

# Hannah R. Snyder

## Curriculum Vitae

Postdoctoral Fellow  
University of Denver  
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### EDUCATION

#### Ph.D.

**University of Colorado Boulder, Cognitive Neuroscience, 2012**

Dissertation: "Choosing our words: Neural mechanisms supporting cognitive control during language processing." (Advisor:Yuko Munakata)

#### M. A.

**University of Colorado Boulder, Cognitive Psychology 2008**

Thesis: "Becoming self-directed: Abstract representations support endogenously cued switching in children." (Advisor:Yuko Munakata)

#### B.A.

**Oberlin College, Psychology and Neuroscience 2004**

Highest honors in psychology.

### PROFESSIONAL EXPERIENCE

#### Postdoctoral Fellow

**2012-present**

University of Denver & University of Colorado Denver  
Dr. Benjamin Hankin

#### Graduate Research Assistant

**2006-2012**

University of Colorado Boulder  
Dr. Yuko Munakata

#### Professional Research Assistant

**2004-2006**

University of Pennsylvania  
Dr. Sharon Thompson-Schill

## RESEARCH

Executive function impairments associated with depression and anxiety.

Neural mechanisms supporting executive function, particularly selection among competing responses.

Development of executive function in children and adolescents.

Multi-method, multiple level of analysis approaches: fMRI, neural network modeling, behavioral, clinical, psychopharmacological, and meta-analytic.

## GRANTS & FELLOWSHIPS

R21 MH102210	<b>2014-2016</b>
Links Among Adolescent Executive Function, Effortful Control and Psychopathology	
Co-Investigator (PI: Benjamin Hankin)	
NRSA Postdoctoral Fellowship, F32 MH098481	<b>2013-2015</b>
Links Between Depression and Executive Function Impairments in Adolescents	
University of Colorado Denver Developmental Psychobiology Endowment Fund, Pilot Grant	<b>2013-2015</b>
Links Between Depression and Executive Function Impairments in Adolescents	
NRSA Predoctoral Fellowship, F31 MH087073	<b>2009-2012</b>
Prefrontal Mechanisms for Retrieval and Selection in Cognitive Control	

## PUBLICATIONS

### Journal Articles

**Snyder, H. R.,** Kaiser, R. H., Warren, S. L., & Heller, W. (2014). Obsessive compulsive disorder is associated with broad impairments in executive function: A meta-analysis. *Clinical Psychological Science*. Advance online publication. DOI: 10.1177/2167702614534210

**Snyder, H. R.,** Banich, M. T., & Munakata, Y. (2014). All competition is not alike: Neural mechanisms for resolving underdetermined and prepotent competition. *Journal of Cognitive Neuroscience*. Advance online publication. doi:10.1162/jocn\_a\_00652

**Snyder, H. R.,** Kaiser, R. H., Whisman, M. A., Turner, A. E. J., Guild, R. M., & Munakata, Y. (2014). Opposite effects of anxiety and depressive symptoms on executive function: The case of selecting among competing options. *Cognition & Emotion*. 28, 893-902.

De La Vega, A., Brown, M., **Snyder, H. R.,** Sigal, D., Munakata, Y. & Banich, M. T. (2014). Individual differences in the balance of GABA to glutamate in prefrontal cortex predicts the ability to

- select among competing options. *Journal of Cognitive Neuroscience*. Advance online publication. doi:10.1162/jocn\_a\_00655
- Barker, J. E., Semenov, A. D., Michaelson, L., Proven, L. S., **Snyder, H. R.**, & Munakata, Y. (2014). Less structured time in children's daily lives predicts self-directed executive functioning. *Frontiers in Psychology, 5*, 593.
- Snyder, H. R.**, & Munakata, Y. (2013). So many options, so little control: Abstract representations can reduce selection demands to increase children's self-directed flexibility. *Journal of Experimental Child Psychology, 116*, 659-673.
- Snyder, H. R.** (2013). Major depressive disorder is associated with broad impairments on neuropsychological measures of executive function: A meta-analysis and review. *Psychological Bulletin, 139*, 81-132.
- Henderson Kaiser, R., **Snyder, H. R.**, Gupta, T., & Banich, M. T. (2012). When does stress help or harm? The effects of stress controllability and subjective stress response on Stroop performance. *Frontiers in Psychology, 3*:179.
- Munakata, Y., **Snyder, H. R.** & Chatham, C. H. (2012). Developing cognitive control: Three key transitions. *Current Directions in Psychological Science, 21*, 71-77.
- Snyder, H. R.**, Banich, M. T., & Munakata, Y. (2011). Choosing our words: Selection and retrieval processes recruit shared neural substrates in left ventrolateral prefrontal cortex. *Journal of Cognitive Neuroscience, 23*, 3470-3482.
- Snyder, H. R.**, Hutchison, N., Nyhus, E., Curran, T., Banich, M. T., O'Reilly, R. C., & Munakata, Y. (2010). Neural inhibition enables selection during language processing. *Proceedings of the National Academy of Sciences of the United States of America, 107*, 16483-16488.
- Snyder, H. R.**, & Munakata, Y. (2010). Becoming self-directed: Abstract representations support endogenous flexibility in children. *Cognition, 116*, 155-302.
- Snyder, H. R.**, & Munakata, Y. (2008). So many options, so little time: The roles of association and competition in underdetermined responding. *Psychonomic Bulletin & Review, 15*, 1083-1088.
- Snyder, H. R.**, Feigenson, K., & Thompson-Schill, S. L. (2007). Prefrontal cortical response to conflict during semantic and phonological tasks. *Journal of Cognitive Neuroscience, 19*, 761-775.
- Derryberry, W. P., **Snyder, H.**, Wilson, T., & Barger, B. (2006). Moral judgment differences in Education and Liberal Arts majors: Cause for concern? *Journal of College & Character, 7* (4).
- Derryberry, W. P., Wilson, T., **Snyder, H.**, Norman, A., & Barger, B. (2005). Moral judgment developmental differences between gifted youth and college students. *Journal of Secondary Gifted Education, 17*, 6-19.

## Book Chapters

- Hankin, B. L., **Snyder, H. R.**, & Gulley, L. D. (in press). Cognitive risks in developmental psychopathology. To appear in D. Cicchetti (Ed.) *Developmental Psychopathology, 2nd Edition*. Hoboken, N. J.: Wiley.
- Munakata, Y., **Snyder, H. R.**, & Chatham, C. H. (2013). Developing cognitive control: The costs and benefits of active, abstract representations. In P. D. Zelazo & M. D. Sera (Eds.), *Developing*

*Cognitive Control Processes: Mechanisms, Implications, and Interventions*. Hoboken, N. J.: Wiley, pp. 55-90.

Munakata, Y., Chatham, C.H., & **Snyder, H.R.** (2013). Mechanistic accounts of frontal lobe development. In D.T. Stuss & R.T. Knight (Eds.), *Principles of Frontal Lobe Function, 2nd Edition*. Oxford: Oxford University Press, pp. 185-206.

## Submitted Manuscripts

**Snyder, H. R.**, Miyake, A., & Hankin, B. L. (under review). Advancing understanding of executive function impairments and psychopathology: Bridging the gap between clinical and cognitive approaches.

**Snyder, H. R.**, Gulley, L. D., Bijttebier, P., Hatman, C. A., Oldehinkel, A. J., Mezulis, A., Young, J. F., & Hankin, B. L. (under review). Adolescent emotionality and effortful control: Pinning down the core latent constructs of the Early Adolescent Temperament Questionnaire Revised.

Kaiser, R. H., **Snyder, H. R.**, Banich, M. T., & Dimidjian, S. (under review). Too stressed for resilience: Subjective stress mediates depression-related cognitive impairments after controllable stress exposure.

Kole, J. A. **Snyder, H. R.**, Brojde, C. L., & Friend, A. (under review). What's the problem? Familiarity, working memory, and transfer in a problem solving task.

## HONORS AND AWARDS

NIMH training grant recipient (T32-MH15442), University of Colorado Denver	2012-2013
Dosier Award for most outstanding scholarly record, University of Colorado Boulder, Psychology & Neuroscience	2012
Abstract Merit Award, Society for the Neurobiology of Language	2011
Sheryl Young Memorial Scholarship, University of Colorado Boulder	2009-2010
National Science Foundation Honorable Mention	2008
Jerome Davis Student Research Award, Oberlin College	2004
Stetson Prize in Psychology, Oberlin College	2004
Nancy Robell Memorial Endowment Prize in Neuroscience, Oberlin College	2004
Sigma Xi national science honors society	Elected 2004
Phi Beta Kappa	Elected 2003

## TEACHING AND MENTORING

Weekly research and professional development seminar for undergraduate and post-baccalaureate research assistants.	2013-present
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Workshops in scientific writing and statistics for lab honors thesis students	2009-2012
Tutor, Statistics & Research Methods, Cognitive Psychology	2007-2009
TA, Cognitive Psychology (including guest lectures)	2007
TA, Statistics & Research Methods (including lab section)	2006

## Honors Thesis Students Supervised

Amy Turner: "The effects of depression and rumination on false memory," Summa Cum Laude	2010-2011
Kelly Brennan: "The effects of abstract subcategory representations on selection demands," Summa Cum Laude	2010-2011
Bidita Dutta: "Anxiety impairs selection among completing options," Cum Laude	2009-2010
Natalie Hutchison: "Retrieval, selection and anxiety's effect on underdetermined responding," Magna Cum Laude	2008-2009

## CONFERENCE PRESENTATIONS

- Snyder, H. R. (2013) Too many options: Effects of anxiety on selection among competing responses. Talk given at the 2nd International Meeting of the Scientific Research Network on Temperamental and Cognitive Vulnerability to the Dysregulation of Affect and Behavior (Leuven, Belgium, December).
- Snyder, H. R., Banich, M. T., & Munakata, Y. (2013). All competition is not alike: Neural mechanisms for resolving underdetermined and prepotent competition. Poster presented at the Cognitive Neuroscience Society Annual Meeting (San Francisco, April).
- Snyder, H. R., Henderson, R. K., Whisman, M. A., & Munakata, Y. (2011). The role of competitive neural inhibition in language production: Insights from the effects of trait anxiety on selecting among competing words. Talk given at the Neurobiology of Language Conference (Annapolis, November)
- Snyder, H. R., Banich, M. T., & Munakata, Y. (2010). Selection and controlled retrieval: shared neural substrates, differential modulation by anxiety and depression. Poster presented at the Cognitive Neuroscience Society Annual Meeting (Montreal, April).
- Snyder, H. R., Hutchison, N., Nyhus, E., Curran, T., & Munakata, Y. (2009). So many options: Roles of neural inhibition and abstract representations in selection. Poster presented at the Annual Conference of the Cognitive Science Society (Amsterdam, July).

- Snyder, H. R. & Munakata, Y. (2009). Becoming self-directed: abstract representations support endogenously cued switching in children. Poster presented at the Society for Research in Child Development (Denver, April).
- Snyder, H. R., Hutchison, N., & Munakata, Y. (2009). Mechanisms for retrieval and selection during language production. Poster presented at the Cognitive Neuroscience Society Annual Meeting (San Francisco, March).
- Snyder, H. R., Greene, B., & Thompson-Schill, S. L. (2007). Effects of conflict and grammatical class on LIFG activation during object and action naming. Poster presented at the Cognitive Neuroscience Society Annual Meeting (New York, May).
- Snyder, H. R., Feigenson, K., & Thompson-Schill, S. L. (2005). The role of inhibition demands in left inferior frontal gyrus activation during semantic and phonological tasks. Poster presented at the Cognitive Neuroscience Society Annual Meeting (New York, April).
- Snyder, H. R. & Derryberry, W. P. (2004). Moral judgment differences in Education and Liberal Arts majors: Cause for concern? Talk given at the Annual Meeting of the American Educational Research Association (San Diego, April).

## PROFESSIONAL SERVICE

**Ad hoc reviewer for:** *Cerebral Cortex, Cognition, Cognitive Neuropsychiatry, Frontiers in Psychology, Journal of Adolescence, Journal of the American Medical Association, Journal of Cognitive Neuroscience, Journal of Experimental Psychology: General, Journal of Psychiatric Research, Neuropsychologia, Psychiatry Research, Quarterly Journal of Experimental Psychology*

## ADDITIONAL TRAINING

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| Summer Institute in Cognitive Neuroscience, University of California Santa Barbara                | 2009 |
| John Merck Fund Summer Institute on the Biology of Developmental Disabilities, Cornell University | 2008 |

**REFERENCES**

Benjamine L. Hankin  
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