

Poster Presentation Language

created by

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vanderbilt.edu/elc/

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What is a poster session?

Poster presentations are usually seen during a poster session at academic events such as an academic conference. As can be seen in Figure 1, each presenter creates a poster to showcase their research work (Gundogan et al., 2016).

Figure 1

Example of a poster presentation session





Source: #BetterScience (2019)

Source: Georgerhess (2013)

What are our poster session resources?

You might be knowledgeable about and experienced in giving oral presentations. However, if you go to a poster session for the first time, you might be surprised to find some huge differences between your expectations of a poster presentation and how a poster presentation actually works. One of the differences is language used by the presenters.

Although a lot of resources offer information on how to present a poster effectively or how to design a poster (see links on p. 17), little has been documented or is known about 1) common characteristics observed in real-life poster presentations; and 2) language people actually use in poster presentations.

Therefore, to help you get a better understanding of poster presentation language, we collected and analyzed language used in some poster presentations given by a variety of students at Vanderbilt University or online. Most language samples were collected from poster sessions of two academic events at Vanderbilt: Fall 2023 Vanderbilt Undergraduate Research Fair and the 17th Annual Vanderbilt Postdoctoral Association Symposium.

Our resource will help you:

- 1) *understand* the characteristics of poster presentations (pp. 4-7).
- 2) *learn* the authentic language commonly used by students in poster presentations (pp. 7-14).
- 3) *obtain* samples and templates of different types of posters (p. 17).

Note: The most important take-home information can be found in "Take home message(s)" that have gold headers in the remainder of this document.

Some characteristics of poster presentations

Table 1

What you might expect in a poster presentation session	What might happen in reality	
About audience		
 Highly interactive: You may think each poster presentation will attract a large audience as pointed out by some researchers: "Poster sessions became a norm in many technical conferences since they provide more "interactive" communication (Hawahara et al., 2008). People will read your posters. "Posters are meant to be read" (Luby and Southern, 2022). 	 No interaction: In reality, no one may stop by your poster. People will stop by and briefly scan your poster without saying a word to you and then keep going. Take home message: It is common that a poster may attract only a few attendees or none. Please do NOT take this personally: It does NOT mean your poster is bad or not interesting. People may have their own agendas and may be looking for something directly related to what their needs are or what they are currently working on or interested in. 	
 You might need to present your poster from top to bottom, section by section, to every attendee. Your presentation will attract a lot of non-specialist colleagues (Dubois, 1985). "It is most accurate to say that a poster presenter must be skilled in verbal interaction on his scientific topic—and more, as discussed below—in informal groups, usually dyads, although there seems to be no objection to third parties judiciously entering in" (Dubois, 1985). 	 In reality, you might only be able to explain your work to a small audience (Hawahara et al., 2008) while others just walk by and skim your poster. Someone who is extremely interested in your work may not let you exit a conversation, so other attendees will stop by and leave. Only a few people might ask you to walk them through your whole poster. People only want a snapshot (i.e., very short version) of your work. People might only want you to explain information in a specific section such as methods. Your presentation might attract both experts 	

Take home messages:

- 1. What might happen in a real-life poster presentation session can be very different from your expectations. Do not get discouraged when you do not have a lot of attendees because this is common.
- 2. Stay calm and professional when you have a crowd and engage as many as you can.
- 3. Keep your presentation short and concise (see pp. 15-17 for three samples).
 - Your audiences' attention span is extremely short especially when they are not from your field.

and nonexperts.

- O You should not thoroughly present your whole poster to everyone.
- o Discus information in specific sections only when needed.
- Commonly people simply want to see whether or how your work is related to what they are doing.

About organization and time management of your presentation

Below you can find analysis of the structure of a poster presentation given by a Ph.D. student at Vanderbilt University

The 10-minute-48-second presentation was recorded. In the analysis of the structure below, the numbers appearing in parenthesis indicate the time markers in the recording. For example, "Brief self-introduction (00:00-00:04)" means the student spent four seconds introducing himself. Some utterances (the language the student said), indicated by *italic type*, are included, but identifying information (e.g., the student's name or discipline-specific terms) was removed. The student's body language is indicated by *italic type* in brackets []. **Please note that NOT every utterance was intelligible or grammatically correct since they are authentic**.

This structural analysis will show you how long this student spent presenting what information during his entire poster presentation. Our comments or notes can be found in the brackets [], and at the end of the structural analysis.

[With a lot of background noise, he starts his presentation.]

1.	Brief self-introduction (00:00-00:0	
	I'm from lab.	
2.	Research question (00:05-00:12) My research focuses on	
	wiv research locuses on	

3. Motivation of the study (00:13-00:35)

[He starts to explain the main methods used in the study.]

- 1. Method
 - a. How a research method was selected (00:36-01:04)
 - b. What exactly was done (01:05-02:15)
- 2. Results (02:16- 03:00)

At 02:16, the student says, "Here are the results." [However, he continues to give more information on what they did, i.e., more information on method.] (02:16-02:30). At 02:17, he says, "Here you can see" [pointing at a graph]. [That is when he indicates the results.]

[He starts to explain more about their methods, especially control in their experiment.]

- 1. Methods: what else he did (03:01-03:09)
- 2. Results: what was found (03:10-03:15)
 - a. And we found that ...
- 3. Discussion: Why this step is important (03:16-3:29)
 - a. This is important because ...

[He starts to present their first main finding.]

- 1. Results (03:30- 04:06)
 - a. Here are the result of ... [Here the presenter missed the "s" for results. It is common to see grammatical errors in presentations.]
- 2. Method
 - a. Any factor they tested [i.e., more information on methods] (04:07-4:33)
- 3. Results (4:34-04:46)

- a. Here [pointing at a graph]...
- 4. Discussion (04:47-05:41)
 - a. We are hypothesizing that ...
 - b. This is interesting because other studies also found that ...
- 5. Results (05:42-05:57)
 - a. [simply pointing at a graph]

[He starts to present their second main finding.]

- 1. Methods: additional method (05:58-6:03)
 - a. This part, we goes deeper into that ... [The correct form for goes should be either go or went.]
- 2. Results: What was found (06:04-06:20)
 - a. And we found that ...
- 3. Methods: additional methods (06:21-6:45)
 - a. Also, Also we tried to analyze ...
- 4. Results: additional finding (06:46-07:03)
 - a. And you see that ... [pointing at a graph]

[He starts to present their third main finding.]

- 1. Results (07:04-07:21)
 - a. Another important discovery is that ugh about ...
- 2. Discussion (07:22-07:41)
 - a. This is important because ...
- 3. Results (07:42-8:15)
 - a. We also found that ... we can see ... [pointing at a graph]

[He starts to close his presentation.]

- 1. Discussion (08:16-09:54)
 - a. So, for all the ... we also try to find ... [He repeats the goal of the study.] (08:16-08:22)
- 2. Discussion (08:23-08:49)
- 3. Results (08:50-09:08)
 - a. And we found that... [pointing at a graph]
- 4. Discussion (09:09-09:54)
 - a. So that might explains why the ... [The correct form for explains should be explain.]
 - b. So yeah, generally speaking, our ... data suggest that ...

[He opens the floor to questions.]

1. Q & A (09:55-10:48)

Thank you very much. Do you have more questions?

As you can see from the structural analysis above, the flow of this student's presentation is as follows:

- He starts his presentation with a very short introduction;
- Then, he spends most of the time presenting methods and results (i.e., findings) with some discussion in the middle; and
- Eventually, he closes his presentation with a summary of the discussion and interpretations of their findings.

Take home messages:

You do NOT need to present your poster following a fixed structure within a fixed time frame.

1. A poster presentation can have very flexible organization.

- a. As can be seen above, you do NOT need to follow any common structure of an oral presentation (e.g., Introduction → Method → Result → Discussion). Instead, you can jump back and forth among different sections depending on your needs.
- 2. A poster presentation can have very flexible time management.
 - a. You can decide how long you want to present overall and/or for each section.

Other differences

Language:

 Your language needs to be formal and errorfree.

Presentation atmosphere:

- "Poster interaction is far less stressful than the slide session" (Dubois, 1985).
- In the middle of the verbal interaction, there is a great deal of onsite thinking (Dubois, 1985), and you need to know how to claim your turn.

Language:

- Grammatical errors are very common and acceptable as long as they do not impact the overall clarity of your presentation.
- Fillers are commonly used.

 <u>So</u> the trend is ..., but you know, ... ugh
- Body language is heavily used, especially using hand movement to direct your audience's attention to specific areas in your poster.

Presentation atmosphere:

- There will almost always be a lot of background noisy since the room is usually crowded.
 - O You need to talk over the noise.
 - o You might get distracted.
- Q & A might pop up any time during your presentation (i.e., not necessarily after you complete your presentation) and they can be casual.

Take home messages:

- 1. The frequent and effective usage of body language is critical for a successful poster presentation.
- 2. The presentation atmosphere can be noisy, chaotic, and stressful.
- 3. A poster presentation can have relatively less strict requirements for language perfection.
 - a. Grammatical errors and informal language are acceptable—in fact, they are commonly observed—as long as they do not impact the overall clarity of the presentation.

Language of poster presentations in textbooks and in reality

As mentioned above, language used by poster presenters in real-life poster sessions can be different from what you have learned about how to give presentations in the classroom. You might be surprised by the informality and simplicity of language used in poster presentations. Therefore, we present you with the language used in some real poster presentations categorized into different purposes. Those purposes are:

- 1. language for initiating your presentation;
- 2. language for transitions;
- 3. descriptive language;
- 4. language for giving definitions;
- 5. language for reporting or discussing findings;
- 6. language for closing a conversation; and
- 7. language for Q & A.

How to use the information in this section

In the following tables, you will find language for different purposes. Each table is divided into two columns: the left column named "Textbook," and the right column named "Reality." Table 2 below will give you more information on how you can navigate information in each table.

Table 2 Example of information organization

Textbook	Reality
In the left columns, you will find common	In the right columns, you will find:
language (e.g., lexical phrases or sentences) you	
might have learned in classes or textbooks for	1. The utterances used by students (i.e.,
giving presentations.	authentic language samples they actually
	said) in their poster presentations. Following
	an utterance, sometimes you may find in
	brackets our comments or clarifications.
	For example,
	Hi, my name is Let me know if you have
	any questions. [This is an utterance produced
	by a student to start a presentation. Yes, it is
	acceptable to not present anything upfront and
	simply invite your audience to ask questions.]
	2. Since the utterances listed here are the
	language presenters actually used in real-life,
	they might 1) include grammatical errors, or
	2) lack diversity or variety. This once again
	shows that language used in real poster
	presentations can be much simpler and less
	diverse from the language you learned for
	presentations in the classroom. Under such
	circumstances, we might offer corrected
	versions or additional recommended
	language.

Table 3Language for initiating a presentation

"The poster presenter must first know how to recognize the beginning and the end of an interchange" (Dubois, 1985).

Take home messages:

- 1. It is important to greet your audience. This will create a welcoming atmosphere.
- 2. Introduce yourself early. Repeat your name if needed to make it more likely for your audience to remember you.
- 3. Understanding your audience's preferences or background knowledge on your topic can be very helpful for adjusting your presentation accordingly. You can ask you your audience for how much they know about your topic or whether they prefer a quick walk-through or self-paced browsing.

Textbook Reality

Sometimes the visitors may initiate the interchange (Dubois, 1985).

- "Hello."
- "What's going on here?"
- "So you're saying that ..."
- "May I ask you a question?"

[The initiating remarks can be intended to elicit a complete summary or to query a very specific fact.]

Greet your audience and introduce yourself.

- Hey/Hi/Hello. I am ___.
- May I walk you through my work/research?

Greetings:

- Good morning/afternoon.
- How are you?
- Can I explain my work to you? [A more natural alternative could be "Hi. Would you like me to walk you through my work?"]

Self-introduction:

- Hi, I am ____from ___(lab/department/school).
- Hi, my name is ____. Let me know if you have any questions. [Yes, it is sometimes common that you NOT present anything upfront and simply invite your audiences to ask questions.]

Begin directly with the presentation [It is better if you can greet your audience and give them a short self-introduction.]

- I work on ___.
- What I'm looking for is ___.
- Our lab aims to further our understanding of
 ___. [This can give your audience a big picture
 of your work. You can also present it as a
 closure of your presentation.]
- *Our ultimate goal is* ___.
- Today, I am focus on ___.
- Our lab is interested in ___.
- My research focuses on ___.
- Basically, we study__.
- __ is widely studied, but the problem is __.
- We know about __. What we don't know is __. That's why we study __.
- We are interested in ___.

Know the audience better:

• Hey. Are you familiar with ___? [This is an effective opening because you can find out how much your audience knows about your topic. Then, you can present accordingly.]

Additional recommended language:

- Hi, I am ____. would you like me to walk you through my work/project/research?
- Hi, I'm __from __(lab/department/school).

 Please let me know if you have any questions.

Language for transitions

Textbook Reality

Take home message:

A smooth flow and clear logic connections between sentences or sections are essential for a good poster presentation. To do so, it is extremely important to use a variety of transitions in your presentation.

Different Types of Transitions

Generic Transitions = Green Orienting Transitions = Blue Substantive Transitions:

> Repetition of Key Terms = Orange Known → New Information = Purple Hook + Summarizing Nouns = Red

The longer wine is stored in a basement, the more expensive it can be. Before the 1820's this valuation might not have been considered by scholars. These scholars defined the value of goods by the amount of labor needed in production. For instance, if more labor is required to plant strawberries than tomatoes, then the former should be more expensive than the latter. According to this perspective, the value of goods was created by labor, but this theory was disproven. To prove this theory as incorrect, economists began using the law of supply and demand instead of labor to determine value. This shift indicated the beginning of the neoclassical economic era. During this time, the basic structure of macroeconomics and microeconomics was founded and developed.

- What makes it interesting is ___.
- What's really cool is that ___.
- To give a little bit background information of
- On top of \underline{X} we also did \underline{Y} .
- Another thing is ___. [This is similar to a generic transition such as additionally or in addition.]
- ___ this is not well known. Therefore __.
- An interesting point I s___.
- __ kinda of explaining that a bit. So _.
- We have done research in __ before, so I look into __.
- Why look at this area? [It is a great idea to
 use questions before presenting new
 information to your audience. This is because
 it not only gives your audience a heads-up on
 what is incoming but also makes your
 presentation more engaging.]
- __[presenting issues] Our solution is ___.
- What we did? [Correct form: What did we do?]
- \underline{X} . The nice thing about \underline{X} is $\underline{\hspace{1cm}}$.
- The issue is \underline{X} . We are focusing on tackling this issue by X.
- First, I need to make sure ___.
- I first want to see ___.
- Next, we went to look into ___.
- So far, there is an issue in__. So we looked into __.
- The next question we want to ask is ___.
- And we want to look at __, comparing to __. We think it is a good idea to look at .

Source: Vanderbilt University ELC staff.

Table 5Descriptive language

Textbook Reality

Take home message:

You should use descriptive language to direct your audience's attention to different locations or areas as you are presenting.

"Remember, when you are presenting, your intention is to guide the reader through your poster instead of reading your poster" (Gundogan et al., 2016).

Language for describing location:

• So, here [pointing]...

In the upper	At the top of	In the upper
left-hand	the photo	right-hand
corner		corner
	In the top part	
	of the picture	
	Behind	
	In the	
	background	
On the left		On the right
On the left-	In the	On the right-
hand side	middle/center	hand side
	of the photo	
In the left		In the right
part/half/		part/half/
portion of the		portion of the
photo		photo
	In the	
	foreground	
	In front of	
	In the lower	
	part of the	
	picture	
In the bottom	_	In the bottom
left-hand	At the bottom	right-hand
corner	of the photo	corner

- You can see here [pointing] ... [Body language is frequently used along with descriptive language]
- Look at our graph here [pointing].
- In here, I am showing you ___.

Additional recommended language:

- If you look at the __ table/figure/section, you will notice...
- If you look here [pointing], you can find/see/notice __.

Language for directing your audience's attention:

- Please look at the __ table/figure/section.
- If you look at the __ table/figure/section, you will notice ...
- Please look at the center of the poster; you can see the __ section.
- You can see Table X on the right side of the __ section.
- If you look at Figure X here, in the middle on the left-hand side, you can see__.

Source: Vanderbilt University ELC staff

Language for giving definitions

anguage for giving definitions	- w
Textbook	Reality
Common expressions for giving definitions:	• By, I mean
• means	• is just another name/term for
• refers to	(T) 1
It is important that you understand what	Take home messages:
[means/is] because you will need to	1. Whenever you present a discipline-
• In order to understand the material we will cover today, we need to define the term	specific term or a word that has specific
 One interesting aspect of this topic is 	meaning in your field, be sure to give
• This term is used general to mean	definitions to help your audience follow
When you try to give a definition of a term that is	your presentation. In the example below,
specific in your study:	the underlined phrases are definitions for
• I will be giving you a basic/general definition. This term may have other meanings, but for	the terms the presenter used:
our purposes, it means	
 This term differs from because A differs from because 	• So, ascorbate's <u>just another name for</u>
 A differs from because The term is similar to in that both are 	<u>vitamin C</u> , and Alzheimer's disease,
used to	<u>which is a very common</u>
• In the field of, the term refers to, but	neurodegenerative disease, is the major
in the field of $__$ the term refers to $__$.	cause of dementia and currently the
 We will define the term in the following 	seventh leading cause of death in the
way: means	United States.
• Let me give an example:	
• To better understand this, we might, for example, look at/examine/compare	2. Definitions might be short phrases
• This example might help you understand	embedded in long sentences, as can be
	seen in the example above, instead of
	appearing as short and independent
	sentences.
	3. When a term/word you use has specific
	context, make sure to make the definitions
	clear to your audience. For example:
	orom to your municipal or oriming to
	We are creating an antidote.
	[Although people might know the meaning of
	the word <i>antidote</i> , in medicine or biology,
	many different things can be used as an
	antidote. Therefore, give clear definitions to
	terms with discipline-specific context would
	• •
	be critical for the clarity of your presentation.
	So consider the following revision: We are
	creating and purifying a specific type of
	bacteria as an antidote.]

Source: Kayfetz and Stice (1987).

Language for reporting or discussing findings

Textbook Reality Neutral reporting/discussion These results suggest that ... This is my findings. [Correct form: These are The results also indicate that ... Overall, these results indicate that ... my findings] *We found* ___. In summary, these results show that ... We took a look at ___. So basically we see ___ What emerges from the results reported here in conjunction with ___. is that ... We are trying to see ___. Together these results provide important *To make long story short, we found* ___. insights into ... Taken together, these results suggest that *This [pointing at results] shows that* ___. *Next, we went to look into* __. *It shows* __. there is an association between ... We are able to establish ___. We actually found . Then we became Note: More expressions for reporting findings can interested in . be found at the link below. We have developed ___. *We found* __. *That means* __. [Providing your own interpretations of the findings is important in a presentation.] *In here, I am showing you* __. *What that* means is ___. *I will tell you how that works.* [A more natural alternative could be: "Let me explain to you how that works."] Findings aligning with previous studies *We found* __. *This is conventional.* We see the same results as __ study. We found similar results as previous studies. We found ___, what's expected. [Correct version: which is expected.] Based on the literature, we have found . [A more natural alternative could be: "Aligned with the existing findings in the literature, we also found ."] Original new findings • *Nobody has done this, and we found* ___. At the end, we found . Summarizing findings The main take away is

Source: https://www.phrasebank.manchester.ac.uk (Morley, 2023).

Table 8

Language for closing your presentation

Textbook	Reality	
Take home messages:		
1. It is important to clearly indicate the end of your presentation. If possible, also open the floor to questions.		
2. It is also important to express your gratitude and say goodbye to your audience before they leave.		
• That's all. Thank you for listening.	Thank you for listening.	

- That's it. Thank you very much.
- That's all I have. Thank you.
- Thank you for stopping by.

- That's all. Thank you very much.
- *That's it. Do you have any questions?*
- Any questions?
- It is great to meet you.
- The main take-away message is ...

Table 9Language for Q & A

Textbook

Presenters need to have broad coverage of the field in which their research is set, to answer questions which convey requests for far-ranging speculative "what if's..." and which relate to work in other fields (Dubois, 1985).

Initiate Q & A

- Do you have any questions for me?
- Any questions?
- Please let me know if you have any questions.

Ask for clarification

- If I understand your question correctly, you are asking [paraphrase the question with your own words].
- I am sorry, I didn't hear you clearly. Would you please repeat your question(s)?

Question for which you do not have an answer

• That is a great question. Even though I do not have a direct/certain answer to your question, I know/I think ...

Start a deeper discussion:

- This is a very interesting question. I think ____.
- What do you think it may help with ____?
- What are your thoughts on ?
- My understanding is ____. What do you think?

Commenting on a question

- I'm glad you asked that.
- *I'm sure many people have the same question.*

Reality

Responding to questions that are raised in the middle of a presentation:

 That's a very good point. So, yeah, so here, we tried to ___, but unfortunately, you can see here [pointing], we did not do ____.

Responding to questions that are irrelevant / beyond the scope of what you did [It is normal that you do not have all of the answers.]:

- That's a very good question. And I do not know the answer to that question off the top of my head, though I have seen the answer before. So how about you contact me. Here is my card/contact information. If you would like, you can email me the question, and I will get back to you as soon as I can.
- That's another very good question.
 Unfortunately, that question goes beyond the scope of what I did for this research. But it is definitely something I will look forward in the future.

Take home messages:

- 1. Focus on what you do know and stay calm when asked irrelevant questions.
- Admit you do not know the answer and brainstorm with viewers on how you might address the questions raised in the future. [Don't make things up! Nobody expects you to know everything.]
- 3. Poster sessions can be networking opportunities. Prepare your contact information in advance and invite your viewers for further communication in the future.
- 4. Get familiar with the language listed in the left column to deal with different scenarios.

Tips for preparing a concise and effective poster presentation

Keep Audience, Purpose, and Tone in mind!

Audience: Most commonly, you need to present your work to non-experts. In other words, most of the time, you should pretend you are explaining your work to someone who knows nothing about your field of study. However, you also need to prepare to present to professionals from your filed.

Purpose: Since US academia advocates audience-centered culture, it is your responsibility to use plain words that help your audience understand your poster. In other words, it is your fault if your audience cannot follow your presentation. Therefore, the purpose of your presentation is straightforward: adjust your presentation accordingly to make sure every listener understands your work as much as possible.

Tone: How formal should your presentation be? Most of the time, it should be informal because most of your audience consists of non-experts in your field. This means fillers, jargon, and ungrammatical language are commonly observed. However, do prepare a formal counterpart for the expert audience. See the examples in the "Take home messages" below.

Take home messages:

Prepare multiple versions of short presentations for different audiences in different tones. For example:

1. Informal version to non-expert audience (This is the most common and its formal counterpart can be seen below.)

My work looks into whether those who learn Chinese as a foreign language use sound information when they read in Chinese. We found that they do not, but native Chinese speakers do. This helps us know more about how sound information is used when we are reading.

2. Formal version to expert audience

Our study explores tonal processing in second language (L2) Chinese learners during reading. We found that tonal information is not activated in L2 Chinese learners as in native speakers of Chinese during reading. Our study furthers the understanding of phonological processing in L2 reading.

Note: More recommended poster presentation samples can be seen below.

As mentioned above, you should prepare multiple short versions of presentations since your audience's attention span can be short. Below we offer three versions of short presentations in an informal tone. Each of them consists of a formula and a sample.

Table 10

Version 1: Snapshot version

Formula: Research question + Results + Significance

Example:

[Research question]

My work looks into whether those who learn Chinese as a foreign language use sound information when they read in Chinese.

[Results]

We found that they do not, but native Chinese speakers do.

[Significance]

This helps us know more about how sound information is used when we are reading.

The Vanderbilt University English Language Center

Source: Vanderbilt University ELC staff.

Table 11

Version 2: One-minute version

Formula: Research question (and motivation) + Methods + Results + Significance

Example: a one-minute poster pitch presented by a Ph.D. candidate

Hi everyone, my name is __. I am a Ph.D. candidate in mechanical engineering, and I work with Professor .

[Research question and motivation for research]

What we are trying to do is basically create a paradigm for more distributed monitoring of heavy metals and trace contaminants in water. Currently what we have is, that because of the instant hype throughput instrumentation necessary to test for these sort of contaminants that's located at central labs, you have to transport large volume samples over long distances and what this effectively does is create a barrier to any sort of this monitoring happening.

[Methods – what they are doing and how]

So inspired by dried blood spotting which solves similar problems in rural healthcare monitoring what we do is we create low-cost and reliable devices that can dryly preserve contaminants in water samples so that they can be easily transported to the centralized lab for measurement.

[Results – what they have developed]

And so we have developed a device for heavy metal cation which is detailed on my poster.

[Significance of the research]

And we are hoping that this paradigm will enable more distributed water quality monitoring and trace contaminants in the future. Thank you.

Note: The above text is the video transcript.

Source: MIT.nano (2018).

Table 12

Version 3: Three-minute version

Formula: Introduction + Research question + Methods + Results + Significance

Example: A presentation given by Yale 3-Minute Thesis Competition (2021) First-Place Winner Matthew Ellis

[Introduction of the problem, and why it needs to be addressed]

The cardiovascular system is truly amazing. We may not often think about it, but our hearts are beating constantly, delivering oxygen and nutrients throughout our bodies. Blood exits the heart through our largest blood vessel, the aorta. In healthy individuals, the aorta is elastic. When the heart beats, it ejects vast amounts of blood at enormously high pressure. Similar to a rubber band, the aorta stretches to contain this sudden rush of energy and then relaxes evenly distributing blood throughout our body. In a condition called Supravalvular, Aortic Stenosis, or SVAS, affecting one in every 10,000 people, the situation is not so simple. In SVAS, this elasticity is missing, there is no working rubber band. Instead, to deal with these enormous pressure changes from the heart, the smooth muscle cells of the aorta grow uncontrollably, thinking 'if we make the wall thicker, it will be strong and won't crack.' Unfortunately, this causes the aorta to become narrower, ultimately making it harder for the heart to deliver enough nutrition to the body. Eventually, this stressful process causes the heart to shut down, and sadly, there is currently no cure for this condition.

[Methods—justification for the advantages of his methods and exactly what he did] In my research, I study the differences between cells that make up a healthy aorta from those of a person with SVAS. Now, I can't easily obtain cells directly from an aorta as this would essentially require open heart surgery. However, using a technique called induced pluripotency, I can instead take a small sample of skin cells and transform them into stem cells which can then be directed to become any type of cell in the body. Imagine a stem cell is like a seed of untapped potential. Depending on how you cultivate it, its growth and when and which nutrients you provide, it could become something as hardy as a beet, or something as beautiful as an orchid. That might sound crazy, but here's how it's done. Simply by adding as series of factors that are highly abundant in developing embryos, I can divert those skin cells to a stem cell like state. I can then cultivate these stem cells with specific nutrients to transform them into smooth muscle cells that have the same DNA and characteristics as those taken directly from an aorta. No open-heart surgery required.

[Results—what he found]

Using the stem cell model, I've been able to effectively study and directly test therapies on SVAS smooth muscle cells. In SVAS cells, the machinery that helps cells sense stress doesn't work properly, causing them to miss cues from the heart and grow inappropriately. I have discovered as compound that gives SVAS cells the blueprints to synthesize new rubber band-like structures that can restore that stress sensing capability. I have shown that SVAS cells treated with this drug begin to behave similarly to healthy cells. I'm hopeful that my rescue experiments will help treat patients with this condition in the not too distant future.

[Significance—how his research can be beneficial for future studies] As stem cells can become any type of cell, I can use them to study a multitude of diseases including cancer and even COVID-19 and directly test therapies on any organ system in any individual, including you and including me.

Note: The above text is the video transcript.

Source: Yale Career Strategy (2021)

Sample Posters

- 1. For a traditional poster, see Appendix A on p. 19.
- 2. For a graphically focused poster, see Appendix B on p. 20.

Links to templates and additional information

- 1. Vanderbilt University recommendations for creating your poster can be found here, and VUMC branded templates can be found at this link.
- 2. Most poster templates are created on PowerPoint. We suggest that you google "PowerPoint poster template" to find a template that works for you. Many of the websites that you will find contain not just templates but also advice for both poster creation and presenting. See also the links in this document's references below.

Example websites are:

Indiana University's Center for Teaching and Learning

George Washington University's School of Medicine & Health Sciences

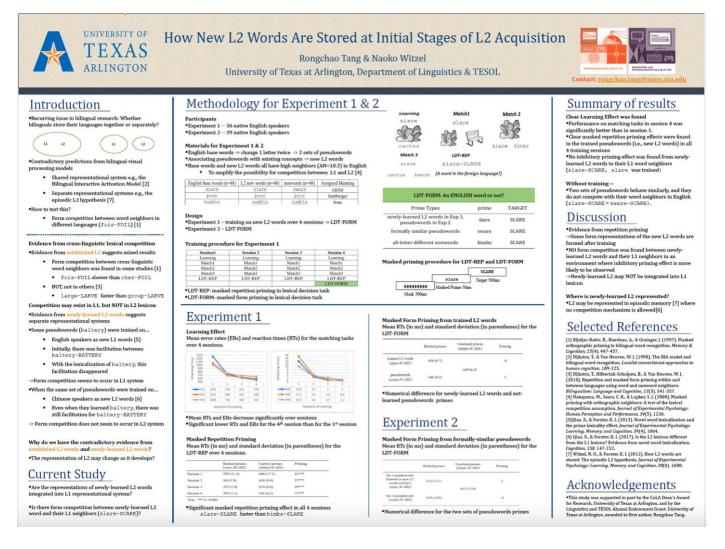
Michigan State University's **Undergraduate Research**

References

- Dubois, B. L. (1985). Poster sessions at biomedical meetings: Design and presentation. *The ESP Journal*, 4(1), 37-48.
- Georgerhess (2013, February 8). *Giving an effective poster presentation* [Video]. YouTube. https://www.youtube.com/watch?v=vMSaFUrk-FA
- Gray, A. L., Curtis, C. W., Young, M. R., & Bryson, K. K. (2022). Innovative poster designs: A shift toward visual representation of data. *American Journal of Health-System Pharmacy*, 79(8), 625-628.
- Gundogan, B., Koshy, K., Kurar, L., & Whitehurst, K. (2016). How to make an academic poster. *Annals of Medicine and Surgery*, 11, 69-71.
- GW School of Medicine & Health Sciences (2023). *Poster presentation resources*. Website. https://medicineresidents.smhs.gwu.edu/poster-presentation-resources
- Horiuchi, S., Nasser, J. S., & Chung, K. C. (2022). The art of a scientific presentation: tips from Steve Jobs. *Plastic and Reconstructive Surgery*, *149*(3), 533-540.
- Indiana University (2023). Center for Teaching and Learning. Website. https://ctl.iupui.edu/Resources/Documenting-Your-Teaching/Resources-for-Poster-Presentations
- Kayfetz, J.L., & Stice, R.L. (1987). Academically Speaking. (B Seitz, Editor. Ed.). Wadsworth Publishing Company.
- Kawahara, T., Setoguchi, H., Takanashi, K., Ishizuka, K., & Araki, S. (2008). Multi-modal recording, analysis and indexing of poster sessions. In *Ninth Annual Conference of the International Speech Communication Association*.
- Klocke C. (2022, April 12). Graduate student research symposium winners. Website. https://design.ncsu.edu/blog/2022/04/12/graduate-student-research-symposium-winners/
- Luby, S., & Southern, D. L. (2022). Slide and poster presentations. In *The Pathway to Publishing: A Guide to Quantitative Writing in the Health Sciences* (pp. 119-141). Cham: Springer International Publishing.
- Michigan State University (2023). *Undergraduate research poster presentation*. Website. https://urca.msu.edu/posters
- MIT.nano (2018, July 11). *One-minute poster pitches*. [Video]. YouTube. https://www.youtube.com/watch?v=7lZ_nFcb_sI
- Morley J. (2023). Academic Phrasebank. Website. https://www.phrasebank.manchester.ac.uk
- Vanderbilt University Medical Center (2023). <u>VUMC-branded PowerPoint templates to be used for ALL poster presentations</u>. Website.https://www.vumc.org/marketing-engagement/branded-products
- Yale Career Strategy (2021, April 12). 3-minute Thesis Competition (2021) first-place winner Matthew Ellis [Video]. YouTube. https://www.youtube.com/watch?v=Q-0os7z7aJ4
- #BetterScience (2019, March 25). *How to create a better research poster in less time* (#betterposter Generation 1) [Video]. YouTube. https://www.youtube.com/watch?v=1RwJbhkCA58

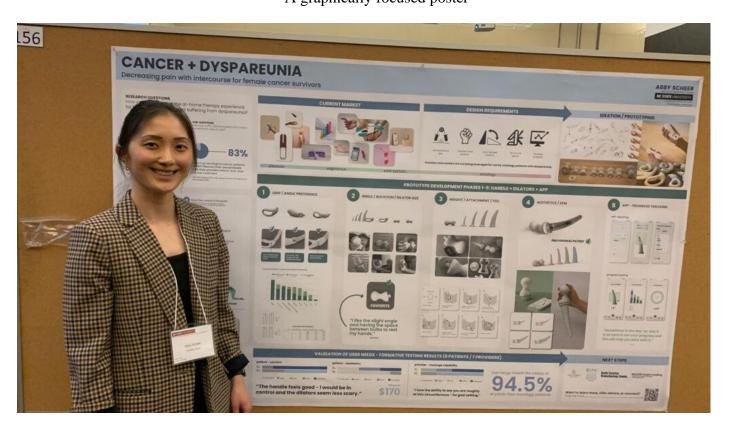
Appendix A

A traditional poster



This poster was awarded "Best Poster Presentation" at a prestigious 2018 conference.

Appendix BA graphically focused poster



North Caroline State University Master of Industrial Design Student Abby Scheer was the winner from the College of Design at her university's 2022 Graduate Research Symposium (Klocke, 2022).