

Posters and Presenting



On a scale of 1 (low) – 10 (high) how confident do you feel about creating and presenting a research poster?

1. Low
2. .
3. .
4. .
5. .
6. .
7. .
8. .
9. .
10. High

In this session...

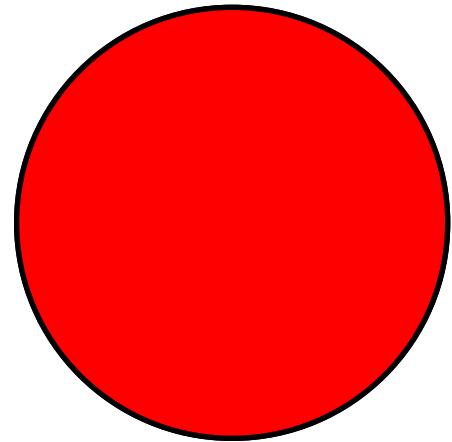
- Planning for a poster presentation
- Modes of communication
- Evaluating posters
- What makes an effective poster?
- Presenting your poster

20-Second Summary

Can you ‘sell’ your research project in 20 seconds?

- Have a go at writing 1-2 sentences to summarise your project

3 minutes



Planning for a poster presentation



First steps...

- Know your **audience**
- Identify your **message**

First steps...

Know your audience

- Who will you be presenting your dissertation poster to?
- What are the specific challenges of communicating your research to this audience?
 - Familiar with your project?
 - Specialist knowledge?
 - Accessible to non-specialists?
 - Use of jargon/technical terminology?

First steps...

Identify your message

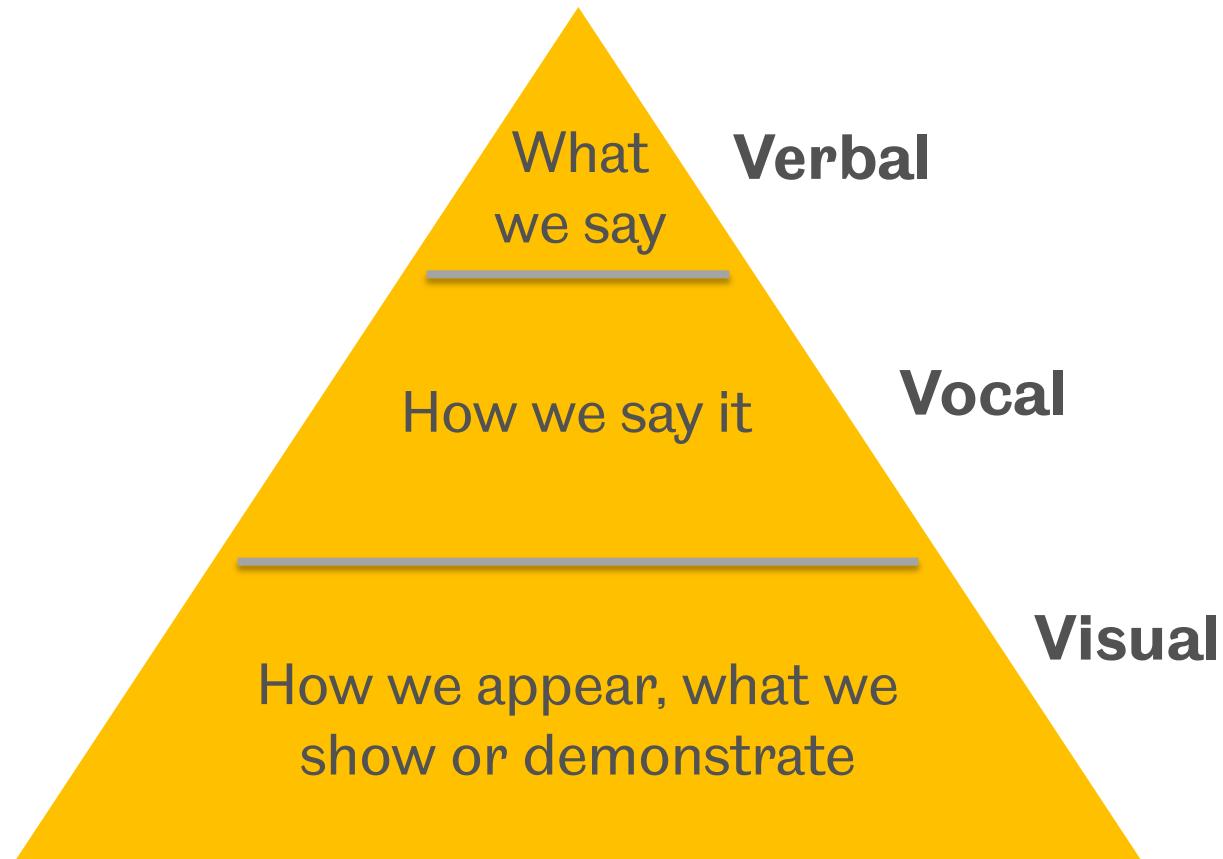
- Write an abstract using no more than 100 words...
 - Why is your work important?
 - Describe the objectives of your work
 - Succinctly state findings and conclusions
- ...But **don't** include an abstract in your poster.

**Your poster is a visual representation of
your abstract**

Modes of communication



Modes of Communication



Visual Stimuli

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- **Dual Coding Theory** argues that our brains process verbal and visual imagery independently.
- By representing information both verbally and visually we can increase its impact.
- Cognition draws on the interplay between verbal and non-verbal systems

Visual Stimuli

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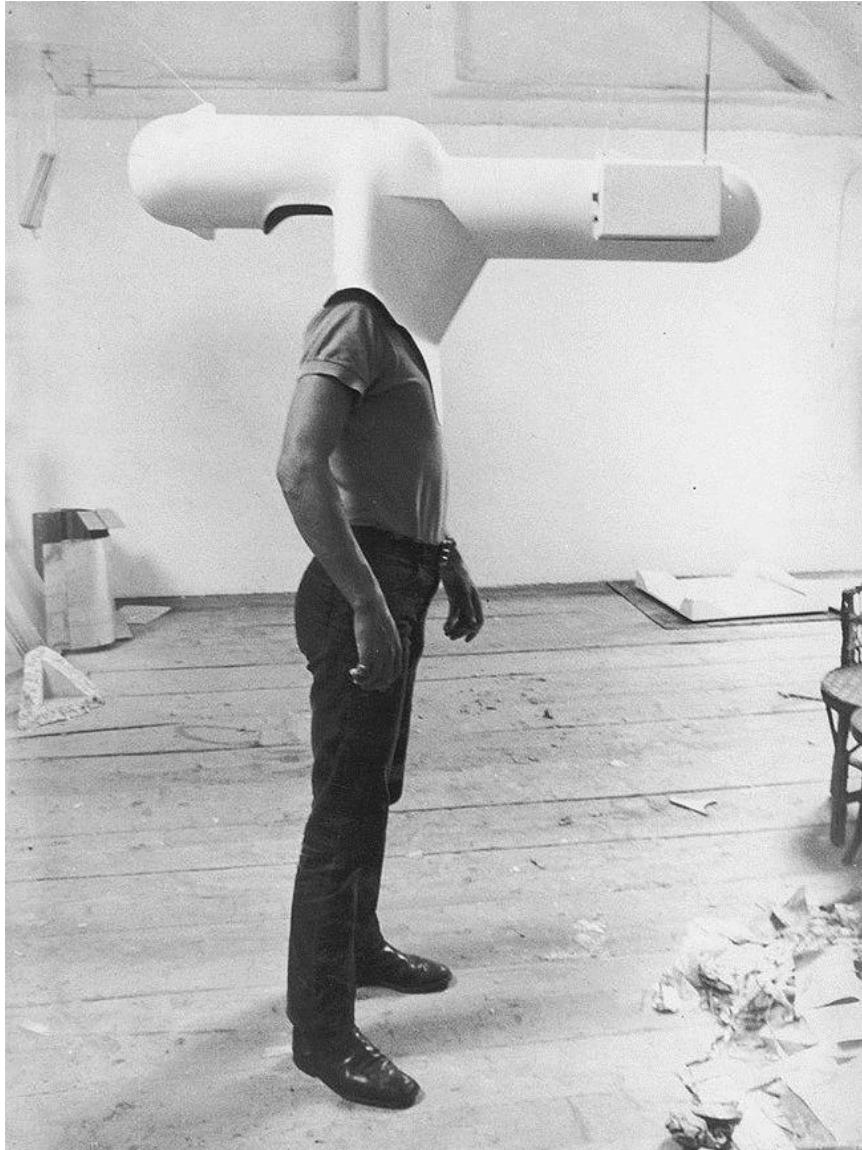
Use images wisely to support the verbal and vocal impact of your communication.

- **Whole group activity (clickers):** have a look at the following slides and suggest whether you think they have an effective impact.

SHARPEN
YOUR SKILLS
DEVELOP
YOUR MIND

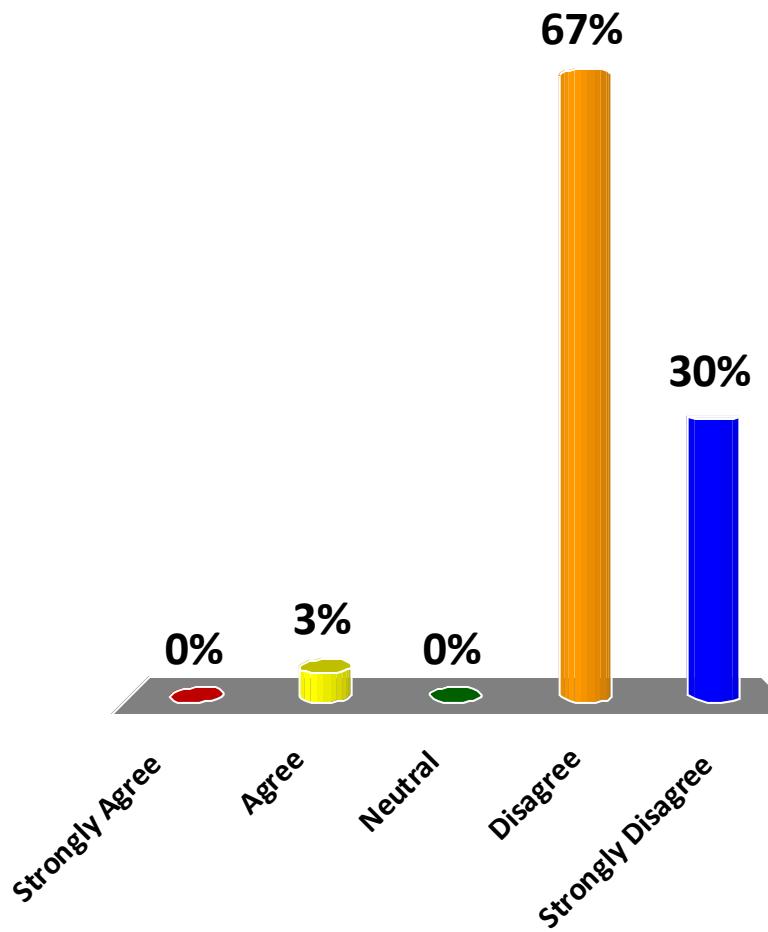
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This slide is easy to understand

- A. Strongly Agree
- B. Agree
- C. Neutral
- D. Disagree
- E. Strongly Disagree

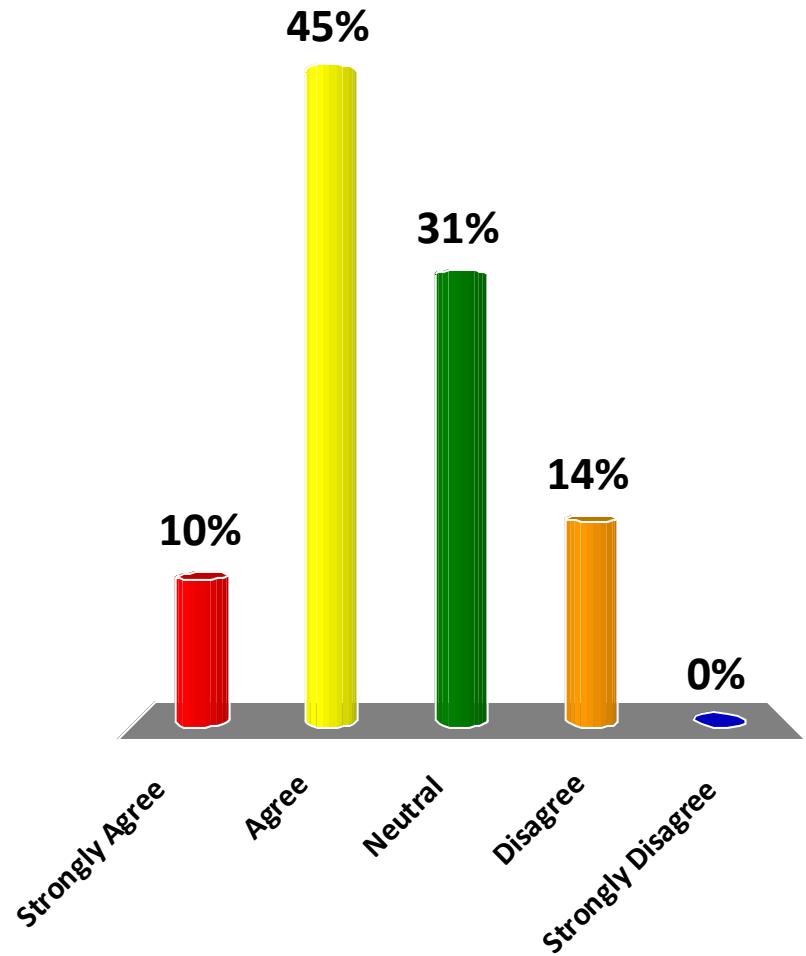


Wearable technology

- Portable viewing devices have been around for a long time.
- In 1967 a portable, head-mounted television was invented by the artist Walter Pichler.
- Pichler's device, part of a series called 'Prototypes' explored the relationship between art, sculpture and technology.
- This invention can be seen as a precursor to Google Glass.
- Google Glass displays information in a smart-phone like hands-free format and became available to the public in 2014.

This slide is easy to understand

- A. Strongly Agree
- B. Agree
- C. Neutral
- D. Disagree
- E. Strongly Disagree



Wearable technology

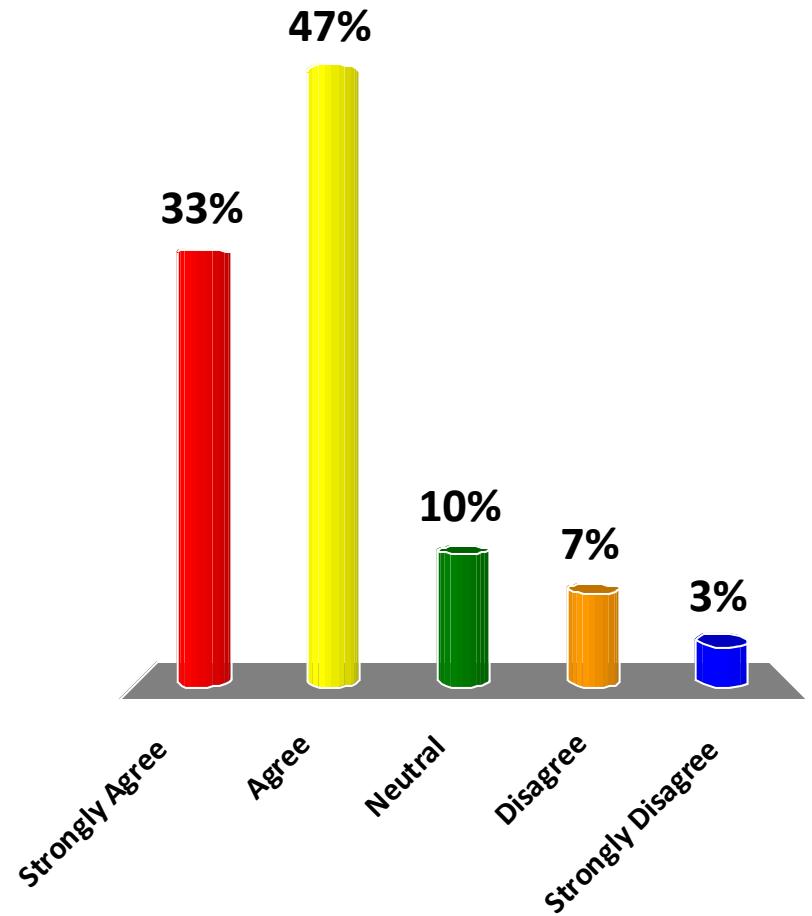
Portable viewing devices have been around for a long time

- In 1967 a portable, head-mounted television was invented by the artist Walter Pichler.
- Google Glass displays information in a smart-phone like hands-free format and became available to the public in 2014.

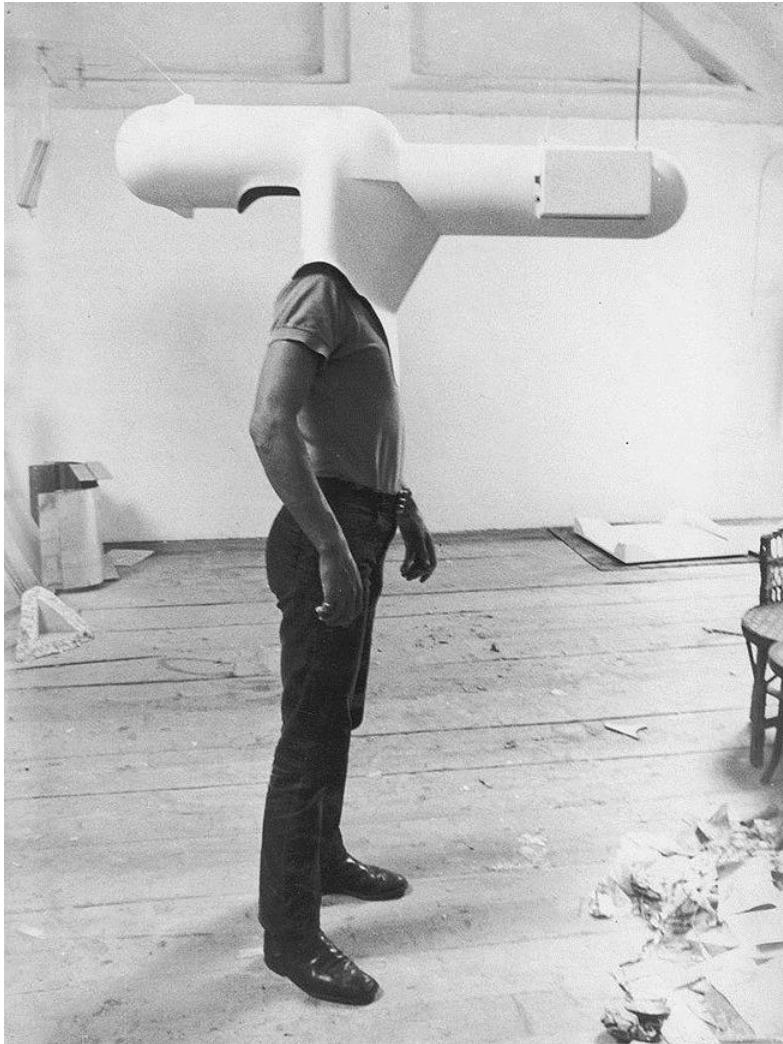


This slide is easy to understand

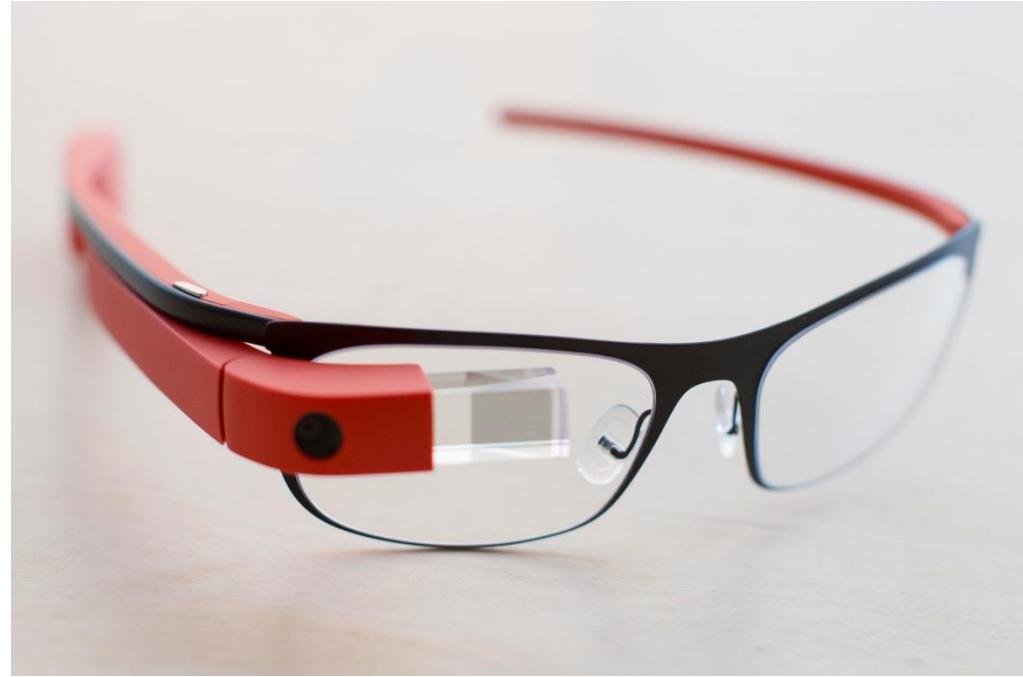
- A. Strongly Agree
- B. Agree
- C. Neutral
- D. Disagree
- E. Strongly Disagree



Wearable technology



Walter Pichler, *Portable Living Room*, 1967



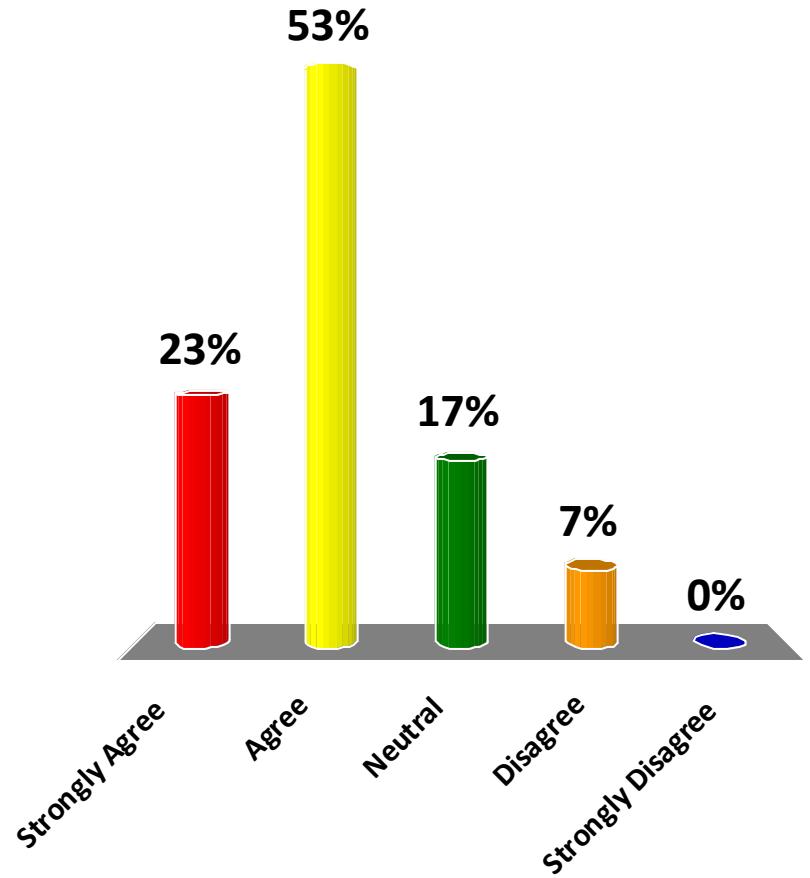
Google Glass, available to consumers 2014

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This slide is easy to understand

- A. Strongly Agree
- B. Agree
- C. Neutral
- D. Disagree
- E. Strongly Disagree



Poster Content



Poster Content

Key sections will likely include:

- Background/significance
- Aims of the study
- Research methods
- Results
- Discussion/implications
- References
- Contact details

Poster Design



Evaluating posters

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In pairs: what makes a scientific poster effective?

- Working in pairs, discuss the example posters.
- Pass on to the next group.
- Add crosses to your 'Poster Bingo', shout out when you complete a whole row or column!

Poster Bingo

Different parts of poster don't line up	Boxed within boxes	Small text	More than five typefaces	Long-winded
Gradient fills in coloured boxes	Big blocks of text	Photographic background	Unlabelled error bars on graphs	Pixelated pictures
More than five colours	Institutional logos bookending title	Free space	ALL CAPITALS	Text with shadows, outlines, or bevels
Abstract	<u>Underlined</u> text	Comic Sans	3-D graphs	Checking tablet or phone during presentation
Tables showing data that could be in a graph	Poster does not fit on poster board	Comic Sans (it's that annoying)	Objects almost touching or overlapping	Tiny, unreadable type

By Zen Faulkes, betterposters.blogspot.com
Inspired by: <http://www.monicametzler.com/bad-presentation-bingo/>

Project Overview

The SURE Manor Lodge Project concerned the well known Tudor Hunting Lodge on the outskirts of Sheffield, but looked at a different chapter of its past, as home to a nineteenth century mining community. My part in the project was to do literary research into texts and forms of entertainment that were available to the working-class people living in this small mining community. The texts ranged from anti-slavery novels like Uncle Tom's Cabin, temperance novels like Dombesbury House, all the way through to lantern slide shows and working-class autobiographies.

This SURE project was formulated in order to provide information for a theatre company so that they could perform a short play narrating the lives of these people during the Sheffield 'Festival of the Mind'.



Anti-Slavery Novels

An artefact found on the Manor Lodge site was a fragment of a decorative plate, depicting a scene from the best-selling anti-slavery novel of the nineteenth century, Uncle Tom's Cabin. The particular scene depicted on the plate was of the trials and tribulations of two slaves in nineteenth century Southern America. One, Uncle Tom, who is knowingly sold in 'down river' to meet a brutal and untimely death. The other, Eliza, who has escaped with her child in order to save her baby from being taken away from her and sold. Miss Ophelia begrudgingly, a conservative Protestant from the North takes Topsy, a wild slave girl, wing to wing to tame her, narrow-mindedly believing that her nature and background make her irreconcilable. The relationship between them blossoms and we see Miss Ophelia warming to the child and treating her own whilst Topsy tames her ways and starts to respect and love her new mistress. Much like the Temperance novels, this relationship between adult and child is fundamental in preaching morality. The novel was the second best-selling book of the nineteenth century in Britain, the anti-slavery law had just been passed before the publication of the book.



Plate fragment. Image courtesy of Professor D. Hadley, University of Sheffield.

Dual High Power Motor Controller

SURE 2013

By Miroslav Dobrev

supervisor: Dr J...

Introduction

The aim of the project was to design a controller for high-power DC motors integrated in two axis antenna positioning system. A desktop application was created that allows user friendly control of the system from a laptop by USB. The system could achieve flexible and accurate control with different modes of operation.

Modules Description

The controller consists of microcontroller module, drivers module and a separate power module for each axis.

The microcontroller used is PIC18F4550. It receives positional information for the motors from rotary encoders. PWM signal is generated for the speed control. The desired position is achieved by PID algorithm.

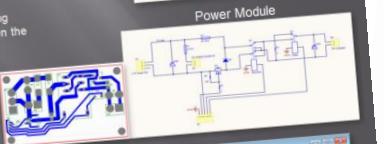
The drivers module consists of relay and transistor drivers that provide current for driving the power modules. It acts as a buffer between the MCU and power module components.

The power modules provide the PWM switching and power the motors. They also have direction relays and brake relays.

Desktop Application

The desktop application was created using Microsoft Visual Studio in C#. It sends control signals to the MCU by USB and receives information about the current position and velocity of the positioner. It also indicates the current status of the controller.

There are 3 modes of operation – position finding, rotating with a constant velocity and stepping mode. The stepping mode allows running through a sequence of predefined steps. The user can control the maximum speed of the controller and a position offset can be set to correct static position errors. Limit safety switches installed in the positioner prevent over rotation.



FINITE ELEMENT ANALYSIS SOFTWARE - ABAQUS

TIMBER SLAB
STEEL BEAMS & COLUMNS

2ND FLOOR
1ST FLOOR

DEFORMATION 1:1000

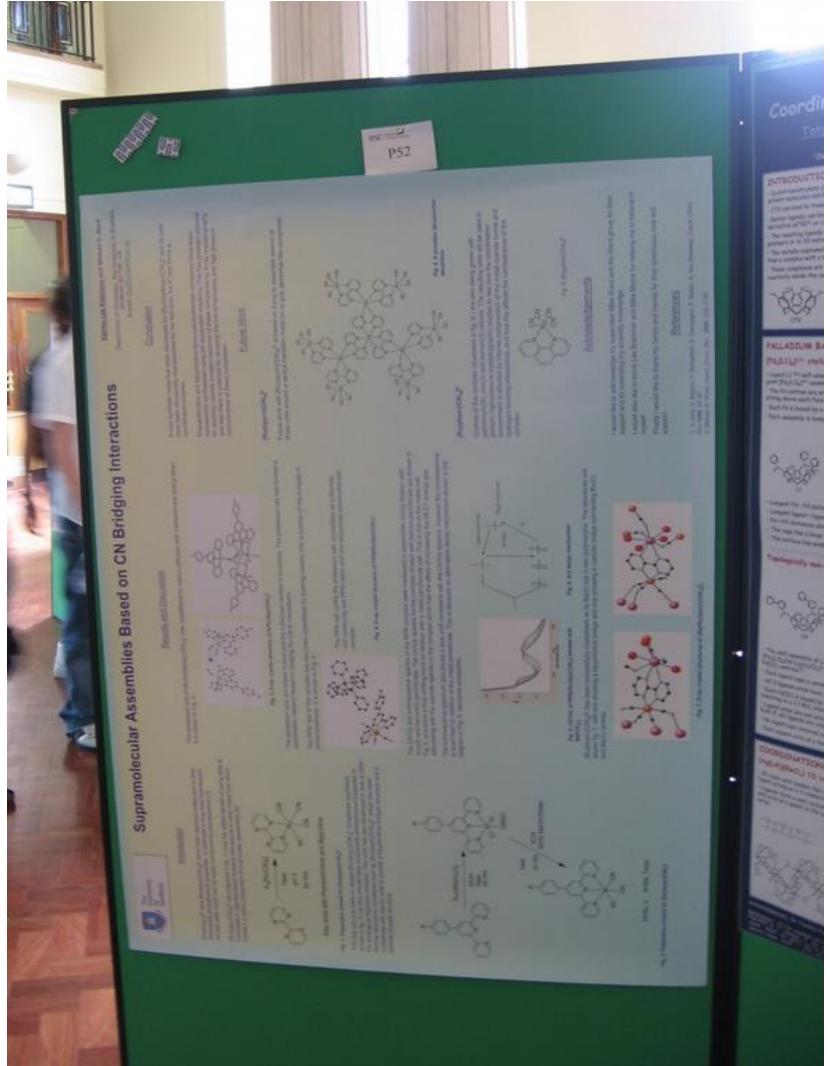
GLOBAL MESH SIZE 80

Check requirements!

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- What size?
- What format (PPT, PDF, hard copy)?
- Landscape/portrait/ optional?
- Hanging position/method
- Can you use additional resources (handouts/ business cards?)
- Refer to past examples



Clear narrative

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Modelling with Realistic Materials

James Littlewood and Paul Shepley

Email: jclittlewood1@sheffield.ac.uk

Department of Civil and Structural Engineering



The
University
Of
Sheffield.



What's the Issue?

Geotechnical modelling aims to replicate real scenarios found in reality, understand them and use the models to predict soil's response. Types of modelling include full-scale, small-scale or centrifuge modeling, which is the focus here. Given the aim to simulate realistic events it's surprising to find almost all centrifuge tests are done using a single homogenous clay called kaolin or white china clay.



Can kaolin (left) really represent a real clay deposit (right)?

Does It Matter?

Analytical methods can accurately predict a soil's resistance to failure, but only if assumptions are made on the failure mechanism. A simple slope, like the one shown, is well understood but also demonstrates the assumed mechanism necessary.

Problems in the real world are often more complex, and it becomes harder to be confident of what will happen. This is where modeling becomes especially useful. But only if this idealised kaolin used in the models behaves the same as a real deposit.

If kaolin behaves differently to real deposits it would undermine assumptions made in calculations.

What Is A Centrifuge?

A centrifuge is a device that rotates a payload in a figure-eight path at extremely high speeds. The rotation creates the effective gravity on the model. Though speeds vary they can get above 50 m/s and accelerate payloads up to at least 10g, or a 100 times Earth's gravity.

(taken from Black 2014)

Why Use One?

If an 80 mm sided-cube of clay is accelerated to 50 g, it can model a 4 m cube of clay. The primary advantage of centrifuge modelling is the ability to induce the same forces as experienced in a full-scale event. The induced gravity essentially acts as a scaling factor for the model size.

The Testing Procedure

For testing, the clay samples were inserted into payload boxes and the effective gravity steadily increased until failure.

The Material Mixes

Three material mixes were used to vary the material properties. The three clay mixes were 100% kaolin, 80:20 kaolin-bentonite mix and 80:20 kaolin-fine sand mix. These slight changes had a large effect on material properties!

Due to the relative absorption of the different materials used, the solid clay samples could exist with widely different water content (water percentage of the total mass). As bentonite particles are 100 times smaller than kaolin, the bentonite mix could hold much more water. Using sand had the opposite effect. This changed both the material strength and the observed failure surfaces after testing.

With a 20% bentonite mix, the possible water content increased from 60% to 250%

How Did The Clay Fail?

Clay models were tested in the centrifuge. Gravity failure levels were recorded for further analysis but each test the circular slip plane (above) could be identified and compared with the numerical simulations (left). The variations in angle of the slope and the mass of the failed clay was expected due to slope angle and specimen height.

Variations existed in the volume of failed mass but the same mechanisms were produced

What does this mean?

Testing repeatedly generated the traditional circular slip planes that analytical solutions rely on. It suggests the singular use of kaolin as a testing material does not fundamentally undermine the use of centrifuge models to predict real world events.

However, the rate at which the failures occurred remains a cause for concern.

The bentonite mix produced a steeper failure surface (called a slickenslide) than the sand mix (below), indicating a potentially more sudden and catastrophic reduction in shear strength during collapse that needs further investigation.



The bentonite mix (left) shows a steeper surface compared to the sand mix (right)

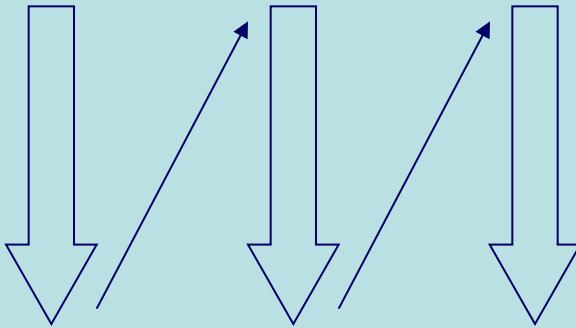
The Next Step?

The logical next step would be to increase the realism of the tested clay. In this case, bentonite was used for its availability, cost and easily measurable properties, but again only lab-grade materials have been used to test the suitability of standard laboratory kaolin. Ideally a real deposit would be tested, despite the inherent sampling issues.

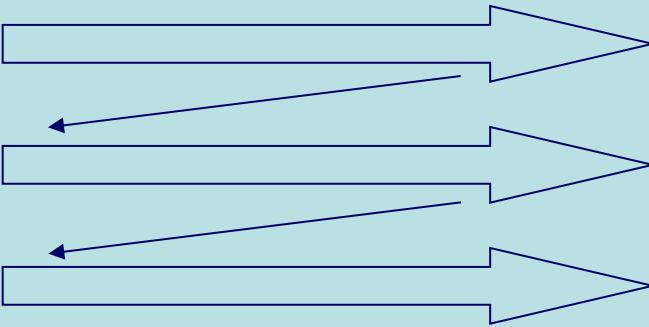
References

Black, J.A., 2014. Development of a small scale teaching centrifuge. In *Physical Modelling in Geotechnics*. pp. 187-192.

Title



Title



Clear narrative

Modelling with Realistic Materials

James Littlewood and Paul Shepley
Email: jclittlewood1@sheffield.ac.uk
Department of Civil and Structural Engineering

What's the Issue?

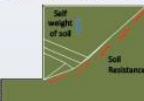
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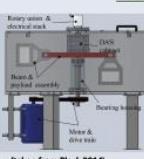
Analytical methods can accurately predict a soil's resistance to failure, but only if assumptions are made about the failure mechanism. A simple slope, like the one shown, is well understood but also demonstrates the assumed mechanism necessary.



If kaolin behaves differently to real deposits it would undermine assumptions made in calculations.

What is a Centrifuge?

A centrifuge is a machine used to separate a liquid from its solid particles by rotating a container around an axis. Gravity is increased by the rotation of the container. A centrifuge is used to test soil samples under simulated conditions.



(taken from Black 2014)

Why Use One?

If an 80 mm sided-cube of clay is accelerated to 50 g, it can model a 4 m cube of clay at 1 g.

The primary advantage of centrifuge modelling is the ability to induce the same forces as experienced in a full-scale event. The induced gravity essentially acts as a scaling factor for the model size.

The Testing Procedure

For testing, the clay samples were inserted into payload boxes and the effective gravity steadily increased until failure.

The Material Mixes

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How Did The Clay Fail?



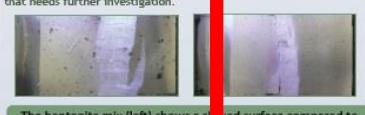
Two models were tested in the centrifuge. Gravity failure levels were recorded for further analysis but each test the circular slip plane (above) could be identified and compared with the numerical simulations (left). The variations in angle of the slope and the mass of the failed clay was expected due to slope angle and specimen height.

Variations existed in the volume of failed mass but the same mechanisms were produced

What does this mean?

Testing repeatedly generated the traditional circular slip planes that analytical solutions rely on. It suggests the singular use of kaolin as a testing material does not fundamentally undermine the use of centrifuge models to predict real world events.

However, the rate at which the failure occurred remains a cause for concern. The bentonite mix produced a steeper failure surface (called a slickenslide) than the sand mix (below), indicating a potentially more sudden and catastrophic reduction in shear strength during collapse that needs further investigation.



The bentonite mix (left) shows a steeper surface compared to the sand mix (right).

The New Story

The logical next step would be to increase the realism of the tested clay. In this case, bentonite was used for its availability, cost and easily measurable properties, but again only lab-grade materials have been used to test the suitability of standard laboratory kaolin. Ideally a real deposit would be tested, despite the inherent sampling issues.

References

Black, J.A., 2014. Development of a small scale teaching centrifuge. In *Physical Modelling in Geotechnics*. pp. 187-192.

- Adhere to principle of 'reader gravity'
- Guide the viewer through your narrative
- Reiterate message in title, main heading and use of graphics

Keep it concise

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- Convey your message both textually and visually
- Use **as little text as possible** to set out your narrative (300-800 words)
- Needs to be readable from 2-3m distance!
- Bullets, numbering and headlines make it easier to follow
- Use the A4 test

Remember: Less is more!

Make it visual

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- Images help to break up the text and draw the viewer in
- ALL images should be relevant to the argument.
Strictly **NO CLIPART**
- Graphs/graphical representations of data are easier to understand/interpret than tables

Make it visual

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Sure Scheme 2013 Information Management Poster: Analysing User Log Queries

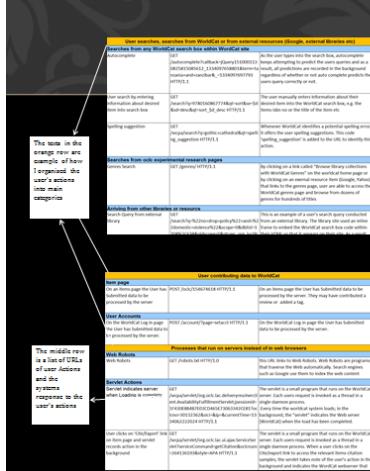


Figure 1.0 Classification of individual search requests

INDIVIDUAL ACTIONS - ANALYSIS	
Main Category	User actions, analysis from WorldCat or from external resources (Google, external libraries etc.)
Sub Category	Number of Actions
Searches from any WorldCat search box	3
Logins to WorldCat site	1
Searches from external experimental search pages	1
Arriving from other libraries or resources	0
Profile search	1
Not found page	1
Total	14
Main Category	User clicking on links, accounts, etc. within the WorldCat page
Sub Category	Number of Actions
Arriving from other libraries or resources	5
Profile search	1
List of search results	1
Item page	2
Total	9
Main Category	User contributing data to WorldCat
Sub Category	Number of Actions
Item page	1
User Accounts	1
Total	2
Main Category	Processes that run on servers instead of in web browsers
Sub Category	Number of Actions
Web Robots	1
Servlet Actions	8
Total	9
Overall Total of Actions	
	36

Figure 3.0
User Log sessions

Figure 1.0 Classification of individual search requests

INDIVIDUAL ACTIONS ANALYSIS	
Main Category	User searches, searches from WorldCat or from external resources (Google, external library etc.)
Sub Category	Number of Actions
Searches from any WorldCat search box or external search box	3
Searches from experimental research pages	1
Arriving from other libraries or resources	0
Total	4
Main Category	User clicking on links, accounts, etc. within the WorldCat page
Sub Category	Number of Actions
Arriving from other libraries or resources	0
Profile search	1
User search results	1
Item page	2
Total	4
Main Category	User contributing data to WorldCat
Sub Category	Number of Actions
Web Robots	1
Search Actions	1
Total	2
Total	Overall Total of Actions
	28

The table in the search results example of how I organized the user sessions into main categories

The rule in the search results example of how I organized the user sessions into main categories

The rule in the blue boxes example of how I organized the user sessions into main categories

Figure 3.0 User Log sessions

User sessions, searches from WorldCat or from external resources (Google, external library etc.)	
Sub Category	Number of Actions
Searches from any WorldCat search box or external search box	3
Searches from experimental research pages	1
Arriving from other libraries or resources	0
Total	4
Main Category	User clicking on links, accounts, etc. within the WorldCat page
Sub Category	Number of Actions
Arriving from other libraries or resources	0
Profile search	1
User search results	1
Item page	2
Total	4
Main Category	User contributing data to WorldCat
Sub Category	Number of Actions
Web Robots	1
Search Actions	1
Total	2
Total	Overall Total of Actions
	28

Figure 5.0 Analysis of Samples of sessions

Type of Actions	Number of Actions
Find a library list generated	15
Buy it link generated	6
Reviews link generated	2
Users arriving from an external web page or resource	18
Users arriving at items page from WorldCat	1
Users manually entering item info into the search box	1

Figure 6.0 Analysis of user actions in a sample of sessions

- Figure 4.0 Sessions analysis

Make it visual

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- Images help to break up the text and draw the viewer in
- ALL images should be relevant to the argument.
Strictly **NO CLIPART**
- Graphs/graphical representations of data are easier to understand/interpret than tables
- Clearly label all images and relate them to the relevant text
- Don't overdo it!

Make it visual

SURE 2014-2015 The University Of Sheffield.

INNOVATIVE LIGHT- WEIGHT BUILDINGS (COLD-FORMED STEEL + CROSS- LAMINATED TIMBER FLOORING SYSTEM)

GREENER, CHEAPER AND FASTER TO BUILD, BUT HOW ABOUT FIRE?

1 SUMMARY
Cold-formed steel (CFS) & cross-laminated timber (CLT) flooring systems is a new construction system idea and is potentially a sustainable solution due to its material properties and convenience in construction.

2 BENEFIT OF THIS FLOORING SYSTEM

Cold-formed steel (CFS)	Cross-laminated timber (CLT)
1. High strength : weight ratio	1. Greenest building product
2. Convenience in shaping, transporting & assembling	2. Manufacturing wood is energy efficient
3. Conventional jointing method can be employed (Kumar, 2010).	3. Meet engineering design needs → stable

3 RESEARCH GAP & PROBLEMS

- Limitations on CFS and CLT design standards (especially for fire design)
- Charring of timber under fire
- Buckling problems in cold formed steel

Column	Slenderness Ratio	Buckling Mode
Long	>200	Local
Short	<=50	Global

Main failure mode

4 RESEARCH OBJECTIVE

- Set up an ABAQUS model comprised of beams and columns are made up of cold-formed steel C-section
- Columns are designed to be short so global buckling occurs
- Cross-laminated timber slab

In order to:

- Explore the behavior of the system in ambient temperature condition and under fire

5 RESEARCH METHODOLOGY

Research on mechanical properties of cold-formed steel and glulam

Set up model with interaction, loadings and boundary conditions

Carry out Mesh Sensitivity Test

Test the model at ambient temperature

Test the model at fire conditions

6 FINITE ELEMENT ANALYSIS SOFTWARE- ABAQUS

TIMBER SLAB, STEEL BEAMS & COLUMNS

2ND FLOOR, 1ST FLOOR

7 INTERACTION, LOADING & BOUNDARY CONDITION

Interaction: Members are connected by the function 'tie' → Connect members' surface

REFERENCE POINT: Loading: Uniformly distributed

Location	Boundary Conditions
Base of first floor columns	Pinned
Top of second floor columns	Roller Pinned

8 MODELLING RESULTS

9 CONCLUSION & FUTURE WORK

1. Apply elevated temperatures to investigate the problem
2. Derive appropriate models to give a certain amount of safety
3. Improve model to predict stresses, initial geometric buckling, (Haidar et al., 2010)

ACKNOWLEDGEMENTS

REFERENCE: Kumar, Haldar, 2010

Develop advanced data analysis techniques for sediment transport experiments

Student Researcher: Austin LEE Supervised by: Henritte JENSEN & Simon TAIT & Martina CECCHETTO Department of Civil and Structural Engineering & Department of Chemical and Biological Engineering

1) Introduction

- In rivers systems, a layer of solids/sediments often forms on the bottom of channels. Pollutants in these systems are usually bound to organic matters and sediments are moved by flowing water.
- Knowledge of sediment transport is most often used to determine whether erosion or deposition will occur, the magnitude of this erosion or deposition, and the time and distance over which it will occur.

2) Objective

- To develop algorithms for analyzing the data for sediment transport in annular flume.
- Circular form of annular flume means that flow and sediments can be circulated indefinitely and hence modelling the "long" lengths in natural systems. Controlled experiments are done by researchers to understand the sediment transport characteristics.

3) Methodology

- Index of Refraction (IOR): When glass spheres are submerged in fluid with higher IOR, the glass spheres can become invisible.

Glass Sphere Randomly selected to represent the whole population

4) Computer Work (MATLAB)

Import Image Into MATLAB → Remove Distortion → Remove Background → Obtain Results! → Apply Function → Show Sphere Only

Field n Value Min Max

Area	4276	4276	4276
Centroid	[48.300748.6389]	48.3007	48.6389
BoundingBox	[12.550043.500075... 12.550043.500075...]	12.5500	43.500075...

Image of Annular Flume

5) Discussion

- However, when the sediments are overlapped, MATLAB treats it as single sediment!

Note: A=Area, P=Parameter
In single sphere, the A/P ratio can be calculated easily.
$$A = \pi D^2 \quad (1)$$

$$P = Dn \quad (2)$$

$$(1) / (2): \frac{A}{P} = \frac{\pi D^2}{Dn} = \frac{\pi D}{n} \quad (3)$$

If spheres are overlapped, the A/P ratio is also changed correspondingly. In the future, the code needs to be amended to favor the following cases.

Case 1:
Case 2:
For example:
How the ratio A/P gives information of the overlap degree and how can this reveal the position of the actual two spheres centroids?

6) Conclusion

- The good results of this code would enable track tracers in lab flume from image acquisition of the bed.

7) Future Development

- Take images from plan view and side view, by matching each sediment to form a three-dimensional coordinate system.
- Need to determine a suitable capture rate of image to track each sediment.

Geometrical properties of glass spheres are calculated by the code.

- Don't overdo it!

Design principles

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- Sketch out (on paper) an overall design principle before you begin
- Be careful with backgrounds. Solid colours (preferably pale with dark text) are usually more effective than gradations or images

Design principles



The University Of Sheffield.



Bedbugs and Bacteria

Identifying the way in which Wolbachia bacteria provision Bedbug ejaculate

Student Researcher: James Whitehead

Supervisor: Dr Louise Heaton

Department of Animal and Plant Sciences

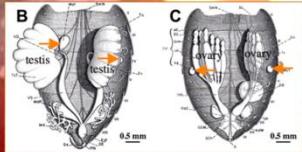


Figure 1. The locations of the bacteriomes denoted by orange arrows in (B) male and (C) female bedbugs [1].

1. Introduction

Bedbugs (*Cimex lectularius*) are infected with symbiotic bacteria, *Wolbachia*, which are housed in specialised organs called bacteriomes (Figure 1). The *Wolbachia* provide B vitamins necessary for normal growth and development, and egg production [1]. The presentation of *Wolbachia* in male bedbugs is unusual as the bacteriomes are closely associated with the testes rather than the gut. This means that their purpose is unclear but it was hypothesised that *Wolbachia* may provision the ejaculate of the male as a nuptial gift to the female.

2. Methods

Males were either fed blood supplemented with the antibiotic tetracycline to remove *Wolbachia* (Wb- males) or blood only (Wb+ males). The testes and malpighian tubules of these males were then removed. Sets of males from both treatments were mated with females, the spermaleges' (organs for collecting ejaculate) of the females were then removed. The relative levels of B vitamins in all of the organs removed was measured using electro-spray mass spectrometry. Solutions without any organs in and spermaleges from virgin females were also run as controls.

3. Results

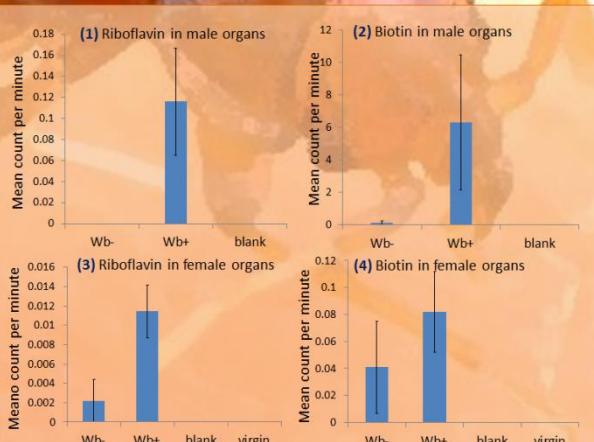
The B vitamins Biotin and Riboflavin were detected at higher levels in the testes of Wb+ males than Wb- males and also in the spermaleges of females mated with Wb+ males rather than mated with Wb- males or virgin.

4. Conclusions

Wolbachia may provision the ejaculate with B vitamins that are/maybe transferred to the female during mating. These additional B vitamins may benefit the female by reducing the survival costs associated with mating [2].



Figure 2. The Common Bedbug, *Cimex lectularius*



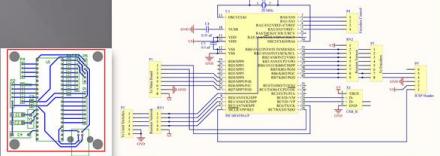
Graphs 1-4. (1) Relative amounts of Riboflavin in the reproductive tracts of Wb- males (n=4), Wb+ males (n=5) and a blank control (n=5)(p=0.084)(2) Relative amounts of Biotin in the reproductive tracts of Wb- males (n=4), Wb+ males (n=5) and a blank control (n=5)(p<0.003)(3) Relative amounts of Riboflavin in the spermaleges of females mated with Wb- males (n=5), Wb+ males (n=6), blank controls (n=2) and the spermaleges of virgin females (n=5)(p=0.03)(4) Relative amounts of Biotin in the spermaleges of females mated with Wb- males (n=5), Wb+ males (n=6), blank controls (n=2) and the spermaleges of virgin females (n=5)(p=0.393)

Dual High Power Motor Controller SURE 2013

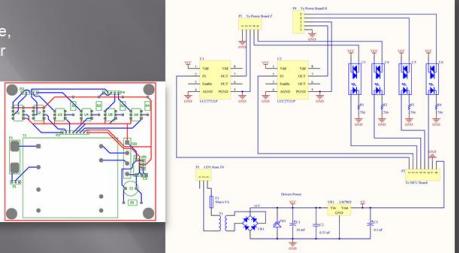
By Miroslav Dobrev

supervisor: Dr Jonathan Rigelsford

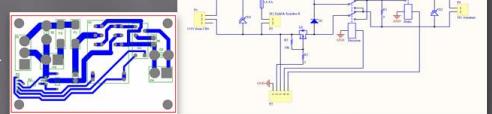
MCU Module



Drivers Module



Power Module



Desktop Application

The desktop application was created using Microsoft Visual Studio in C#. It sends control signals to the MCU by USB and receives information about the current position and velocity of the positioner. It also indicates the current status of the controller.

There are 3 modes of operation – find position, rotating with a constant velocity and stepping mode. The stepping mode allows running through a sequence of predefined steps.

The user can control the maximum speed of the controller and a position offset can be set to correct static position errors. Limit safety switches installed in the positioner prevent over rotation.

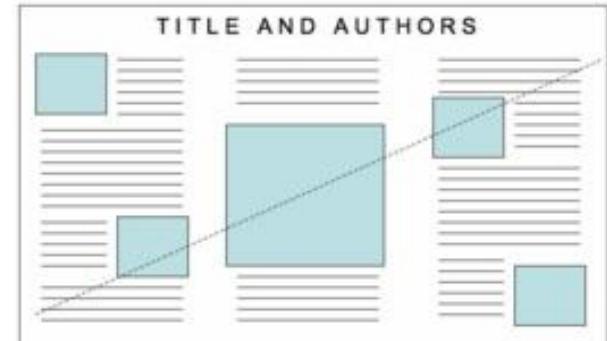
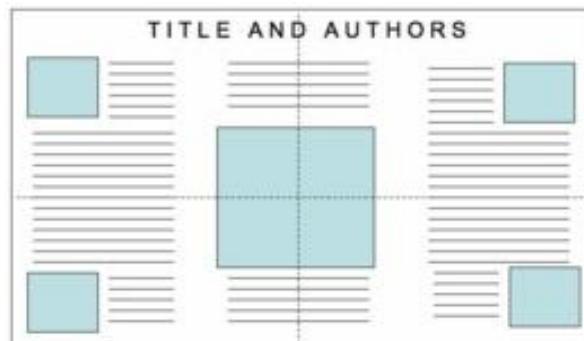
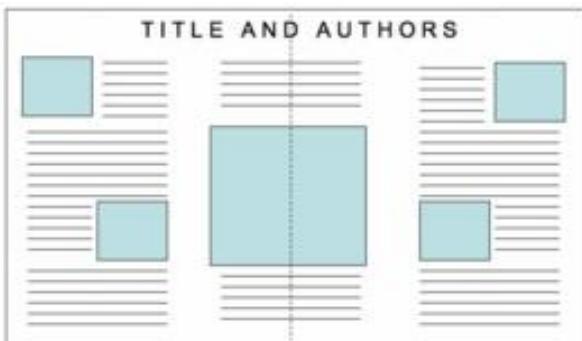


Design principles

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Student Skills and
Development Centre

- Sketch out (on paper) an overall design principle before you begin
- Be careful with backgrounds. Solid colours (preferably pale with dark text) are usually more effective than gradations or images
- Aim for balance and symmetry



Design principles

Aim for balance and symmetry

Project Overview

The SURE Manor Lodge Project concerned the well known Tudor Hunting Lodge on the outskirts of Sheffield, but looked at a different chapter of its past, as home to a nineteenth century mining community. My part in the project was to do literary research into texts and forms of entertainment that were available to the working-class people living in this small mining community. The texts ranged from anti-slavery novels like *Uncle Tom's Cabin*, temperance novels like *Danesbury House*, all the way through to lantern slide shows and working-class autobiographies.

This SURE project was formulated in order to provide information for a theatre company so that they could perform a short play narrating the lives of these people during the Sheffield 'Festival of the Mind'.



SURE: Manor Lodge Project



Anti-Slavery Novels

An artefact found on the Manor Lodge site was a fragment of a decorative plate, depicting a scene from the best-selling anti-slavery novel of the nineteenth century, *Uncle Tom's Cabin*. The particular scene depicted on the plate was of the characters Topsy and Miss Ophelia. I was asked to take particular attention when reviewing these two characters.

The novel deals with the trials and tribulations of two slaves in nineteenth century Southern America, one, Uncle Tom, who is knowingly sold 'down river' to meet a brutal and untimely death. The other, Eliza, who has escaped with her child in order to save her baby from being taken away from her and sold. Miss Ophelia begrudgingly, a conservative Protestant from the North takes Topsy, a wild slave-girl, under her wing to try and tame her, narrow-mindedly believing that her nature and background make her untameable. The relationship then blossoms and we see Miss Ophelia warming to the child and treating her as her own, whilst Topsy tames her ways and starts to respect and love her new mistress. Much like the Temperance novels, this relationship between adult and child is fundamental in preaching morality. The novel was the second best-selling book of the nineteenth century, second only to the Bible. In Britain, the anti-slavery law had just been passed before the publication of this book, however working-class people in Britain may have read this book with the aspiration to rid themselves of the shackles of a working class system and rise above their status, proving their employers wrong; much like Topsy and Miss Ophelia.

Temperance Movement

In the mid to late nineteenth century, there was a strong Temperance movement. At Manor Lodge, artefacts such as decorative plates were found that alluded to temperance novels in the class community. Temperance artefacts ranged from children's decorative plates, through to pictographs. During the research, I found that Temperance novels used children as the redeemer. In the novel, *Little Jamie*, we are shown the story of a working-class family, forced into poverty and it eventually changes his intemperate ways when he realises that his alcoholism has killed his son, Jamie, taught to be Temperate by their mother before her untimely death at the hands of a drunk remainder of the novel, causing temperance movements amongst friends and family. By using children to teach both parents and children. The parents were forced to recognise that they had a responsibility to teach them to be righteous. For children, they were educated as to how they should conduct themselves in intemperance.



An analysis of each Supreme Court judgement involving the State as a litigant between August 2012 and July 2014



University of Sheffield SURE Scheme – School of Law

Lindi-an Edis – laedis1@sheffield.ac.uk

Supervisor – Dr Lindsay Stirton – l.stirton@sheffield.ac.uk



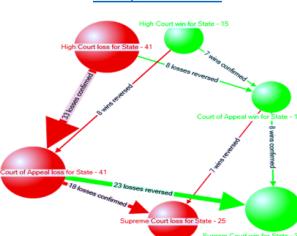
Introduction

Studying the highest court in our jurisdiction is rarely done and therefore much of the background reading which I undertook was relating to the American judicial system. I undertook research in order to explore the progression of cases throughout our judicial system and the win and loss rates for the State, paying particular attention to Human Rights cases.

Methodology

I analysed every case involving the State that reached the Supreme Court between August 2012 and July 2014. Each judgement can be found at the following link:

<http://supremecourt.uk/decided-cases/index.shtml>



Results

The State was least likely to lose a case at the Supreme Court. In the Supreme Court the State won twenty three more cases than it lost.

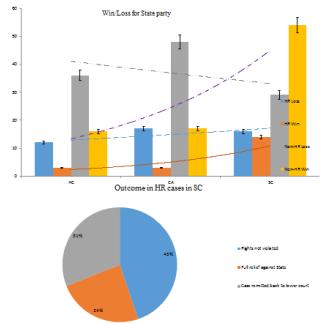
For every two cases heard at the High Court that the State won it would lose a further five.. At the Supreme Court, this ratio is dramatically lower and in fact the State would win more cases than it lost.

Human Rights cases which were lost by the State party remained at a fairly steady level whilst progressing from the High Court.

Human Rights cases State losses decreased in the Supreme Court; the State won just three Human Rights cases in the High Court in comparison to fourteen cases which the State won at the Supreme Court.

The number of non-Human Rights cases which the State lost increased from the High Court to the Court of Appeal but then decreased in the Supreme Court.

In forty five percent of cases the Supreme Court found that Human Rights were not violated. In twenty four percent of cases they found for full relief against the State. In thirty one cases the case was remitted back to a lower court.



Conclusions

Findings suggest that the Justices of the Supreme Court are more inclined to agree with the State. This seems to be the trend across all types of cases, including Human Rights. Our findings demonstrate a reluctance on the part of the Justices to award full relief against the state in Human Rights cases. In order to draw firm conclusions in relation to the above, further research is required.

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Design principles

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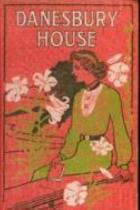
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Image: A decorative plate fragment showing a woman holding a child.

SURE: Manor Lodge Project



Image courtesy of Professor D. Hadley

Image: A photograph of a decorative plate fragment showing a woman holding a child.



Plate fragment. Image courtesy of Professor D. Hadley, University of Sheffield.

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Introduction

There is an overwhelming problem in the British prison system of high recidivism rates. This is related to the fact that it is so hard for ex-offenders to find work when released. Prison has a poor record for reducing reoffending, with 47% of adults reconvicted within one year of their release (Ministry of Justice, 2013). This suggests an initiative to make employment a key objective for offenders and helping those released from prison so that they do not go back into jail. My interest is how offenders can obtain skills while in prison and gaining work upon release and so help to reduce recidivism (Freeman, 2003).

Organisations are continually being created to help ex-offenders, so I felt any research on this issue was going to be necessary and relevant for today. Furthermore I would like to help bring light onto the work that existing organisations do.

Acknowledgements

- Thank you to the BounceBack organisation for allowing me to interview a member of their organisation
- Thank you to the prisoners at HMP Brixton for their time and responses to my questions. This was a great source and gave a valuable perspective on what employment means for prisoners.

Employment For All?

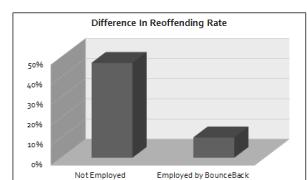
An exploration into the different employment opportunities offered to ex-offenders to help them integrate back into society

Sally Banister supervised by Dr. Marilyn Gregory
Department of Sociology



Results

I found that employment and housing are the two main things that can change someone and prevent them from returning to prison. Although BounceBack plays a key role in helping ex-offenders' future and employment prospects, their own individual determination is also a crucial factor in finding success. The main motivation is that despite having a criminal record, there is light at the end of the tunnel and this can be achieved by paid employment.



Discussion

Focusing on this issue of crime gave me the ability to apply a sociological theory to society. I was able to relate my sociological knowledge surrounding employment; an aspect of life which is deeply embedded and seen as greatly important in British society. One of my main research aims was to look into the relationship between employment and reoffending. BounceBack has a 10% reoffending rate, a huge contrast to the average reoffending rate of 47% (Ministry of Justice, 2013).

Conclusions

Employment was described as a "transformation" and shows a conscious decision to move away from crime. The experience has been very eye-opening for me in that I was able to access an area that I had not been involved in before. I have learnt a great deal about the nature of prisoners seeking employment and about the work that is being done to help them throughout the process.

Design principles

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- Aim for balance and symmetry
- Align blocks of text where possible
- Don't be afraid of white space – it is your friend!
- Be prepared to take a risk...so long as the content is not compromised

Design principles

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Size matters! - to the spinal cord

Cecilia Persson (K.C.Persson@leeds.ac.uk)
School of Mechanical Engineering

UNIVERSITY OF LEEDS

1. Problem

- Every day, three people in the UK remain permanently paralysed due to an acute spinal cord injury
- Some spinal cord injuries are being treated with dangerous, invasive surgery with no scientific back-up because the injury process is not completely understood

2. Causes of acute spinal cord injuries

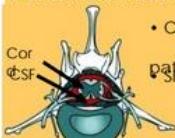


Burst fracture



Extent of neurological damage (from loss of sensation to complete paralysis) depends on:
 • Injury energy & amount of cord deformation during impact
 • Secondary biological processes

3. What elements may affect the deformation of the cord?



- Cerebrospinal fluid (CSF) layer: varies between and within patients
- Size of bone fragment: could vary between and within patients and with injury energy

4. Aim of research project

MIND THE GAP

Connecting teenagers with science

Mary Arber ◉ School of Education ◉ University of Leeds

Why is science important?

Science and technology are crucial to economic success.

Developments in science and technology raise complex social and ethical issues. Citizens must be science literate to join the debate.

The science 'mindset' - observation, hypothesis, experiment, analysis - is useful in many situations.

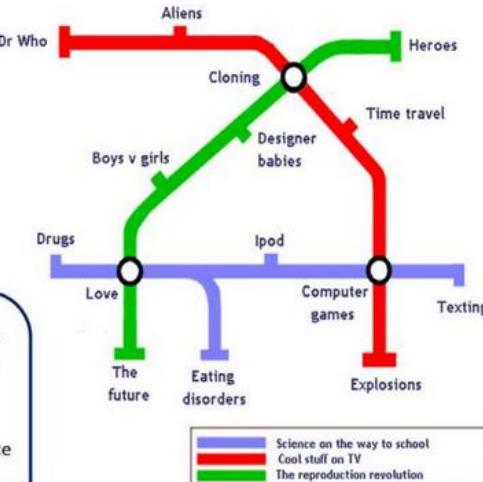
Science & teenagers

Research shows that most teenagers 15+ are turned off school science.

They say it's dull, irrelevant, not connected to their lives.

They want more discussion and choice about what to discuss.

They see a gap between their world and science.



Café Sci Project

Pilot scheme for students 14-18.

Bottom-up approach, starting from teenagers' perspective. They decide what science to discuss.

Informal 'café' discussion format, planned and hosted by students. Visiting scientist provides expert input.

When students control content and context, does it improve their connection with science?

Does it close the gap?

Perhaps allowing teenagers to make their own way through science makes it feel more relevant? Maybe it promotes personal connections with a previously impersonal subject? Is open discussion the key?

This research explores young people's experience of Café Sci. Fieldwork has just started: asking students directly whether they enjoy thinking and talking about science in this way.

If the Café approach is effective, and we understand why, it could be applied more widely across education.



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Presenting your work



Presenting your work

Authenticity vs. rigidity

- Is it better to use a script, commit to memory, or be spontaneous?

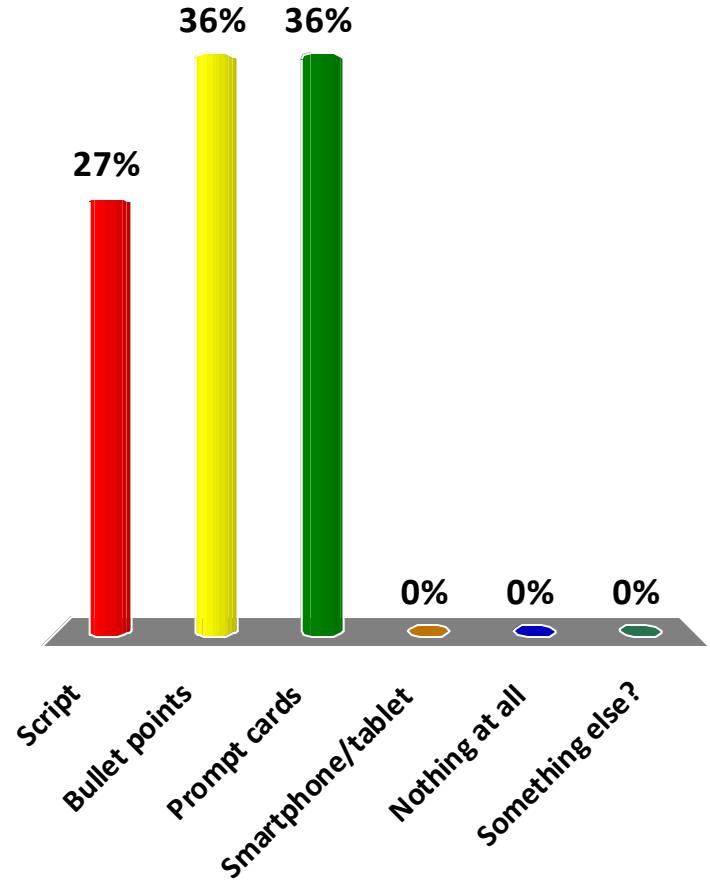


How do you prefer to organise your notes in a presentation?

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1. Script
2. Bullet points
3. Prompt cards
4. Smartphone/tablet
5. Nothing at all
6. Something else?



Presenting your work

- Pre-empt: think about possible questions and reactions from audience – but don't be tied to these if different ones come up.
- How will you answer a question you don't know the answer to? (Don't be afraid to say 'I don't know'!)
- Refine and polish – but not up until the last minute, leave time before the presentation itself so you're confident on your content.
- Rehearse in front of a (friendly) audience if possible (or use a mirror).
- Ask for feedback on how to improve for next time.

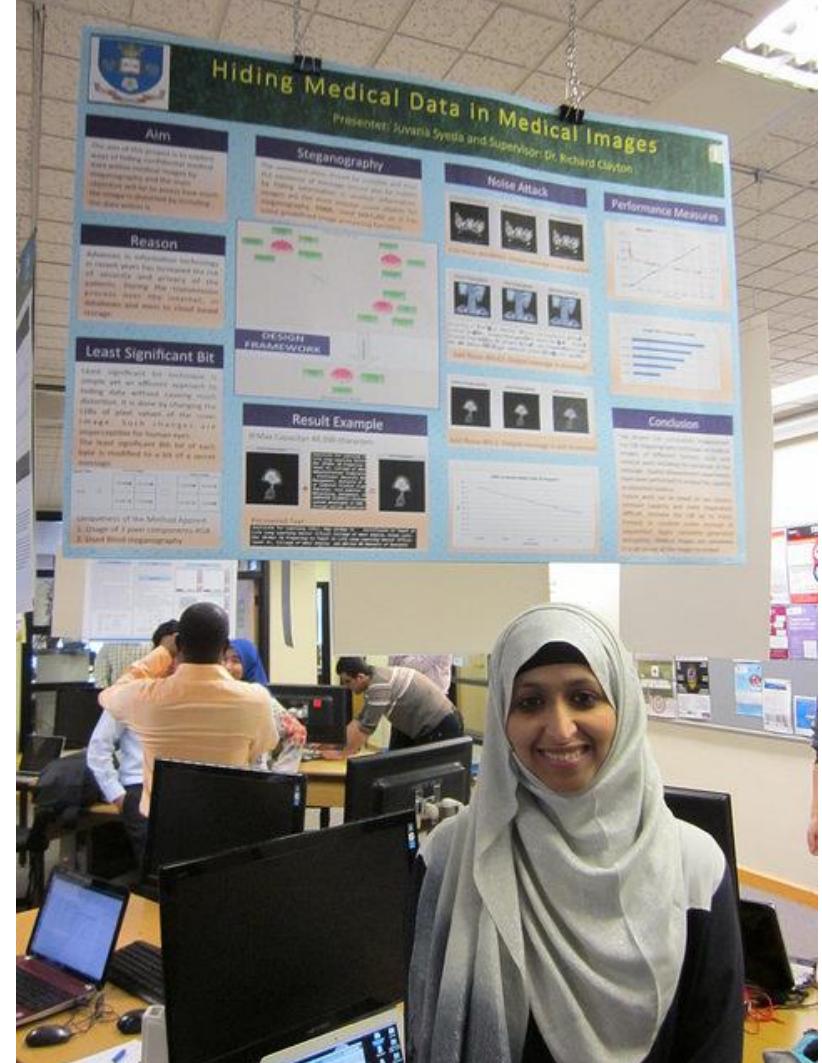
Presenting your poster

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Use the poster as a starting point

- Avoid reading from the poster
- Anticipate questions and be prepared to explain complex elements of your work
- Provide something extra!



20-Second Pitch

Can you sell your research project in 20 seconds?

- Do you want to refine your project pitch?

In this session...

- Planning for a poster presentation
- Modes of communication
- Evaluating posters
- What makes an effective poster?
- Presenting your poster

On a scale of 1 (low) – 10 (high) how confident do you feel about creating and presenting a research poster?

1. Low
2. .
3. .
4. .
5. .
6. .
7. .
8. .
9. .
10. High