

# Do you have a lizard brain?

And what does this have to do with cybersecurity?

Laura Baker, CyberWyoming Alliance Board President  
Member of the Wyoming CAN Committee

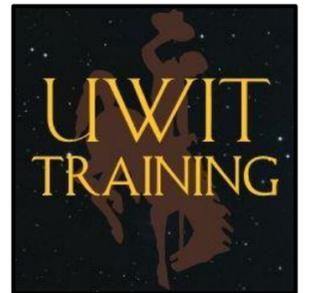


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## 1. What is a lizard brain?

According to a Wall Street Journal article called “The Biggest Cybersecurity Risk: Our Brains” on September 9, 2021, lizard brain is a build up of cognitive biases that can cause us to misinterpret information.

According to the Cambridge dictionary, cognitive bias is *the way a particular person understands events, facts, and other people which is based on their own set of beliefs and experiences and may not be reasonable or accurate.*



Why Your 'Lizard Brain' Makes You A Bad Investor -- and ...

WSJ <https://www.wsj.com/articles/SB116173571225802738>

And the lizard brain says it's better to consume, so let's take that \$542 and go shopping.

... You will be charged \$ + tax (if applicable) for The Wall Street ...



Mitchell, Heidi. “The Biggest Cybersecurity Risk: Our Brains.” Wall Street Journal, September 9, 2021: R1. Print.

<https://dictionary.cambridge.org/us/dictionary/english/cognitive-bias>

## 2. But it also hurts your ability to spot a phishing email

### Cybersecurity Tie-In

IF

You are misinterpreting the information in an email

OR

Zipping through your emails making snap judgements

THEN

you may be reading emails with your

**LIZARD BRAIN!**



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### 3. Cyber Criminals

Criminals who write phishing emails know how to take advantage of lizard brain. They try to activate our automatic processes so we don't actually think and instead, we just react.

**And they use lots of psychological tools to take advantage of the lizard brain and make the email more familiar to us.**

*We should be a lot more afraid of the English major than the Computer Science major.*

- Dr. Erik Huffman, Cyberpsychology Researcher

WHY? Because the English major can craft an email to make you click. They know how to trick your **lizard brain** to activate.



## 4. Psychological Factor 1

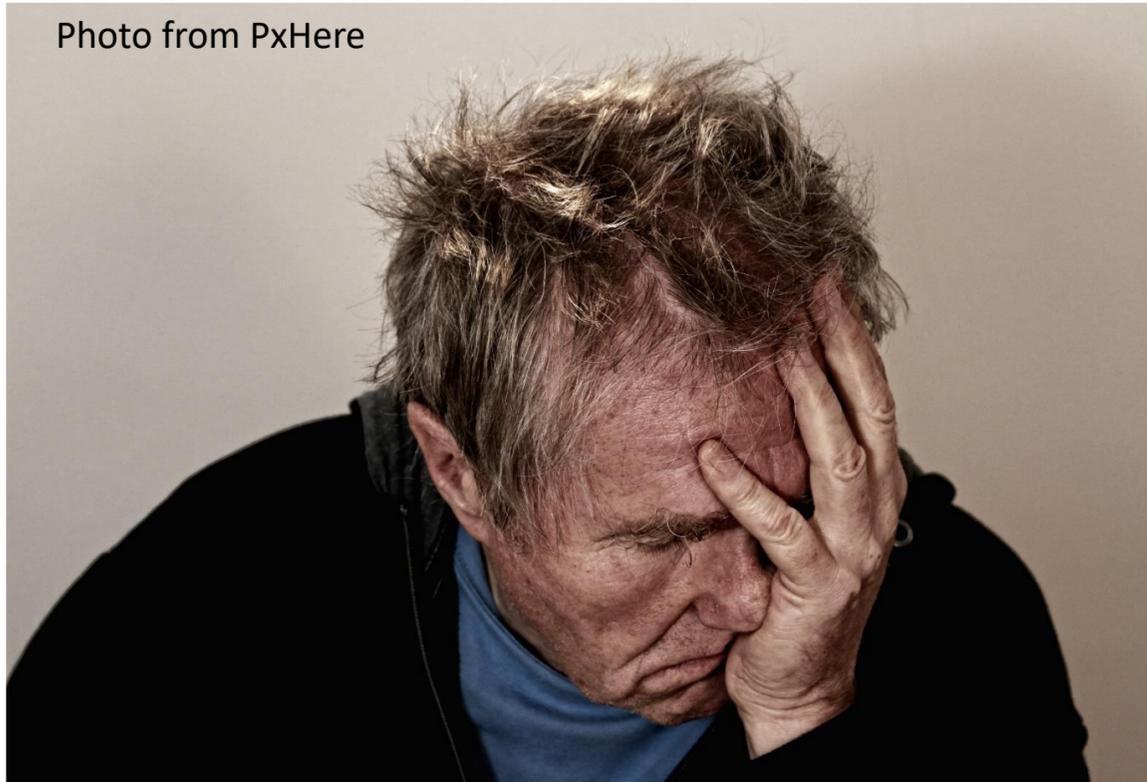
### Loss Aversion

Do you find the pain of loss to be harder to deal with than the joy of a gain?

Think about it this way: Are you still ruminating on selling that 1965 Mustang 20 years ago and wish you had not sold it? Do you kick yourself over a bad investment? This is the pain of loss.

Hackers take this pain of loss and scam you by saying you are going to lose access to your shipment or a bank account or your Amazon account...unless you click on this link and verify your credentials.

Photo from PxHere



## 4. Psychological Factor 2



Photo from PxHere

### Authority Bias

Overall, we trust our local leaders, police officers, and military. We trust the managers we work with and want to be responsive to them.

Hackers will send an email that looks like it is from an authority figure, like the CEO of a company or use a title like Agent, Corporal or Deputy to invoke your authority bias.

## 4. Psychological Factor 3

### Urgency Bias

An urgent matter tends to make us hurry. For instance, if the boss asks you to do something you usually make it a priority.

Hackers will send emails with 'limited time offers,' 'act now,' and make up stories with a sense of urgency. For instance, a grandparent may get a call from a fake police officer saying that their grandson has been hurt in an accident and needs money. That story has a real sense of urgency while invoking the authority bias too.

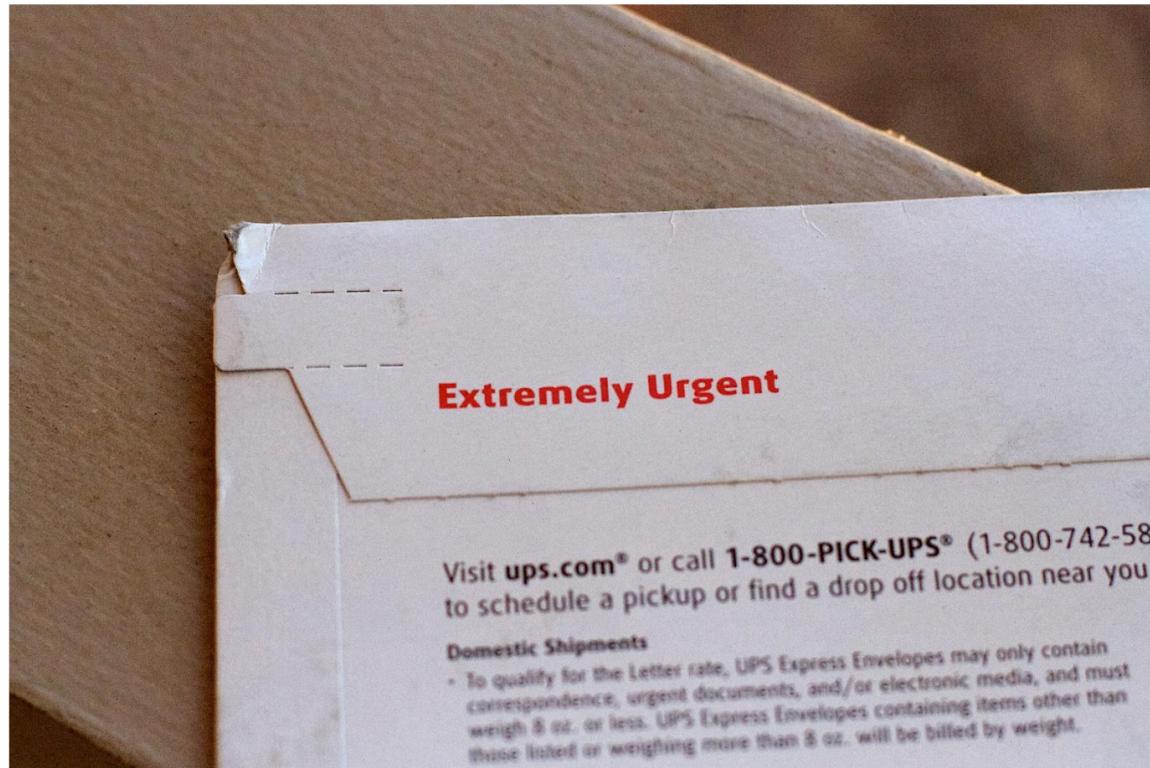


Photo from PxHere

## 4. Psychological Factor 4

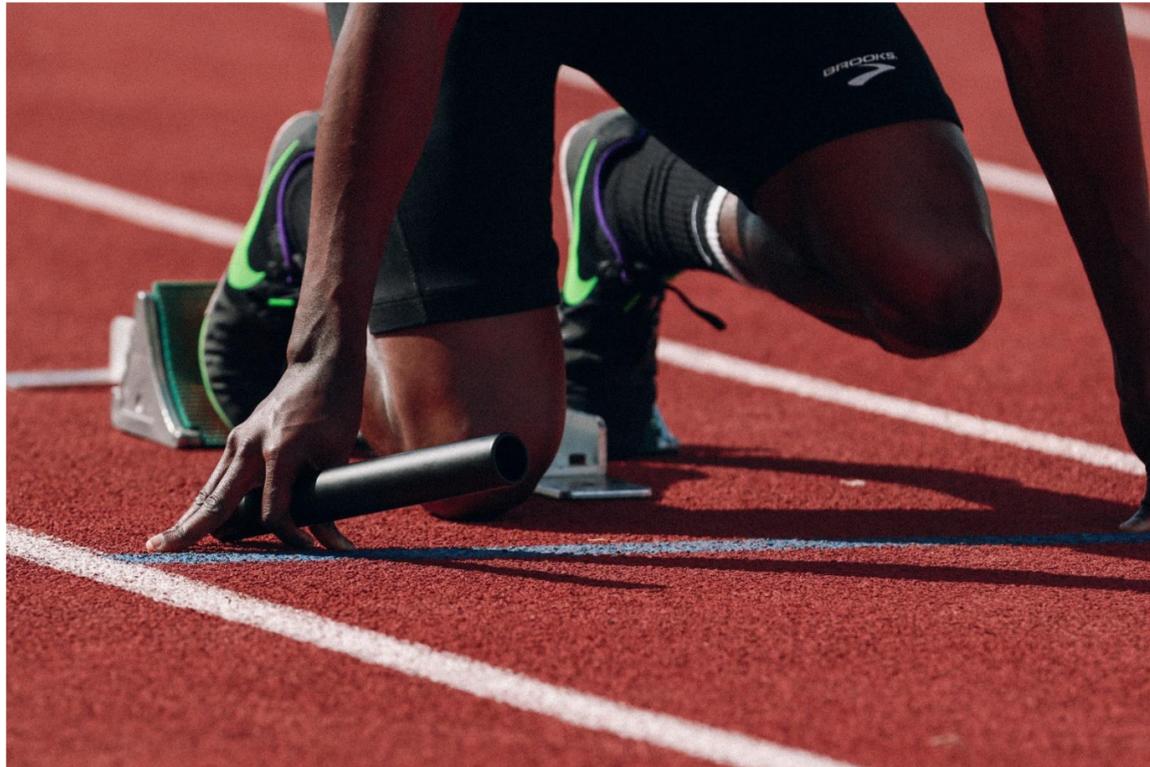


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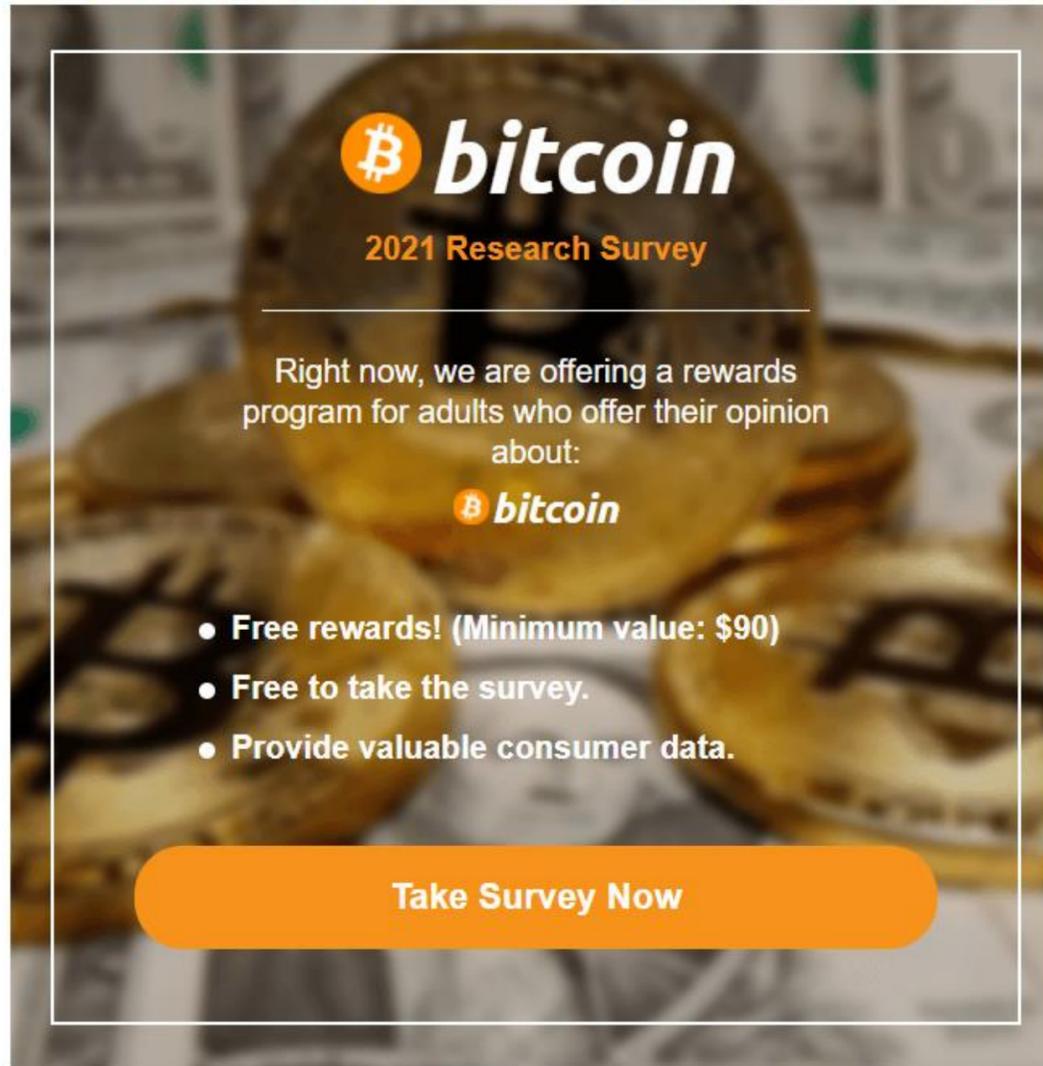
### Halo Effect

What are your associations with the Nike brand? Athletics, positive messaging, great shoes? This is called the Halo Effect. We like the Nike brand. We have positive associations with the brand.

Hackers take advantage of branding by stealing it and including it in their emails to impersonate the organization to take advantage of the familiarity and the positive feelings you have towards the brand.

## 4. Psychological Factor 5

Congrats! You've Been Selected For \$100 Bitcoin Survey Reward



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Actual scam reported by a Wyomingite.

## Present Bias

We like instant gratification. So, most of the time we are going to choose to have that ice cream today even though it means more weight gained long term.

Hackers take advantage of present bias by providing links to winnings or surveys with cash rewards.

## 4. Psychological Factor 6

### Availability Bias

We make judgments on our most recent experiences, or what is available to us in our memory. We use this information to compare to new situations today, what we are seeing or feeling now.

Many of us are familiar with Amazon being impersonated in emails, but how many of us are familiar with local charities and churches in our communities being impersonated?

Hackers take advantage of availability bias by creating a completely new situation, something you haven't seen before.



## 4. Psychological Factor 7



Photo from PxHere.

### Illusion of Unique Invulnerability

Aka Optimism Bias

Have you told yourself, “Ah, this won’t happen to me” to help yourself feel better about a risk.

According to Dr. Alana Maurushat, Professor of Cybersecurity and Behavior at Western Sydney University (Australia), if you are a white male over 40 you are most at risk for this optimism bias.

Hackers know that you don’t think it can happen to you and craft cunning emails so you don’t see them coming.

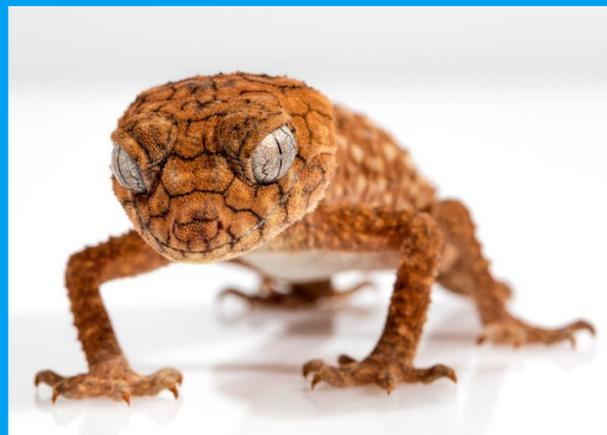
5. What to do? First, recognize our own biases. Then give yourself permission to slow down when you are reading your emails.

**SLOW DOWN**

**Self reflection:**

*Think about what personal biases you may have.*

- Loss Aversion
- Authority Bias
- Urgency Bias
- Halo Effect
- Present Bias
- Availability Bias
- Illusion of unique invulnerability



**And remember that this could happen to you.**

Good rule of thumb – always verify from an outside source.

- Do not call the phone number in the email.
- Do not click on any links in the email.

Instead, look up the person's or company's information separately and call.

Have a family password.

Don't trust branding in emails.

If the offer is too good to be true, it usually is.

**Activate your thinking brain and kick the lizard out!**

# More About Lizard Brain



Lizard brain hurts our ability to respond to conflict, has been blamed for writer's block and inability to make changes in your life. How to overcome it:

<https://www.youtube.com/watch?v=HRfj5veBwlw>

Why Your 'Lizard Brain' Makes You a Bad Investor – and How to Battle Back

<https://www.wsj.com/articles/SB116173571225802738>

Blame it on the Lizard Brain <https://tidorg.com/blame-it-on-the-lizard-brain/>

Psychology Today Articles about Lizard Brain:

<https://www.psychologytoday.com/us/blog/where-addiction-meets-your-brain/201404/your-lizard-brain>

<https://www.psychologytoday.com/us/blog/managing-your-memory/201712/don-t-listen-your-lizard-brain>

How to beat your lizard brain: <https://facilethings.com/blog/en/lizard-brain>

# Other Resources

Authority Bias: Better Business Bureau Institute for Marketplace Trust.

*Exposed to scams: what separates victims from non-victims?*

[https://www.finrafoundation.org/sites/finrafoundation/files/exposed-to-scams-what-separates-victims-from-non-victims\\_0\\_0.pdf](https://www.finrafoundation.org/sites/finrafoundation/files/exposed-to-scams-what-separates-victims-from-non-victims_0_0.pdf)

Grandparent's Scam:

<https://www.consumer.ftc.gov/blog/2021/04/dont-open-your-door-grandparent-scams>

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