

A Cross-Project Journey through Video-Data

VRIE Methodology

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Projects

- EQUALPRIME
- Dead-End Analyses
- CRISP
- SLRC
- Teaching

EQUALPRIME

- Video capture of the classroom practices of expert teachers of elementary school science in Australia, Germany and Taiwan.
- In each country between 2-7 teachers were selected
- Video sequences of whole topics were generated for each teacher

Teacher Moves

- **Expert Teachers' Discursive Moves in Science Classroom Interactive Talk**
- Tytler & Aranda
- International Journal of Science and Mathematics Education
- April 2015, Volume 13, Issue 2, pp 425-446

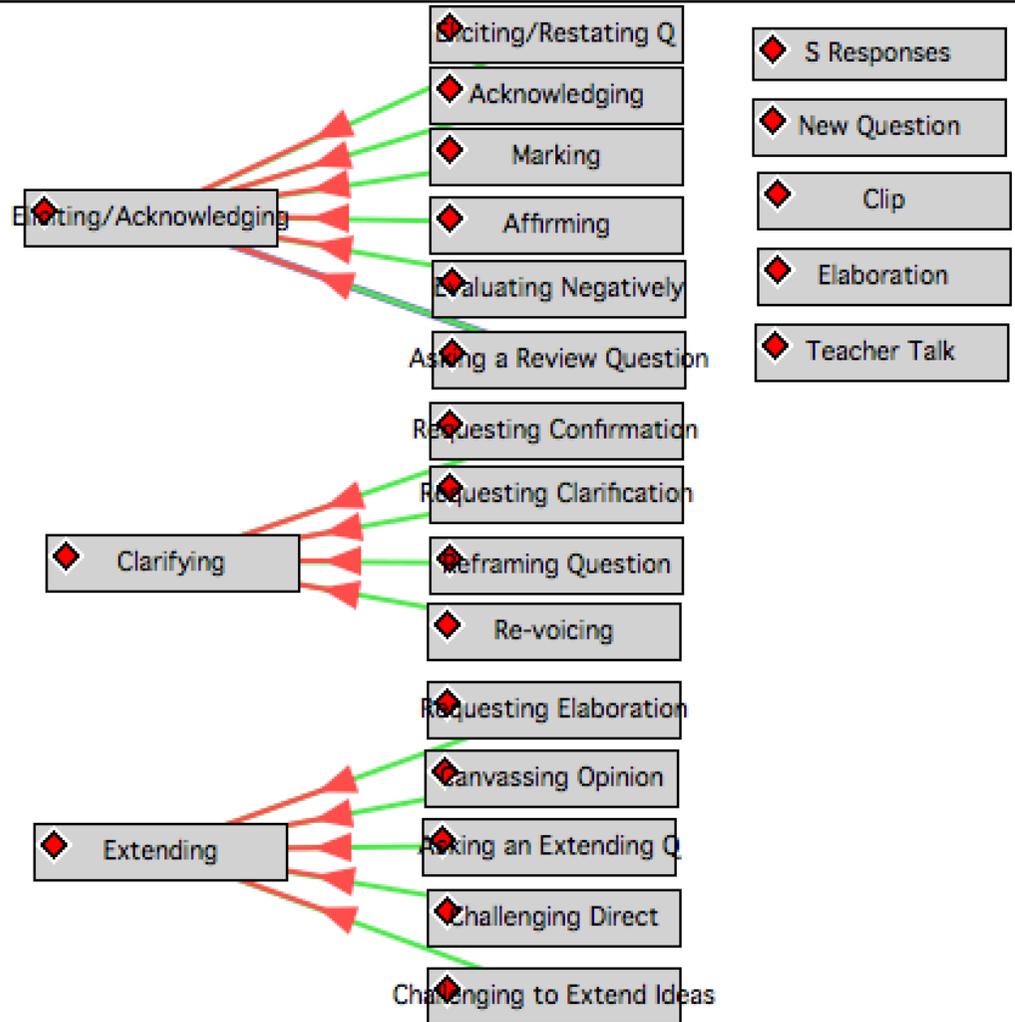
Developing Codes

- Coding was developed over 2+ years
- In response to IRE (Initiate-Response-Evaluate) moves
- Higher levels of reasoning
- Objective was to characterise the *moves* that teachers used to promote reasoning in their students
 - Whole Class Discussions
 - Situations that were dealing with scientific concepts

Revoicing Code Window7

Capture Code Label Edit Matrix Enter (TAB) Clear (ESC) Reset Button Keys Links

Default lead



StudioCode

The screenshot displays the StudioCode interface, which is designed for analyzing and coding video content. It features several key components:

- Video Player:** Located on the left, it shows a video of a classroom scene. The title bar reads "GRO T 23 08 2011 Sess 1". Below the video, there are playback controls and a "Make movie" button.
- Code Editor:** A central window titled "Revoicing Code Window5" contains a list of coding categories. On the left, three main categories are listed: "Acknowledgement", "Verification", and "Extension". On the right, a list of specific codes is provided, including "Recognition", "Marking", "Evaluation", "Restating Question", "Re-voicing", "Request Confirmation", "Request Clarification", "Reframing Question", "Request Elaboration", "Invancing Opinion", "Further Question", "Challenge", "S Responses", "New Question", "Clip", "Direct", and "Extend Idea". Red arrows indicate the mapping from the main categories to their respective sub-codes.
- Timeline:** At the bottom, a timeline shows the duration of the video (01:04:00.06) and a list of 16 coding events. Each event is represented by a colored bar (green, blue, or orange) and a number indicating its duration or frequency. The events are: 1. Clip, 2. New Question, 3. S Responses, 4. Acknowledgement, 5. Recognition, 6. Marking, 7. Evaluation, 8. Restating Quest, 9. Verification, 10. Re-voicing, 11. Reframing Ques, 12. Extension, 13. Request Elabora, 14. Challenge, 15. Direct, and 16. Extend Idea.

Bob's paper drop lesson: Broad patterns of support for reasoning

Phase 1: exploring the phenomenon and establishing ideas.

Dialogic

Authoritative

After establishing that scrunching the paper makes it fall faster Bob asks why

- It's heavier,
- there is less distance, and
- there is more force

Group investigations. Bob circulates and gathers the ideas of groups which include alternative conceptions:

- The folded paper falls faster (Bob: why?) .. because it's thicker
- It cuts through the air (Bob: 'hold onto that').

Phase 2: whole class review of explanations - a process of selective refinement.

Bob gradually works with the ideas to achieve some resolution. In this, he:

- establishes some of the ideas that came up in group discussions.
- emphasizes productive explanations (e.g. air being trapped under the open paper causing a slower fall)
- contrasts competing ideas and moves towards resolution

The sample sequences

- What response moves does Bob make, and how do these vary from the dialogic to authoritative moments in the lesson?
- The coded sequences were chosen to represent different moments in each lesson. Where possible each was identified as dialogic or authoritative in intent. Total sequence length varied, mostly between 10 and 20 minutes with the Taiwanese sample the shortest, just over 3 minutes.
- The coding results represent the particular sequences and can vary considerably even for the one teacher.
- They are not directly reflective of the essence of a teacher's practice, but are useful as a device for focusing in on teachers' strategic practices at particular moments, and identifying tendencies across the sequences.

Findings - Bob

	#1	#2	#3
	Dialogic	Dialogic	Authoritative
Clip Length (s)	70	194	314
Student Talk (%)	56	32	37
Teacher Talk (%)	37	36	40
Teacher Talk (TTT)(s)	26	69	126
New Question (%)	38	10	26
ACKNOWLEDGEING (%)	46	42	31
<i>Re-stating Question (%)</i>	4	12	6
Acknowledging(%)	23	6	6
Marking (%)	19	11	15
Affirming (%)			4
Evaluating Negatively (%)			
CLARIFYING (%)	15	36	24
Requesting Confirmation (%)		3	11
Requesting Clarification (%)	8		
<i>Re-framing Question (%)</i>	8	33	6
Revoicing (%)			7
EXTENDING (%)	0	12	19
Requesting Elaboration (%)		9	8
Canvassing Opinion (%)			
<i>Asking an Extending Question (%)</i>		3	9
Challenging Directly (%)			2
Challenging to Extend Ideas (%)			

Bob's paper drop sequence – he gathers ideas freely, and after experimentation works the discussion to establish what determines the speed of drop.

Note:

- The high level of acknowledgment responses in the dialogic phase
- The 're-framing question' high incidence when clarifying what to focus on
- High level of marking throughout, and 'recognition' in the dialogic first lesson which was canvassing students' 'push-pull' associations.

Findings - Colin

	#1	#2	#3
	Dialogic	Authoritative	Authoritative
Clip Length (s)	346	425	509
Student Talk (%)	32	13	30
Teacher Talk (%)	38	39	56
Teacher Talk (TTT)(s)	132	164	286
New Question (% of TTT)	15	7	11
ACKNOWLEDGING (%)	43	23	26
<i>Re-stating Question (%)</i>	14	10	3
Acknowledging(%)	8	2	18
Marking (%)	20	2	0
Affirming (%)		7	0
Evaluating Negatively (%)		1	5
CLARIFYING (%)	15	57	51
Requesting Confirmation (%)	10		
Requesting Clarification (%)	3		5
<i>Re-framing Question (%)</i>			1
Revoicing (%)	2	57	45
EXTENDING (%)	27	13	12
Requesting Elaboration (%)	2	4	8
Canvassing Opinion (%)			
<i>Asking an Extending Question (%)</i>		9	1
Challenging Directly (%)	2		3
Challenging to Extend Ideas (%)	22		

Colin acknowledges his students' ideas while in dialogic mode, but shapes their ideas in authoritative mode via the consistent use of re-voicing.

Note:

- High level of acknowledgement responses in dialogic phase
- High level of re-voicing responses in the authoritative phase

Findings – Mrs H

	#1	#2	#3
	-	-	-
Clip Length (s)	61	44	90
Student Talk (%)	13	32	41
Teacher Talk (%)	87	84	82
Teacher Talk (TTT)(s)	53	37	74
New Question (% of TTT)	21	32	3
ACKNOWLEDGING (%)	43	0	18
<i>Re-stating Question (%)</i>	19		1
Acknowledging(%)	2		
Marking (%)	19		3
Affirming (%)	4		14
Evaluating Negatively (%)			
CLARIFYING (%)	32	68	49
Requesting Confirmation (%)	11	35	
Requesting Clarification (%)	4	8	3
<i>Re-framing Question (%)</i>	9	3	24
Revoicing (%)	8	22	22
EXTENDING (%)	4	0	31
Requesting Elaboration (%)	4		
Canvassing Opinion (%)			
<i>Asking an Extending Question (%)</i>			23
Challenging Directly (%)			4
Challenging to Extend Ideas (%)			4

In this lesson the sequences are all authoritative – strongly guided – but there is a movement from gathering observations and establishing a moon model, to working with the model to link to phases, and introducing an abstracted 2D version.

Note:

- Low levels of student talk
- Wide variation in pattern depending on the excerpt
- High incidence of re-voicing in the latter part
- Strong use of 're-framing question', 'and 'further question' sequences when pulling ideas together in the latter part of the lesson.

Findings – KM

	Dialogic/Authoritative
Clip Length (s)	786
Student Talk (%)	65
Teacher Talk (%)	46
Teacher Talk (TTT)(s)	234
New Question (% of TTT)	26
ACKNOWLEDGING (%)	17
<i>Re-stating Question (%)</i>	5
Acknowledging(%)	12
Marking (%)	
Affirming (%)	
Evaluating Negatively (%)	
CLARIFYING (%)	29
Requesting Confirmation (%)	
Requesting Clarification (%)	13
<i>Re-framing Question (%)</i>	
Revoicing (%)	16
EXTENDING (%)	27
Requesting Elaboration (%)	20
Canvassing Opinion (%)	
<i>Asking an Extending Question (%)</i>	
Challenging Directly (%)	
Challenging to Extend Ideas (%)	7

In the KM example, the teachers allow students to elaborate on their responses and promote reasoning through the use of re-voicing responses, request for clarification and request for elaboration responses.

Note:

- High percentage of student talk
- Frequent use of verification responses via re-voicing and request for clarification
- Frequent use of request for elaboration responses

Key findings: Teacher practice

- The wide range of discursive moves each teacher uses
- The KM teachers' strong emphasis on requests for clarification, elaboration and extension of ideas
- Colin's strong use of re-voicing as he drives for closure of ideas
- Mrs H's high % of teacher talk and strong verification emphasis (similarity to Colin in these but different profile of moves)
- The consistency of the teaching moves with the philosophy expressed by the teacher – for instance
 - Colin's challenge sequences,
 - Mrs H's attention to the science concepts,
 - the KM teachers commitment to students taking the lead and not shaping their thinking overtly,
 - Bob's attention to dialogic discourse based on activity.

Journal Analysis

Research Questions

- In what ways do teachers use journals to promote student learning of science?
- What evidence of reasoning is present in the students' use of journals?
- How have the teaching approaches promoted student learning of science through the use of journals?

Journal Analysis

- Looked to understand how journals are used by students
- Data was from journals and video data
- Journals offered us insight into how they were being used in the classroom
- Particularly how this knowledge was being transferred between students and into journals

Class/School/Teacher

- Year 4 class of 20 students (14M, 6F)
- Melbourne government school with 440 students, 50% who have a language background other than English
- Nancy (a pseudonym) is a generalist classroom teacher, who was using science journals for the first time

Lessons

- 9 60-minute lessons
- Unit: Changes of State
- Hands on activities
- Opportunities for journal writing
- Discussions in small groups and whole class

Data Collection

- Video ethnography data was collected
- Journals were used by students in all lessons of an 9 lesson sequence
- Journals were collected and scanned at the end of the sequence
- Teacher Interviews

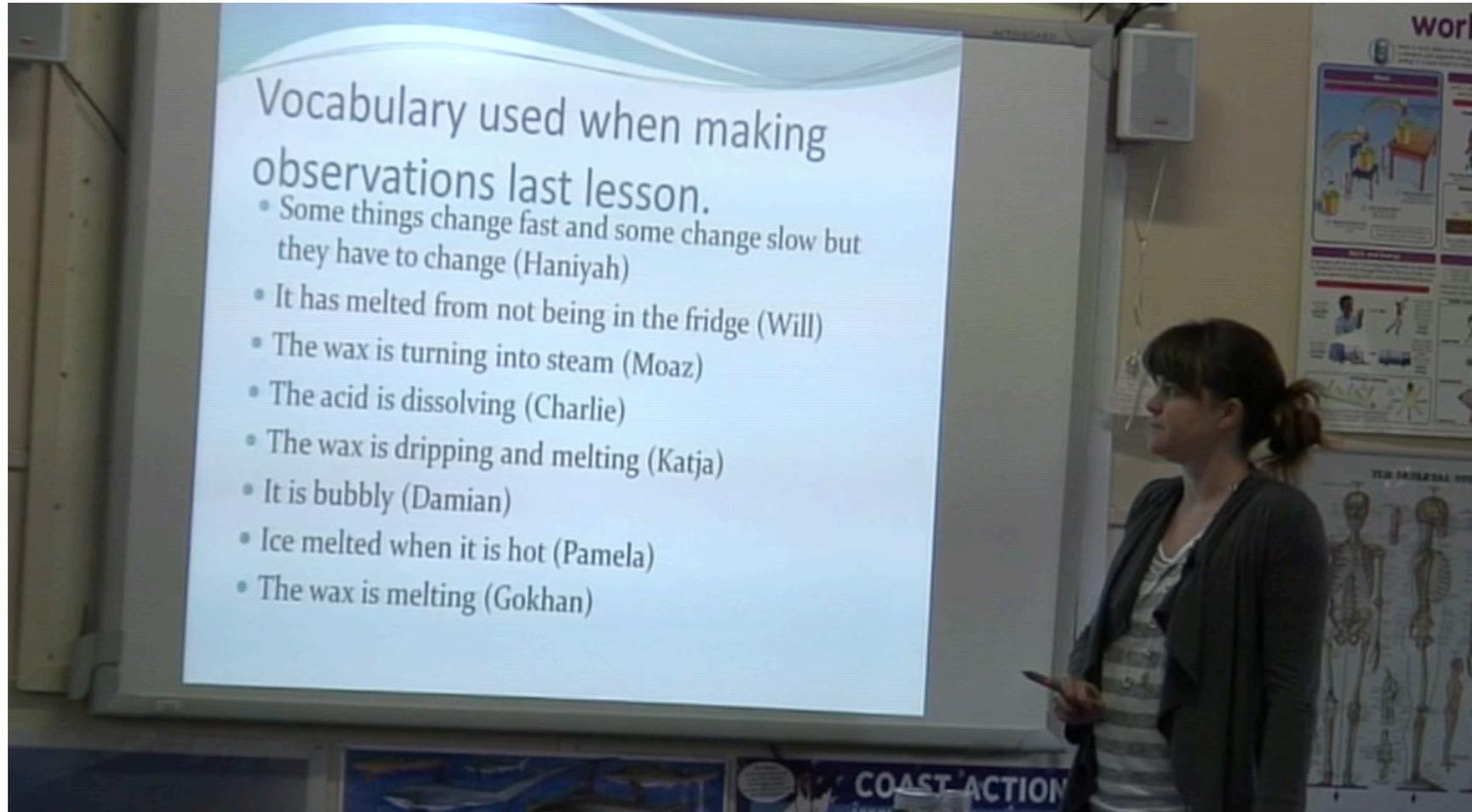
Scaffolding

- First time students had used science journals
- Sentences Starters and Closing Sentences
- Write/talk/write/talk/write
 - Small Groups
 - Inter-groups
 - Whole Class

How Journals Were Used

- Presentation of students journal work samples to the class
- Writing and discussion among peers
- Writing – using a structured scientific approach

Presentation of students journal work samples to the class



30/4/2012

hold in hands

Prediction: It will melt because hands are warm and from prior knowledge I know it will melt in good time. ✓

Reason: When holding ice in warmth the cold gets swapped with warm which means it melts. ✓

Observe: took 6 mins to get to small size. Melted quickly when transferred to hand to hand. ✓

30/4/12

Th

- Sources of heat, ^{eg} sun or heater ✓
- rub on carpet ✓
- hold in hands
- breath ✓

Prediction

- I think that the ice will melt in a hot cup of hot water

Materials

- hands
- stop watch
- cup of hot water
- three ice cubes

- but I do think the result will be hold in hands

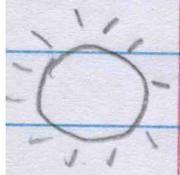
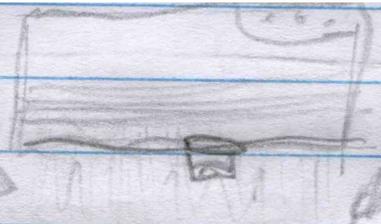
Observe:

- Hot water makes the ice block discolor
- When the ice block is held in the hand your body heat makes it melt
- When rubbing the ice block on the carpet it takes the longest

14/5/01

Plan A

hot air

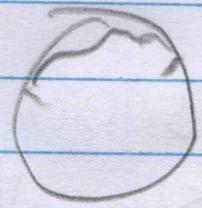
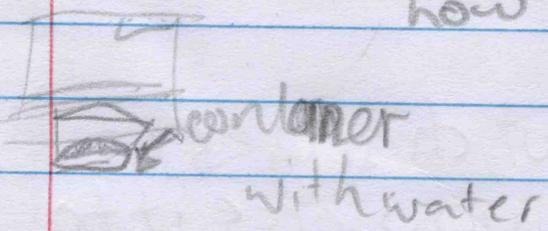


Prediction: It will evaporate quicker under organic heat (sun). Other way to do it is put it in salt or in oil though ~~that~~ it will probably get obscured.

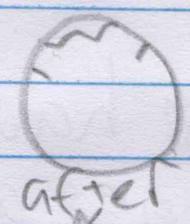


Plan B: put next to heater turned on. The hot air will evaporate the water.

how long would ~~it~~ the sun take to evaporate the water



before



after

① evaporate the water
↑
particle water

particles drying in heat

② particles with heat
③ particles after a while in heat

how does the heat affect the particles? aren't counted

14/5/12

Pot outside

I wonder how the water moved

Prediction:

~~It~~ evaporate quicker by ^{on} a flat surface
Organic heat (sun)

~~Other~~ Other ways to do it is to put it in dirt or salt, but that is pretty much Absorbed.

Plan B:

Put next to heater, (the heater will let out hot heat and slowly Evaporate) ~~(with light heat)~~

you could try get it out smaller

to see if it got smaller again.

The water moved closer to the heat from the heater, (before it was on the opposite side)



hot air

Maybe the heater

close?

was probably ...

Writing and discussion among teachers and/or peers

- The journal records was very similar to the students' dialogue from the video, indicating that students, thought, spoke and wrote the same ideas.
- This suggests that the write/talk/write sequences promotes learning through the repetition and consolidation of ideas.

Whirlybird Analysis

Whirlybird Analysis

- Case study
- Teaching an intensive sequence about whirlybirds – 11 lessons in 10 days
- Examining how teacher structured the learning using whirlybirds in conjunction with maths, english and technology sequences

Ryan Video Data

- L2 – Start
- L7 – 1:00

EQUALPRIME: Future Analyses

- Teacher Move Sequencing
 - Patterns of how teachers move between Teacher Move Categories
 - Acknowledging-Eliciting/Clarifying/Extending

Held Analyses

- Scientific Discourse
- Use of Representations

CRISP Project

CRISP

- Constructing Representations in Science Pedagogy
- Deakin, La Trobe, UTS and UoW
- How do teachers use scientific representations in the classroom?
- How are representations used in the classroom to further reasoning?
 - Videos
 - Animations
 - Construction

SC Video

- 10:25
- 31:10

Plans

- Less video
- Nature of the project is to look at data more qualitatively
- Trying to analyse video in conjunction with project books
- Trying to resolve the activity within the video, to see if it could be mapped on to Solo's Taxonomy

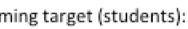
SLRC

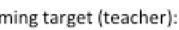
Research Project: Social Unit of Learning
Q417 Room and Equipment Set Up for 9 June 2015 V2(Updated on 5 June 2015)

Key:

Cameras (x 10): 

Radio mics (x14): 

Filming target (students): 

Filming target (teacher): 

Students (x25): 

Teacher: 

Researchers:  

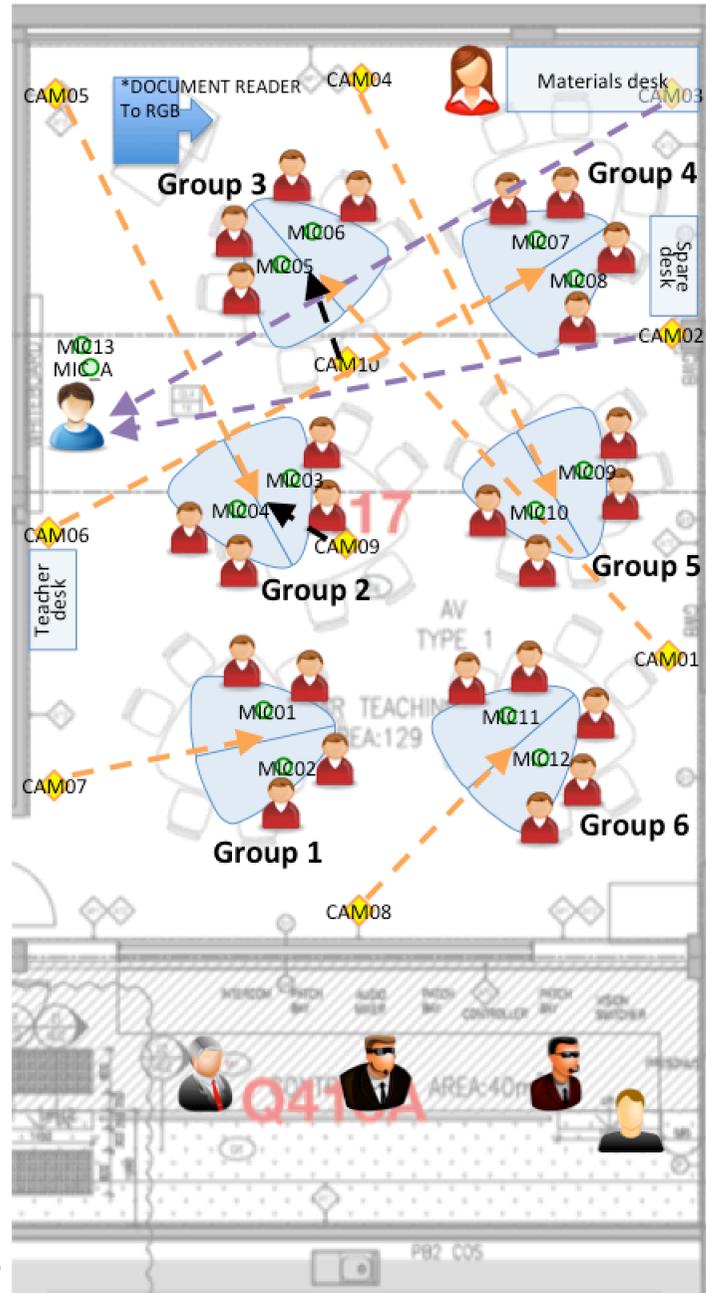
NOTE:

*DOCUMENT READER
To RGB 

Furniture setup:
 6 large tables (one per group)
 Groups 1-6 on fixed chairs (green/light green)
 1 table for materials for the researcher
 1 table for materials for the teacher

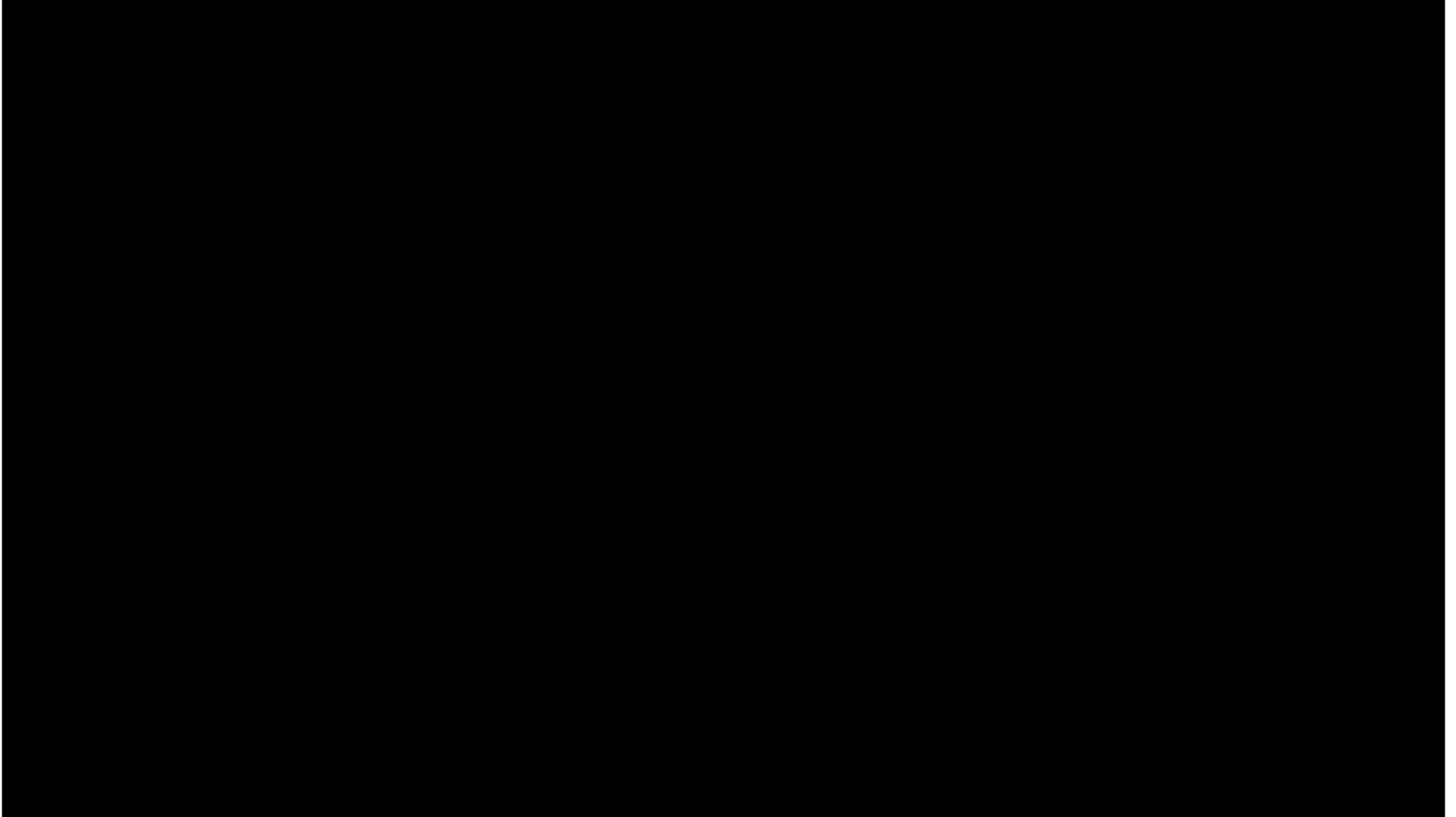
Available furniture:
 6 large tables (12 halves)
 16 green chairs
 2 black chairs
 (9 light green chairs from ICCR)
 18 swivel chairs (moved to Q419)

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 SU01s-room_setup-tentative.ppt



Using Video for Teaching

Using Videos for Teaching



Using Videos for Teaching

- http://air.deakin.edu.au/public/media/Supporting+Students+Investigations/0_f1indvmc
- 2:00