

# **Yunji Park, Ph.D.**

Postdoctoral Scholar  
Department of Psychiatry  
Stanford University School of Medicine  
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## **EDUCATION**

**2021 Ph.D. in Educational Psychology**, University of Wisconsin–Madison, Madison, WI, USA  
**2019 M.S. in Educational Psychology**, University of Wisconsin–Madison, Madison, WI, USA  
**2014 M.A. in Cognition and Perception**, Chung-Ang University, Seoul, South Korea  
**2012 B.S. in Physics and B.A. in Psychology** Chung-Ang University, Seoul, South Korea  
**2010 1-year Exchange Student**, University of California, Davis, CA, USA

## **ACADEMIC POSITION**

Summer 2021 - Postdoctoral Researcher, Department of Psychiatry, Stanford University

## **HONORS AND AWARDS**

**AERA-NSF Institute on Statistical Analysis**, *American Educational Research Association Grant Program*, Laguna Beach, CA, USA, 2020  
**Hartzman International Travel Awards**, *School of Education in UW-Madison*, 2020  
**Outstanding Paper Awards**, *Korean Journal of Cognitive Sciences*, 2014  
**BK 21 PLUS Scholarship**, the Ministry of Education, Science, and Technology, 2013-2014  
**Scholarship for Graduate School Freshmen for Outstanding Academic Performance**, Chung-Ang University), 2012-2014  
**Fellowship for the Best Academic Performance**, Department of Physics, Chung-Ang University, Spring 2012  
**Fellowship for the Best Academic Performance**, Department of Physics, Chung-Ang University, 2009  
**Fellowship for the Best Academic Performance**, Department of Physics, Chung-Ang University, Fall 2008

## **PUBLICATIONS**

### Manuscripts

Kalra, P. Binzak, J.V., **Park, Y.**, Matthews, P.G. & Hubbard, E.M. (in preparation). Developmental lateralization of non-symbolic ratio processing predicts fraction knowledge.

Viegut, A.A., **Park, Y.**, Hubbard, E.M. & Matthews, P.G. (in preparation). Fraction estimation predicts later calculation, but not fluency: A cross-sequential study.

**Park, Y.**, Binzak, J.V., Kalra, P., Matthews, P.G., & Hubbard, E.M. (in preparation). Developmental changes in children's processing of nonsymbolic ratio magnitudes: A cross-sectional fMRI study.

**Park, Y.**, Dean, D.3<sup>rd</sup>, Alexander, A., Matthews, P.G., & Hubbard, E.M. (in preparation). Developmental changes in white matter tracts for symbolic and non-symbolic fractions.

- Park, Y.** & Matthews, P.G. (in press.). Revisiting and Refining Relations between Nonsymbolic Ratio Processing and Symbolic Math Achievement. *Journal of Numerical cognition*.
- Park, Y.**, Viegut, A.A., & Matthews, P.G. (2020). More than the Sum of its Parts: Exploring the Development of Ratio Magnitude vs. Simple Magnitude Perception. *Developmental Science*.e13043.
- Park, Y.** & Cho, S. (2017). Developmental Changes in the Relationship between Magnitude Acuity and Mathematical Achievement in Elementary School Children. *Educational Psychology*, 37(7), 378-887.
- Park, Y.** & Cho, S. (2014). Comparing Construct and Predictive Validities of the Measurement of Children's Approximate Number Acuity Depending on Numerosity Comparison Task Format. *Korean Journal of Cognitive Sciences*, 25(2), 79-101.

#### Talks

- Park, Y.** & Matthews, P.G. (accepted). Perceptual processing of non-symbolic and symbolic fractional magnitudes: cross-format distance effects across multiple nonsymbolic and symbolic formats. *Paper submitted as part of a symposium organized by Park, Y.*, Accessing to fractional magnitudes: From perception to higher cognition, at *Mathematical Cognition and Learning Society, Virtual Conference due to COVID-19*.
- Park, Y.**, Dean, D.<sup>3rd</sup>, Binzak, J.V., Matthews, P.G., & Hubbard, E.M. (Sep, 2020). Developmental Changes in White Matter Tracts for Symbolic and Non-Symbolic Fractions in primary school children. *Paper submitted as part of a symposium organized by Park, Y.* Neural Development of Symbolic Math Knowledge from Childhood to Young, at *Mathematical Cognition and Learning Society, Virtual Conference due to COVID-19*.
- Park, Y.** & Matthews, P.G. (Aug, 2020). Ratio as a Part of Quantity. *Paper submitted as part of a symposium to Cognitive Science. Society, Virtual Conference due to COVID-19*.
- Park, Y.**, Binzak, J.V., Toomarian, E.Y., Kalra, P., Matthews, P.G., & Hubbard, E.M. (April, 2019). Differences in processing symbolic vs. non-symbolic representations ratios: Behavioral and neural evidence. *Paper submitted as part of a symposium to American Education Research Association, Toronto, Canada*.
- Park, Y.**, Binzak, J.V., Toomarian, E.Y., Kalra, P.B., Matthews, P.G., & Hubbard, E.M. (April, 2018). Developmental changes in children's processing of nonsymbolic ratio magnitudes: A cross-sectional fMRI study. Talk given at UW-Madison Waisman Center Brain Food Talks.
- Park, Y.** & Cho, S. (2013). Acuity for Continuous Magnitude but not Numerosity is Associated with Children's Mathematical Achievement. *CAU International Symposium on BK21 PLUS, Chung-Ang University, Seoul, Korea*.

#### Conference Presentations

- Viegut, A.A., **Park, Y.**, Hubbard, E.M. & Matthews, P.G. (April, 2021). Fraction estimation predicts later calculation, but not fluency: A cross-sequential study. *2021 Biennial Meeting on Society for Research in Child Development*.
- Park, Y.**, Dean, D.<sup>3rd</sup>, Binzak, J.V., Matthews, P.G., & Hubbard, E.M. (May, 2020) Symbolic and Non-Symbolic Fractions Relate to Different White Matter Tracts: A Cross-Sectional Diffusion MRI Tractography Study. Poster presented at *the 27th Annual Meeting of Cognitive Neuroscience Society Annual Meeting*, Virtual Conference due to COVID-19.
- Sterling-Alves, I., **Park, Y.**, Kalra, P.B., Binzak, J.V., Matthews, P.G., & Hubbard, E.M. (May, 2020). Educational Experience Connect Symbolic Fractions to Parietofrontal Nonsymbolic Ratio Processing Systems. Poster presented at *the 27th Annual Meeting of Cognitive Neuroscience Society Annual Meeting*, Virtual Conference due to COVID-19.
- Matthews, P. G., Hubbard, E. M., Kalra, P. & **Park, Y.** (2020, Apr) The Comparative Importance of Two Types of Relational Reasoning for Supporting Fractions Knowledge [Symposium]. *AERA Annual Meeting San Francisco, CA* <http://tinyurl.com/yx2d4jfx> (Conference Canceled)
- Toomarian, E.Y., **Park, Y.**, Matthews, P.G., & Hubbard, E.M. (April, 2019). Spatial-numerical associations of fractions: Evidence from internal and external representations. *Paper submitted as part of a symposium to American Education Research Association, Toronto, Canada*.

- Park, Y.**, Viegut, A.A., & Matthews, P.G. (March, 2019). The development of multiple non-symbolic ratio representations in children. *2019 Biennial Meeting on Society for Research in Child Development*, Baltimore, MD.
- Viegut, A.A. **Park, Y.** & Matthews, P.G. (March, 2019). Number Line Estimation is More than Numerical: Evidence from Nonstandard Number Lines, *2019 Biennial Meeting on Society for Research in Child Development*, Baltimore, MD.
- Matthews, P.G., Binzak, J.V., Kalra, P.B., **Park, Y.**, & Hubbard, E.M. (March, 2019). Perceptual Routes to Rational Numbers. *Paper submitted as part of a symposium to 2019 Biennial Meeting on Society for Research in Child Development*, Baltimore, MD.
- Park, Y.**, Binzak, J.V., Dean, D.3<sup>rd</sup>, Alexander, A., Matthews, P.G., & Hubbard, E.M. (Sep, 2018). Developmental changes in white matter tracts for symbolic and non-symbolic fractions, *6<sup>th</sup> Biennial conference on International Mind, Brain and Education Society*, Los Angeles, CA.
- Viegut, A.A. **Park, Y.**, Hubbard, E.M. & Matthews, P.G. (Sep, 2018). Differential improvement in fraction estimation in 2<sup>nd</sup> vs. 5<sup>th</sup> grade children: Longitudinal Analysis, *6<sup>th</sup> Biennial conference on International Mind, Brain and Education Society*, Los Angeles, CA.
- Park, Y.**, Binzak, J.V., Toomarian, E.Y. Kalra, P.B., Matthews, P.G., & Hubbard, E.M. (July, 2018). Developmental changes in children's processing of nonsymbolic ratio magnitudes: A cross-sectional fMRI study, Poster presented at the *40<sup>th</sup> Annual Meetings on Cognitive Science Society*, Madison, WI.
- Hubbard, E.M., Binzak, J.V., **Park, Y.**, Kalra, P.B., Toomarian, E.Y. (April, 2018). The ratio processing system underpins symbolic fraction understanding: Developmental neuroimaging investigations. *Paper submitted as part of a symposium to 1<sup>st</sup> Mathematical Cognition and Learning Society Conference*.
- Binzak, J.V., **Park, Y.**, Toomarian, E.Y., Kalra, P.B., Chuang, Y-S., Matthews, P.G., & Hubbard, E.M. (March, 2018). Neurocognitive Relationships between Nonsymbolic and Symbolic Ratio Processing in Children and Adults. Poster presented at *the 25<sup>th</sup> Annual Meeting of the Cognitive Neuroscience Society*, Boston, MA.
- Kalra, P. Binzak, J.V., **Park, Y.**, Matthews, P.G. & Hubbard, E.M. (March, 2018). Developmental lateralization of non- symbolic ratio processing predicts fraction knowledge. Poster presented at *the 25<sup>th</sup> Annual Meeting of Cognitive Neuroscience Society Annual Meeting*, Boston.
- Binzak, J.V., **Park, Y.**, Toomarian, E.Y., Kalra, P., Matthews, P.G., & Hubbard, E.M. (October, 2017). Exploring the ratio processing system among primary school children: Behavioral and neural evidence. Poster presented at the *Cognitive Development Society*, Portland, OR.
- Park, Y.** & Matthews, P.G. (July, 2017). Proportional reasoning in the context of continuous vs. discretized: Adults go wrong where children go wrong, Poster presented at the *5<sup>th</sup> Annual Midwest Meeting on Mathematical Thinking*, Minneapolis, MN.
- Park, I., **Park. Y.** & Cho, S (2016). Comparing the Influence of Numeracy, Positive and Negative Number Estimation on Financial Risky Decision Making. *Korean Society for Cognitive and Biological Psychology, Jeju, Korea*
- Park, I., **Park. Y.** & Cho, S (2015). Comparing the Influence of Effect of Symbolic Number Estimation and Numeracy on Financial Risky Decision Making. *Society for Judgment and Decision Making, Chicago, IL*.
- Park, I., **Park. Y.** & Cho, S (2015). Comparing the Influence of Numeracy and Symbolic Number Acuity on Financial Decision Making. *Korean Psychological Association Annual Conference, Seoul, Korea*.
- Jang, S., **Park. Y.** & Cho, S. (2014). A Purer Measure of Number Acuity better predicts Mathematical Achievement. *Cognitive Neuroscience Society, Boston, MA*.
- Park. Y.**, Jang, S. & Cho, S. (2014). Acuity for Continuous Magnitude but not Pure Numerosity correlates with Children's Math Achievement. *Cognitive Neuroscience Society, Boston, MA*.
- Kim, N., Jang, S., Kweon, J., **Park. Y.**, Chun, J. & Cho, S. (2014). Bias towards Continuous Magnitude influences performance on the Numerosity comparison task. *Cognitive Neuroscience Society, Boston, MA*.
- Jang, S., **Park. Y.**, Cho, S. (2014). The Longitudinal Study of the Relationship Between Approximate Number Sense and Mathematical Achievement. *Korean Society for Cognitive and Biological Psychology, Buyeo, Korea*.

- Lee, K., **Park, Y.**, Jang, S., Cho, S. (2014). The Negative Influence of Math Anxiety and how it relates to Working Memory Load. *Cognitive Neuroscience Conference, Seoul, Korea*
- Park, Y.**, Lee, Y., Lee, K. & Cho, S. (2014). Comparing the Acuties for Numerosity and Continuous Magnitude and their Correlations with Mathematical Achievement between Lower vs. Higher Grade Elementary School Children. *Korean Psychological Association Annual Conference, Seoul, Korea.*
- Park, Y.**, Lee, D., Lee, K., Choi, Y., & Cho, S. (2014). Comparing Acuties for Length vs. Area and their Correlations with Mathematical Achievement in Primary School Children. *Korean Psychological Association Annual Conference, Seoul, Korea.*
- Lee, K., **Park, Y.**, Jang, S., Cho, S. (2014). The Negative Influence of Math Anxiety and how it relates to Working Memory Load. *Korean Psychological Association Annual Conference, Seoul, Korea.*
- Jang, S., **Park, Y.**, Cho, S. (2013). A Purer Measure of Number Acuity better predicts Mathematical Achievement, *CAU International Symposium on BK 21 PLUS 2013, Seoul, Korea.*
- Jang, S., **Park, Y.**, Kim, N., Kweon, J., Chun, J., Cho, S. (2013). Bias towards Continuous Magnitude influences performance on the Numerosity comparison task. *CAU International Symposium on BK 21 PLUS 2013, Seoul, Korea.*
- Park, Y.**, Jang, S., & Cho, S. (2013). The Acuity for Numerosity vs. Continuous Magnitude and its Relationship to Mathematical Achievement in Elementary School Children. *Cognitive Neuroscience Conference, Seoul, Korea.*
- Jang, S., **Park, Y.** & Cho, S. (2013). The Acuity for Numerosity vs. Continuous Magnitude and its Relationship to Mathematical Reasoning. *Korean Psychological Association Annual Conference, Daejeon, Korea*
- Park, Y.**, Jang, S. & Cho, S. (2013). Acuity for Continuous Magnitude is associated with Mathematical Achievement in Early Elementary School Children. *Cognitive Neuroscience Society, San Francisco, CA.*
- Park, Y.** & Cho, S. (2012). Acuity for Continuous Magnitude is Associated with Mathematical Achievement in Early Elementary School Children. *2nd Doshisha and Chung-Ang Symposium of Psychological Science, Kyoto, Japan.*
- Park, Y.** & Cho, S. (2012). Two-dimensional Testing of Three-dimensionally Encoded Information Impairs Children's Recognition Memory. *Cognitive Neuroscience Conference, Seoul University, Korea*
- Park, Y.** & Cho, S. (2012). Two-dimensional Testing of Three-dimensionally Encoded Information Impairs Children's Recognition Memory. *Korean Psychological Association Annual Conference, Chuncheon, Korea*

## **RESEARCH**

**Project Assistant**, UW-Madison, Supervisor: Drs. Edward Hubbard & Percival Matthews, 2016 - 2021

**Research Associate**, Cognitive Neuroscience Lab, Department of Psychology, Chung-Ang University, 2014 – 2016

**Lab Coordinator**, Cognitive Neuroscience Lab, Department of Psychology, Chung-Ang University, 2013-2014.

**Research Assistant**, Cognitive Neuroscience Lab, Department of Psychology, Chung-Ang University, Supervisor: Dr. Soohyun Cho, 2012-2014

**Undergraduate Research Assistant**, Cognitive Neuroscience Lab, Department of Psychology, Chung-Ang University, Supervisor: Dr. Soohyun Cho, 2012

**Undergraduate Thesis**, Department of Psychology, Chung-Ang University, Supervisor: Dr. Soohyun Cho, 2011-2012

## **TEACHING**

**Teaching Assistant**, Ed Psych 326, Mind Brain Education, Department of Education Psychology, UW-Madison, Fall 2018 – Spring 2019

**Teaching Assistant**, Psychological Statistics, Department of Psychology, Chung-Ang University, Spring 2013

**Teaching Assistant**, Psychological Statistics, Department of Psychology, Chung-Ang University, Spring 2014

### **MENTORING**

**Undergraduate Mentor**, mentoring Eva Bacskai, Biology152 project, UW-Madison, Spring 2021

**Undergraduate Mentor**, mentoring Matthew Eliason, Biology152 project, UW-Madison, Fall 2019

**Undergraduate Mentor**, mentoring Valerie Buroker, Biology152 project, UW-Madison, Fall 2019

**Undergraduate Mentor**, mentored Samantha Weinfurter, Biology152 project, UW-Madison, Fall 2019

**Honors Thesis Mentor**, mentored Monica Janz, UW-Madison, Fall 2018 – Spring 2019

**Undergraduate Mentor**, mentored Jillian Aschenbrenner and Adileen C. Sll, Biology152 project, UW-Madison, Spring 2019

**Undergraduate Mentor**, mentored Sarha Skinner, Biology152 project, UW-Madison, Fall 2018

**Undergraduate Mentor**, mentored Angela G. Schmidt, Biology152 project, UW-Madison, Spring 2018

**Undergraduate Mentor**, mentored Anna T. Ferrigan, Biology 152 project, UW-Madison, Fall 2017

### **ACADEMIC SERVICE**

Research Chair, Members of Trainee Board in International Mind, Brain, and Education Society (IMBES), 2020 – Current

Ad hoc manuscript reviewer

Cognitive Development

manuscript reviewer

Journal of Numerical Cognition