | What am I doing?<br>Is it going well?<br>What should I do next?   |
| <b>Prestructural</b><br>Learning outcomes show unconnected information, no organisation. Task not attacked in appropriate way             | I need help to ask a question.                              | I need help to find resources<br>I need help to make a timeline   | I need help to identify relevant information.<br>I need help to record information.  | I need help to do more than 'cut and paste' what I found out.  | I need help to look at the connected information in a new way.<br>I need help to share what I found out.  | I need help to know what I'm doing.<br>I need help to know whether it is going well.<br>I need help to know what I should do next.  |
| <b>Unistructural</b><br><i>Tacit use</i><br>Learning outcomes show connections are made, but significance to overall meaning is missing   | I can ask a simple question.                                | I can locate one resource.<br>I can make an inquiry timeline.   | I can identify relevant information from one source.<br>I can record information in one way.   | I can connect my information if I am told what to do.  | I can look at the connected information in a new way.<br>I can share what I found out.  | I know what I am doing.<br>I can tell what I'm doing.   |
| <b>Multistructural</b><br><i>Aware use</i><br>Learning outcomes show simple connections but importance not noted.                         | I can ask a question to collect information.                | I can locate several different resources.<br>I can make an inquiry timeline with all relevant stages in the right order   | I can identify relevant information from several sources.<br>I can record information in more than one way.  | I am aware of several ways to connect my information but I need help to know when to use them.   | I can look at the connected information in several new ways.<br>I can share what I found out in several different ways.   | I know what I am doing. I can tell you what I'm doing and describe it.  |
| <b>Relational</b><br><i>Strategic use</i><br>Learning outcomes show full connections made, and synthesis of parts to the overall meaning. | I can ask a question to connect information.                | I can locate several different relevant resources from different media.<br>I can make an inquiry timeline with all relevant stages in the right order and explain why the decisions were made.  | I can identify relevant information from several sources and link this to my inquiry questions.<br>I can record information in more than one way and explain why I have chosen these ways.                             | I am aware of several ways to connect my information and can choose the most appropriate one for the circumstances.<br>(I know when and how to use HOT SOLID maps) | I can look at the connected information in several new ways AND explain why I have chosen these ways.<br>I can communicate this in an appropriate way for my audience AND explain why I have chosen this way.   | I can tell you what I am doing and describe it.<br>I can tell you whether it is going well or not (self assessment rubrics).  |
| <b>Extended Abstract</b><br><i>Reflective use</i><br>Learning outcomes go beyond subject and makes links to other concepts - generalises  | I can ask a question to create and communicate information. | I can locate several different relevant resources from different media AND evaluate the validity and reliability of them.<br>I can make an inquiry timeline with all relevant stages in the right order and explain why the decisions were made AND I can adapt and modify my timeline where necessary. | I can identify clear, relevant, reliable and valid information from a wide range of sources.<br>I can record information in more than one way and explain why I have chosen these ways AND I can justify my decisions. | I am aware of several ways to connect my information and I use these fluently.   | I can look at the connected information in several new ways and explain why I have chosen these ways AND justify my decision.<br>I can communicate this in an appropriate way for my audience AND explain why I have chosen this way AND justify my decision. | I can tell you what I am doing and describe it.<br>AND<br>I can tell you whether it is going well or not (self assessment rubrics).<br>AND<br>I can predict what I should do next OR what I would do next time. |

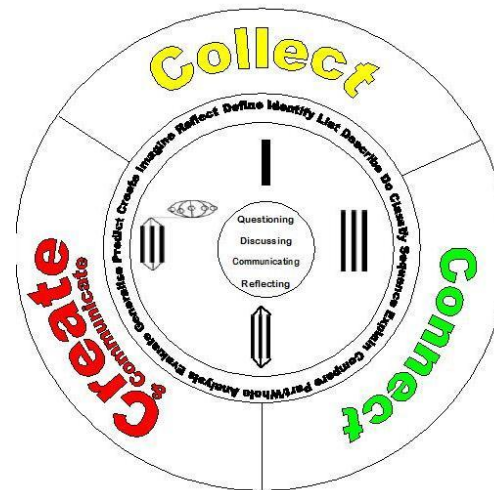
[http://hooked-on-thinking.com/wiki/doku.php?id=link\\_here\\_element\\_9](http://hooked-on-thinking.com/wiki/doku.php?id=link_here_element_9)



# Learning interventions that support different stages in **student inquiry**.

[Supporting identified learning outcomes with HOT Maps and self assessment rubrics, thinking strategies and ICTs]

Learning interventions for “**Collecting**”



Learning interventions for “**Creating**” and “**Communicating**”

Learning interventions for “**Connecting**”





transforming learning outcomes

## Contact

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