#### Cyber Ambassadors

Professional Skills Training for CyberInfrastructure Professionals

Facilitator(s): Dylan Perkins Special Thanks to: Gail Krovitz - Internet2 Eric Adams - Purdue University

#### Who are you?

Before we get started tell us about yourself!

#### Before we get started

Google Doc

#### Agenda

- An Introduction to the Cyber Ambassadors Program
- Defining First Contact
- First Contact: Consultation
- Defining Effective Problem Solving
- Solving Ability, Motivation & Interpersonal Problems
- Complex Conversations
- Speaker & Listener Tools
- Wrap Up and Evaluations

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## What the Heck is Cyber Ambassadors?

Brief introduction

#### Cyber Ambassadors Project

- NSF training grant
  - Provide professional skills training to CyberInfrastructure (CI) professionals

- Focus on communication, teamwork, leadership
- Overarching goal to support interdisciplinary research

http://colbrydi.github.io/cyberambassadors































Extreme Science and Engineering Discovery Environment

#### Additional Acknowledgements

- The Cyber Ambassadors Project Team:
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#### The Cyber Ambassador Curriculum

#### INTRODUCTION

• The Cyber Ambassadors Program (55 Min)

#### COMMUNICATION

- FIRST CONTACT
   Communicating with a Purpose (70 Min)
- LET'S TALK
   Communicating about Problems (70 Min)
- IT'S COMPLICATED
   Communicating About Complexity (65 Min)

#### **TEAMWORK**

- TEAMING UP
   Effective Groups and Meetings (65 Min)
- LEVELING UP
   Problem Solving and Decision Making (70 Min)

#### **LEADERSHIP**

- LEADING THE TEAM
   Understanding Style and Personality (70 Min)
- LEADING THE CHANGE Equity and Inclusion (60 Min)
- LEADING WITH PRINCIPLES Ethics (50 Min)

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#### The Approach

#### **Constructivism and Socioculturism**

- Learning is an active process of creating meaning from information and experiences
- Learning is most effective when it happens in the context and culture of the learners

#### **Ongoing Research Shows...**

...effective professional skills can be taught!

...there are common tools (algorithms) that apply across many scenarios

...role playing / rehearsal activities are effective learning tools for developing professional skills

...practice is most effective in context

#### **Ground Rules**

- Assume good intentions
- Keep the lessons, leave the stories
- Oops! / Ouch!
- Unmute/turn on video, ONLY if you want
- What else?...

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### First Contact Communicating with Purpose







#### Learning Goals

By the end of this section, participants will have the knowledge and skills to:

- Recognize the parameters of "First Contact"
- Explain the role and value of stories during First Contact
- Model effective communications skills for navigating a Consulting First Contact

#### What is First Contact?

A "New" interaction involving at least 2 of the following

- New People
- New Ideas
- New Resources
- New Contexts

- Owner or the owner of the owner owner of the owner of the owner owner
- O What can I contribute?
- What are the opportunities?

#### **PEOPLE**

- New Faculty
- New Students
- Making introductions

#### **IDEAS**

- Sharing successes
- Discussing challenges
- Exploring shared interests



#### **RESOURCES**

- Information
- Materials
- Processes

#### CONTEXTS

- Elevator pitch
- Professional events
- Social occasions

#### **Examples of First Contact**

- Meeting someone at a social event and discovering shared interests
- Attending a conference presentation and talking with the speaker about the connection between their results and your work
- Getting onto an elevator with the a Dean or VP and being asked what you study
- Talking with the statistics consultants about how best to analyze and interpret your results
- Meeting with a sales representative to discuss samples of new materials
- Someone you don't know contacts to you because of your technical expertise and asks for advice or assistance

#### Why is First Contact Important?

Building relationships can benefit you

- Owner with the owner of the owner with the owner
- What opportunities are available?

(70% of job openings are filled by networking)

https://www.payscale.com/career-news/2017/04/many-jobs-found-networking

- Building relationships can benefit others
  - Owner in the contribute of the contribute of
  - What do I know, that is of value to others?

#### The Power of Good Stories

"The way you talk about yourself is very powerful. Whether or not you are conscious of it, the way you tell stories of your life frames how people see you, and how you see yourself."

~ Penelope Trunk

# Crafting a Memorable Story

Explain it to me like I am 12.

#### Think about the Content of your story

#### Personal

- Where did we come from?
- Owner our values?

#### Professional

- Owner we do?
- Why is it important?
- Our How do we contribute?
- What do we want to do next?

#### Think about the Context of your story

- Social and Community Activities
  - Parties and gatherings
  - Shopping and services
  - School events and extracurricular activities
  - Religious and cultural celebrations
- Professional Events
  - Conferences
  - Seminars
  - Classes
  - Research group meetings
  - "Consulting" and collaborating

#### Developing Your "Elevator Pitch"

Where: in what types of situations might you tell your story?

What: what are your key messages? What is most important to share?

How: practice! Aim for a natural delivery, without sounding over rehearsed.

**Time:** one minute or less! Your polished story should be short and memorable.

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# First Contact: Consulting

Intake Interviews
Office Hours
Requests for Expertise

#### Opening an Intake Interview

Hi, my name is Larry. I would like to use the HPC for my academic work. How do I get started?

What questions do you ask?

#### What questions would you ask in an intake interview?





#### Opening an Intake Interview

Hi, my name is Larry. I would like to use the HPC for my academic work. How do I get started?

What questions do you ask?

Why are intake interviews important?

#### Good Intake Interviews

- Ask about their research
- Never rush
- Identify the fundamental problem(s) being solved
- Work to describe the problem in terms of computing
- Ask how they think the problem should be solved
- Assess their ability
- Identify assumptions (yours and theirs)
- You can say "No" without saying No.

#### Closing an Intake Interview

- Action items
- Follow up times



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#### Let's Talk:

Communicating about Problems

#### Learning Goals

By the end of this section, participants will have the knowledge and skills to:

- Describe problem and solution states, and list three common types of problems
- Illustrate the process of diagnosing and solving ability and motivation problems
- Summarize the requirements for effective communication
- Define interpersonal problems and describe approaches for resolving them
- Model effective communications skills for resolving interpersonal problems

### How do we define a problem?







### How do we define a solution?



### How do we define a **successful** solution?

Solve the Problem



Maintain the Relationship

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### What are the common types of problems?

Ability: "I can't do that"

Motivational: "I don't want to do that"

Interpersonal: "You can't make me do that!"

### **Ability Problems**

### "I can't do this"

- Lack of resources
- Lack of knowledge
- Lack of skills
- Lack of experience

### Avoid misdiagnosis

- Do not assume you understand the source of the problem
- Ask for ideas
- Listen carefully is this truly an ability problem?
- Work collaboratively to identify a solution

### Motivational Problems

#### "I don't want to do this"

- Inconvenient
- Undesirable
- Difficult
- Boring

### Communicate consequences

- Natural consequences (Impersonal -----> Personal)
- Imposed consequences
- Follow up

### How do we solve a problem?

- Define the Problem
  - What is the goal? What are the barriers to reaching the goal?
- 2. Identify Possible Solutions
  - How will we address ability issues? Motivational issues?
- 3. Make a Decision
  - What will we do? Who will implement the solution? What is the timeline?
- 4. Implement the Solution
- 5. Follow Up

# Solving Ability and Motivation Problems

Sounds easy right? Let's try!

Your team has a reporting deadline in two days, right before the start of a 2-week shutdown. Everyone is anxious to take a break and has been pushing hard to get the release finished on time. But this morning's results show new inconsistencies in the data analysis.

What is the problem?

Text DYLANPERKINS393 to 37607 once to join

### What type of problem does our scenario describe?

Ability problem

Motivation problem

It's unclear





Your team has a reporting deadline in two days, right before the start of a 2-week shutdown. Everyone is anxious to take a break and has been pushing hard to get the release finished on time. But this morning's results show new inconsistencies in the data analysis.

How will you solve it?

### How would you solve the problem in the scenario?

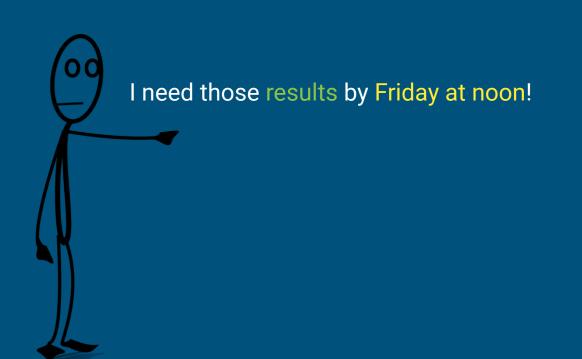




## So why is effective problem solving so hard?!



## Effective communication requires shared context





### Communication Style is Important

We form unconscious opinions about people based on their communication styles

- Accent
- Culture
- Pitch of voice
- Speed and pacing
- Pausing to allow others to speak

We tend to like people with communication styles similar to our own

"Many of our motives, so obvious to us, are never perceived by the people we talk to. Many instances of rudeness, stubbornness, inconsiderateness, or refusal to cooperate are really caused by differences in conversational style."

~ Deborah Tannen

# Solving Interpersonal Problems

Dang it! I didn't mean for it to get out of control.

## What are interpersonal problems?

Pat is too timid

Adrian makes me feel like a jerk

Dakota talks too fast Zoidberg is an Alien

Jamie always picks a fight with me

# Why are interpersonal problems hard to resolve?

- Emotion can get high
- Arguments can get muddled
- Stories get confused with facts
- Fool's choice
  - A false dilemma between two (bad) options "tell a lie or lose a friend"
  - o In reality, there are several options, some of which are good



### When you Disagree, remember your ABCs

Agree. Start by finding the points where you agree.

Build. Use these points of agreement as a foundation to build the relationship.

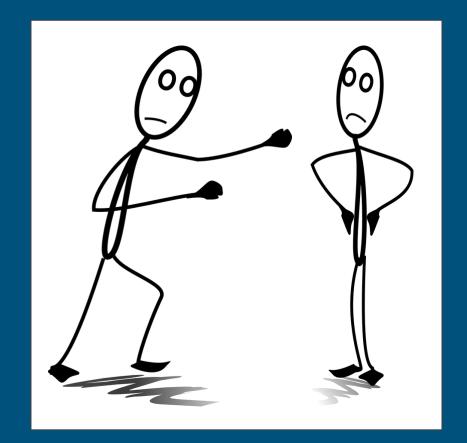
**Compare.** Work together to examine the areas of disagreement and compare both perspectives. You may not always find solutions, but you will gain understanding and build relationships.

### Sometimes you just have different opinions

- Diverse opinions are good
- Acknowledge others' points of view and motivations,
  - even if they differ from yours
- Good leaders make it safe to voice an opinion

# Back to psychology...

The Demand / Withdraw Dance



Burrell et al. (2014) "A Meta-Analysis of Demand/Withdraw Interaction Patterns" in Managing Interpersonal Conflict: Advances Through Meta-Analysis, Burrell et al. eds.

# An Exercise...

### What words do you remember?





### A little more psychology...

In conversation, you tend to remember the last thing you hear

When you are feeling defensive, you tend to "fight back"

To communicate a problem effectively start with **expectations** and end with **observations** 

# Storytime with Dylan

Names have been changed/redacted

Hi Dylan,

I heard there are LIDAR data in the Peta library. However, I was hoping to get access to the rest of the library, not necessarily for editing and uploading data for now, but simply to have access to the existing data to work with it?

Thanks, Joe

Joe,

Um, I am not sure what you mean by "the rest of the library..." There is like 800 TB of data on the petaLibrary and some people probably don't want you having access to their data. Is there a specific project/researcher that you are working with that you know of that you want access to? The PI of the project has to give permission first before I can just give you access.

Best, Dylan

Hi Dylan,

He's referring to the data repository (not sure what it's called), not individual people's folders. Isn't there a common location where the data is stored?

Thanks, Brian

#### Brian,

That is exactly what I am talking about, /petaLibrary.arcc.uwyo/Commons is a common location for data, but there are individual projects under the common area with PIs that range from Engineering, to ecology, to physics and so on. If there is a specific project that you want access to I can certainly give you that but not the whole common area. Only ARCC staff have access to the whole common area.

There are LIDAR data from the WyCEHG project that is called TRACK1 on the petaLibrary. Is that what we are talking about? In that there are ~80 different people who collected data for that project all with different folders inside there. I need to know what data Joe needs access to and someone from that project to confirm it's OK. Like who first told you where the data are stored and then I can probably figure it out?

Best, Dylan

Oh, for sure, he doesn't need access to all of those peta folders, just for some of the TRACK1 EPSCoR data. I don't know where it's stored, though, I've tried to stay clear of the peta library so far because I never can find what I'm looking for. I guess Dan Walker mentioned something to him about some data that he could get from there. We'll inquire.

Thanks, Brian

Thanks Dylan,

I did not know this was such a complicated process. I was forwarded this document (attached) and (Names, redacted) and Dan Walker all have mentioned that previous data ranging from meteorology data, spatial data, discharge and soil data are all on what seems to be the elusive PETA library. Some of this data would be beneficial for the work I am doing in NoName.

I do not want access to any proprietary projects that are sensitive, merely basic data covering the No Name field site which all the above folks have mentioned to look for on the PETA library.

Joe

- Duration of this exchange 48 hours
- What are the results?

What could I have done better?

Joe,

It's not that complicated or elusive, you just didn't use the terminology that told me what you were asking for and all you said was "I need access to the rest of the library". It's important to know that the petaLibrary is much larger than this one group, it's a core ARCC service (Link to Wiki)

All of these people and the file you attached are associated with the WyCEHG project. Their names or the project would have been the thing to mention. Typically, the PI (or someone the PI has given permission to make requests) will ask me to add someone, I usually don't get requests from students. Sorry to come off as a stingy person, but I have to make sure their data are protected from just any person asking for access without any context of why they need that access.

I added you to the group that they are all apart of and you should now have access to (...) If you have any trouble getting connected, let me know.

Dylan

### You've got mail!

- Use an expected vs. observed structure when communicating problems through email
- Excellent opportunity to practice (and revise)
- Don't fill in the "to" field until the very end

## Email Example - Student not behaving

Dear Blake,

Your jobs are going over resource limits and causing the nodes to go down. You need to stop running them immediately or we will disable your account.

HPC Team

### Email Example - Expectations

Dear Dr. Xio,

From now on please come to me with all questions and comments instead of the HPC staff. I realize that there is a problem on the system which is impacting your jobs but my staff is trying their best to fix the problem and your constant interruption are distracting them and making fixing the problem take longer.

- Rory

### Email Example - Frustration

Dear Ali,

I am sick and tired of you interrupting me during meetings. My opinion is just as important as yours. Please stop.

- Jan

### Email Example - Sandwiching

Dear Alexis,

I really like the energy you are bringing to the lab. However, I have noticed that you have stopped writing weekly reports. We really need them. You have also created a wonderful workspace. Keep up the good work.

- Sage

### Email Example - Need help in class

Dear Dr. Horton,

I really like your class, however, I am having trouble understanding your accent. Would it be possible to go to Dr. Aderal's section instead?

Thank you,

- Reese

### Email Example - Student Mentee

Dear Harley,

You are not spending enough time in the lab and therefore not getting enough work done. I need you to either put in the time that is needed or you need to let me know so I can hire a different student to take your place.

Dr. Slatemore

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# It's Complicated:

Communicating about Complexity

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- Describe the three tools for speakers during complex conversations
- Model effective speaking skills during complex conversations
- Describe the three tools for listeners during complex conversations
- Model effective listening skills during complex conversations
- Reflect on the training and identify areas where they can apply what they've learned

## Effective Communication about Complexity

...occurs when information is both shared and understood

...builds trust and fosters relationships

...helps the speaker communicate needs and goals

...helps the listener understand and participate in solutions

#### Our Context

#### **SPEAKER**

- ROLE: initiates the conversation
- GOAL: communicate the problem
- TOOLS:
  - Reducing Jargon
  - Using Good Analogies
  - Checking for Understanding

#### LISTENER

- ROLE: listens to the speaker
- GOAL: understand the problem
- TOOLS:
  - Reflective / Active Listening
  - Paraphrasing
  - Asking Clarifying Questions

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# TOOLS FOR THE SPEAKER

Reducing Jargon
Using Good Analogies
Checking for Understanding

### What is "Jargon"?

- According to Google: "Special words or expressions that are used by a particular profession or group and are difficult for others to understand."
- Common sources of jargon
  - Discipline-specific terms
  - Words with multiple meanings
  - Cultural references
  - o Idioms
  - Acronyms



### What is an Analogy?

According to Google: "A
 comparison between two things,
 typically for the purpose of
 clarification or explanation."



## Tool: Using Good Analogies

- A good analogy
  - Fits the context
  - Increases understanding
- But be cautious!
  - Analogies have inherent limits, and will eventually break down
  - Analogies can cause confusion if they are not understood –
     beware the cultural reference!

#### Tool: Check for Understanding

- As the speaker, your goal is to be understood
- Check for understanding by asking questions that encourage the listener to respond
  - Example: "Whew! I just threw out a lot of information. Would you mind sharing what you think is going on so I can see if my explanation made sense?"
  - Example: "So, what questions do you have about the situation I just described?"
- Avoid yes/no questions ("Do you understand?")



## Speaker Example: Embarrassingly Parallel

#### **The Context**

Nan is a graduate student using a software program to analyze experimental data; the program takes approximately 10 minutes per input, but produces the correct results. Nan has a new data set with 10,000 inputs and wants to figure out how to speed things up by running on the university's supercomputer, but Nan doesn't have a lot of programming experience and has never used the supercomputing center before.

#### The Speaker

Jamie is a CI Facilitator who works for the university's supercomputing center. After a quick code review, Jaime can see that Nan's program can easily be reworked to run in parallel.

#### Jamie's First Attempt

Jamie says: "I've looked though your code and I think you can make it go faster. Your problem is Embarrassingly Parallel. You just need to write a submission script to distribute your program across many nodes. Here is a website to help you get started. That makes sense? Right?"

- Did Jamie use any Jargon?
- How well do you think Nan now understands the problem?
- What response will Nan likely have to this explanation?

### Jamie's Second Attempt

Jamie: "I've looked though your code and I think we can make it go faster by running it in parallel. Do you know what that means?"

Nan: "No."

Jamie: "This is a type of problem I consider to be pleasantly parallel. Imagine that each of your inputs needs to make a road trip across the USA. You want them to get to the destination as fast as possible, but you don't care what order they arrive or whether they take the same roads to get there. Running in parallel is like having many different cars and roads so more of your inputs can go at the same time. We need to write a program to tell the system how to run your inputs on many different computers. What do you think about this plan?"

# TOOLS FOR THE LISTENER

Active / Reflective Listening
Paraphrasing
Clarifying Questions

#### Listener Tools

- As CI Facilitators, when we are in the listener role our goal is to understand the problem so that we can help find solutions
  - Use Active / Reflective Listening to make sure the speaker feels heard; this is particularly helpful in situations with strong emotion
  - Use Paraphrasing to make sure that you (the listener) truly understand the situation
  - Use Clarifying Questions to obtain additional information you need to help solve the problem

#### Tool: Active/Reflective Listening

- Listen with the goal of truly understanding the speaker
  - Pay attention to both words and body language
  - Watch for strong emotions (anger, frustration, worry)
- Reflect back to the speaker what you heard, using "I" statements
  - Correct: "What I understood was..."
  - Incorrect: "You said..."
- If strong emotions are expressed, acknowledge without judgement
  - Correct: "That sounds really frustrating..."
     Incorrect: "Calm down! You're blowing this completely out of proportion..."

### Tool: Paraphrasing

- Use paraphrasing when you are trying to understand a complex problem
  - Listen to the speaker carefully
  - 2. In your own words, state the parts of the situation you understand (avoid adding jargon!)
  - 3. Allow the speaker to confirm, or to clarify, your understanding
- Paraphrasing is NOT the same as parroting
  - To use an analogy: paraphrasing is a lens, while parroting is a mirror

#### Tool: Ask Clarifying Questions

- As the listener, your goal is to understand in order to help solve problems
- Use clarifying questions to obtain additional information you need to help
  - "What programming language does your software use?"
  - "Can you tell me a bit more about the team that designed the part?"
  - "Have you ever used this approach before?"

## Listener Example: Frustrated PI

#### The Context

Dana is a PI who stopped by HPC office hours. Researcher-facing CI-Professional Kim is there, and listens as Dana says:

"I am SO frustrated! I have a lot of data I need to process using the Sanborn-Stratta method, which is better than the more common FCFD approach. However, my transient error is much larger than the latent error. I think I can reduce the transient error by increasing the Tallholm threshold, but then the software will not run on my computer. So, I need you to make it run on the supercomputer!"

How should Kim respond, using active listening, paraphrasing, and/or clarifying questions?

#### How should Kim respond to the frustrated PI?





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# Summary

- First Contact
  - New people
  - New ideas
  - New resources
  - New contexts
  - Value of your story
- ➤ Let's Talk
  - Problem identification
  - Solving problems
    - Expectations vsObservations

- It's Complicated
  - Speaker Tools
    - Jargon
    - Analogies
    - Check for understanding
  - Listener Tools
    - Active Listening -Using "I" Statements
    - Paraphrasing
    - Clarifying Questions

# Lint Prompt

On an index card or paper (something analog!), make a contract with yourself:

- What have you learned today that you'd like to try?
- > Where and when will you put this technique to use? For example:
  - At the faculty mixer next week, I'll aim to have two genuine First Contact conversations.
  - During office hours on Thursday, I'll try identifying assumptions (mine and theirs) when consulting with new clients.
- Crumple up the paper and put it in your pocket as a reminder.

#### Feedback

- Please let us know what you think!
  - What is working well or helpful?
  - Which examples / scenarios can be improved?
  - What other challenges, contexts or situations should we explore?
  - Please Fill out the Survey! <a href="https://tinyurl.com/CAfb2021">https://tinyurl.com/CAfb2021</a>