Superstar Rats Teach Empathy to Researchers

OLAW Online Seminar
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Rat Superstar Project Aim

Test if exposure to well socialized rats, that demonstrate complex mental and behavioral capabilities, increases empathy of those working with research animals

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People Matter

A key element to achieving good animal welfare is having caring people who work with animals

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Empathy & Compassion

- Establishes concern and connection with another being
- Directs our interest and understanding of what is going on with another being
- Makes someone want to refrain from hurting and instead help another

= Ideal qualities for safe guarding animal welfare

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Belief in Animal Mind

Animals are:

- Self aware
- Capable of solving problems
- Experience emotions: fear, pleasure, depression …

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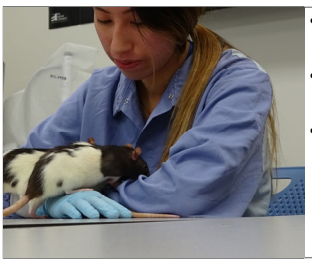
Belief in Animal Mind



- More concerned about animal welfare
- Behave more humanely towards animals
- Have more empathy towards animals and humans

(Broida J. et al.1993: Hills AM. 1995; Knight S. et al. 2004)

Research community needs people who believe in animal mind with empathy and compassion

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Educational Intervention

Goal: Use rats to help capitalize on features important to fostering empathy

- Mandatory class for researchers
- Students enrolled in class observed rats:

1. "Regular" (control)
2. "Superstar" (intervention/treatment)

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Educational Intervention

Intervention (treatment): observed 7 highly trained rats perform

Intervention Promoted:

- Feelings towards rats
- Direct experience
- Understanding of mental experiences

Regular Rats (control): no training

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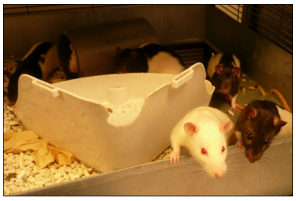
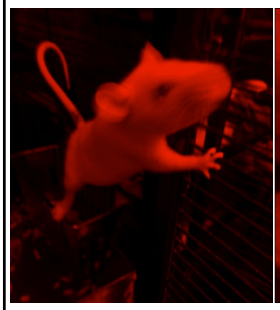
4 Phases:

① Socialization
② Training
③ Educational Intervention
④ Focus groups

Housing



Lighting



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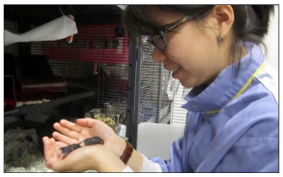
Phase 1 - Socialization



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Phase 2 - Training

- Clicker and target training began at 4 weeks of age
- Long-Evans rats trained best
- Females more focused than males after puberty

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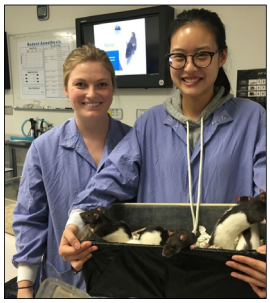
Phase 3 – Intervention



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Intervention: Set up

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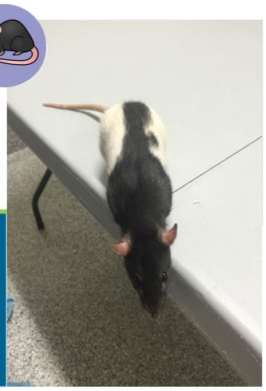
The Dream Team:

Marie

100% food motivated
(Would sell her siblings
for treats).



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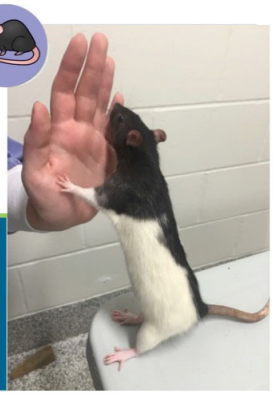
The Dream Team:

Grandin

Probably loves fetch
more than any dog.



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Phase 4 - Focus Groups

- 8 focus groups (3-6 people per group)
- 3 control & 5 intervention groups
- 29 participants (25 researchers, 4 veterinary technicians)
- 20 females, 9 males
- Researchers: graduate students, post-docs
- Research areas: Neuroscience to immunology
- 50% with previous rat experience

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Phase 4 - Focus Groups

- 8 open-ended questions
- Recorded and transcribed

Questions:

- What was your experience when you handled the rats?
- Did you learn anything new about rats?
- Do you feel your experiences with rats in the class might influence how you care for and interact with your rats later?

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Focus Groups - Analysis

- Qualitative analysis of transcripts
- Method: Constant comparison
  - Classified until emergent themes identified
- Quotes illustrate themes

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3 Major Themes

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Evidence of Empathy/BAM

Intervention

Rats are Amazing!

- All participants recounted a sense of "amazement" and "surprise" when they watched the rats perform

Rats are smart

"Yeah my dog can't do any of that." RA

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Evidence of Empathy/BAM

Rats have personalities

"I thought it was funny that they knew their names and they could respond to their names. It … made them … like they had their own separate little personalities, especially with the slide up there. So when I went to handle the rat, I was like "who is this?" I wanted to know, which is weird because in my lab it's just numbers." RK

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Evidence of Empathy/BAM

Rats are capable of experiencing emotions

"… they enjoy the handlers, … they enjoy the interaction… ." RR

"So now I know they would understand if I give them love. I feel like they would understand it, so I can actually make their lives better by giving them more attention." RM

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A Nudge in the Right Direction

- Participation in the intervention "reminded" students of their moral responsibilities to their research subjects

"… it's a really good way of reminding us students that these are animals, creatures. They are intelligent, … they aren't … just a tool. Treat them humanely, treat them correctly. I think it's just a good reminder and oh yeah, they are adorable." RE

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A Nudge in the Right Direction

"I think about them differently now. … "Y" and I just anesthetize rats and take their brain out. We actually got to see more of what they're capable of … I have a bit more respect … for them." RL

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Evidence of Empathy/BAM

Control groups

- Few comments were related to the rats they met in the class except they found them cute
- Focus was on what they learned in class (technical)

"Yeah, I learned that thing that once I grab the rat outside the cage, I should turn around so that the rat may not get into the cage again. So that's something I learned new here." SD

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Witness to Human-Animal Relationship

Improved learning environment

- Reduced fear of being bitten while learning how to handle rats

"I saw how you were handling the rats and you were using your hands. … when I first saw them I was a little taken aback and then … I just noticed that you were comfortable with them and that made me feel like … they wouldn't bite." RL

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Witness to Human-Animal Relationship

Consequences of knowing your research animal

Participants imagined implementation in their own labs:

- Concerns about becoming "attached", "bonded" or "connected" to research subjects
- Emotional burden on researchers

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Witness to Human-Animal Relationship

"… as a researcher it would be a lot harder to sacrifice them. I think because usually they just have numbers, right? Them having names and you having that connection with them – I think I already have a hard time with the sacrifice – so I think it might make it even harder. But at least they lived a happy, fun little life, right?"

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Witness to Human-Animal Relationship

Blurring of the Boundaries

- Moral unease with blurring line between a "pet-like" research subject and traditional view of research animals
- Naming was not allowed in one facility because it fostered a personal relationship

"So our boss just said no one's naming anything. We're just doing it the research way." TJ

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3. Data Validity

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Data Validity

- Lack of consensus on how human-animal relationship affects data:
- **Positively** (e.g. reduced stress = better data):

"Even if we could just get them into the anaesthetization chamber a lot more easily. … it would reduce a lot of stress. … I mean even stress could sometimes influence research, experimental results." RM

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Data Validity

- **Negatively** via bias

"That's also kind of important for us because we have to do blind study right. We shouldn't really know them [rats] at all because … that might compromise the study. … if you have a favorite one, then we may give them .. better treats or whatever." RY

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Conclusions

Intervention benefits:

- Shows promise for promoting empathy & compassion
- Reminds us of our moral obligations towards research animals
- Improves learning environment for handling
- Potential to impact large # of people

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Conclusions

Challenges:

- Need for explicit discussions regarding variety of variables impacting data and how to balance them with welfare
- Longer term benefits need to be evaluated
- Overcoming barriers within lab cultures

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Conclusions

Challenges related to the human-animal relationship:

- Considerations for supporting emotional well-being of those working with animals

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A Good Life for Both Animals & Humans?

"And in my mind, I'm so happy that they got to hang out and have what I see as a more positive welfare-filled life than some of the other rats at the facility… . To me, the positive part of the relationship outweighs that feeling of grief every single time."

Nevene

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Questions

Submit to the chat box in the GoToMeeting control panel

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Question 1

What were the criteria used for selecting the "Superstar" rats?

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Question 2

How can institutions apply the results of your study to train or educate animal users?

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Question 3

How is such an intensive approach (animal training etc.) applicable to large scale studies?

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Question 4

What was the duration of your study and are there plans to follow-up with participants in the long-term?

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Question 5

Can you elaborate on how your results affect or impact compassion fatigue?

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Question 6

How do your results affect the integrity of research data and reproducibility?

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Question 7

Did you ever consider carrying out a pre and post-intervention survey on empathetic attitudes to see if attitudes changed?

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Questions

Submit to the chat box in the GoToMeeting control panel

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The 4th R: Rehoming/Retirement/Release - options for laboratory animal research subjects when the study has ended

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June 13, 2019

Dr. Lara Helwig, DVM, DACLAM, Brown University

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