

The Laboratory of Neurocognitive Development

Quarterly Newsletter: Fall 2025

Newsletter Theme: **Exploration and Flexibility**



Scientist Spotlights

Meet Dr. Ashley Parr!

Dr. Parr is a Research Assistant Professor in Psychiatry at the University of Pittsburgh School of Medicine. She earned her PhD back home in Canada, studying how adults make decisions – but soon realized it was even more fascinating to explore how the teenage brain learns to make decisions. Her research shows that teenage behaviors like risk-taking, exploration, and trial-and-error learning are unique tools that your brain uses to become more flexible and prepare for the complexities of being an adult.



Meet Dr. Valerie Sydnor!

Dr. Sydnor is a Postdoctoral Researcher in the Laboratory of Neurocognitive Development. She studies relationships between brain development, youths' environment, and mental health. Her research shows that during adolescence (ages 10-25 years old), brain regions that support cognitive, social, and emotional processing are uniquely plastic. This neuroplasticity makes the teenage years a key time to experience positive and enriching environments that promote healthy development and resiliency.



What is the science saying?

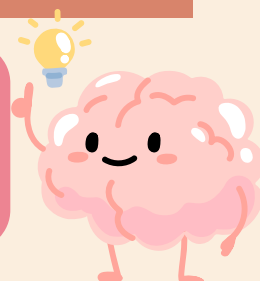
The world is constantly changing. We find ourselves in different places and situations on a daily basis that call for different behaviors. At school, you might need to sit quietly and listen, but at a friend's birthday party, it's okay to be loud and playful! And sometimes, in new situations, it's not clear how you should act at all.

How does your brain figure out how to adapt and learn which behaviors are best in these different situations?

This ability is called flexibility. A new paper from Dr. Parr and Dr. Sydnor describes how flexibility is supported by exploration!

As a teen, you are likely spending more time in new places – at school, with friends, in social settings – and you are exploring new environments, encountering new things, and trying out different behaviors. This kind of exploration helps your brain learn which behaviors work best for you, often those that are most rewarding, and which don't. This **active exploration** and learning process helps your brain get better at switching between tasks, solving problems, and adapting, **fostering flexibility!**

Studies have also shown that during the teenage years, greater **real-world exploration** is associated with better emotional well-being. Real-world exploration increases communication between a brain region that processes our environment (the hippocampus) and a brain region that helps us feel positive emotions (the ventral striatum)!



Explore like a scientist!

Places to explore

- Children's Museum of Pittsburgh
- Carnegie Science Center
- Carnegie Public Libraries
- Cathedral of Learning
- Schenley Park

CNUP Brain Program for a scientist to come to your school

<https://www.cnup.pitt.edu/outreach/cnup-brain-program>

CMU Technights for online videos about computer science

<https://roboticsed.ri.cmu.edu/resources/technights/>

Community Engagement Center for STEM summer camps and adult programs on digital literacy/coding

<https://www.cec.pitt.edu/hilldistrict>



At-home suggestions

Challenge your brain to adapt to new patterns and rules and solve problems in real time.

- Play around in the kitchen at home – try cooking or baking new recipes you've never made before!
- Listen to music and podcasts outside of your typical genre.

Interact with different perspectives!

- Volunteer somewhere or join a club where you'll meet different people from different backgrounds.
- Go to social events where you can make new friends.

Strengthen adaptive thinking.

- Play new games where you have to learn new rules (i.e., board games or card games), or games where you have to really pay attention in the moment and you can't predict what's about to happen.
- Extra points for role-playing games where you have to make up characters and rules on the fly!

Be an adaptive explorer!

Explorers and scientists are often faced with challenges they don't expect. But what makes them successful? **They adapt!** Here are a few tips on how you can explore like a pro:

- **Be curious!** Don't be afraid to ask a lot of questions.
- **Try, Reflect, Repeat!** Mistakes are clues that bring you one step closer to your goal.
- **Take a brain break.** Sometimes flexible thinking needs rest.

From Our Team to You

Thank you so much for being part of our study!

Because of awesome participants like you, we're learning more about how kids and teens grow, think, and explore the world around them. Your time and ideas help us understand the brain in ways that make a real difference!



Scan the QR code to check out our website and learn more!





Flex your brain activity page!

Word Search!

Can you find these
words?

Adapt
Explore
Flexibility
Brain
Environment
Learn

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | E | Y | Y | T | A | N | N | N | E | N | Y |
| A | N | T | N | D | D | R | T | X | N | N | L |
| N | V | I | B | R | A | I | N | O | L | N | R |
| X | I | L | P | T | P | M | I | N | X | N | L |
| D | R | I | I | L | T | E | P | T | I | O | X |
| O | O | B | E | N | F | A | R | L | V | O | T |
| L | N | I | E | R | O | L | P | X | E | B | E |
| N | M | X | O | E | A | R | L | E | A | R | N |
| F | E | E | I | I | E | I | I | L | O | T | E |
| E | N | L | Y | A | L | T | E | N | X | E | L |
| R | T | F | E | N | D | P | T | L | I | L | O |
| V | R | E | O | T | R | N | E | E | X | I | N |



Brain Maze!

Can you find your
way out of the
brain?