

Roy Seo

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EDUCATION

Psychological Brain Sciences, Indiana University, Bloomington, IN

Dec. 2010

Bachelor of Arts in Psychology

- Minor in Linguistics
- Psychological Brain Sciences Departmental Honors
- Senior Honors Thesis: Spatial and Temporal Cues in Cross Situational Learning

AWARDS & GRANTS

University of Washington Top Scholar Award (\$14,300)	2013
Cognitive NeuroImaging Lab. Fellowship (\$25,000)	2012
Psychological Brain Sciences Departmental Honors	2010
Hutton Honors College Research Grant 2010 (\$1,000)	2010
Dean's List College of Arts and Sciences	2010
K300 (Statistical Techniques) Tutor List	2009 – 2010
Christian Student Fellowship Residence Scholarship	2008 – 2010

RESEARCH POSITION

Cognition and Cortical Dynamics Laboratory, Seattle, WA

June 2013 – Present

Research Assistant (Advisor: Dr. Chantel Prat)

Dynamic Casual Modeling Analysis on Right Hemisphere Recruitment in Language Processing

Cognitive NeuroImaging Laboratory, Indiana University, Bloomington, IN

Jan. 2012 – Apr. 2013

Research Assistant (full-time, Advisor: Dr. Sharlene Newman)

Subject-Pronoun Dropping in Korean-English Speakers

I am currently developing a study on Korean-English speakers' production of English pronouns. During Korean-English code-switching, Korean speakers make explicit effort to choose English subjects because Korean uses implicit subject-pronoun dropping (SPD). SPD is also influenced by cross-linguistic transitivity and voice differences. This study also investigates areas of neural activation for SPD.

The Differential Effect of Working Memory on Sentence Processing and Comprehension Probe Response

The study explored the role of working memory in sentence processing. I analyzed fMRI data sets using measurements of working memory capacity and reading span as a regressor in terms of sentence and comprehension probe phases. During the sentence reading, working memory capacity was correlated with the PCC while the probe involved the IFG and pre-SMA regions that have been linked to control working memory. These findings suggested that sentence and probe processing evoke two different working memory resources.

Thematic Priming and the Role of the Left Inferior Frontal Gyrus and Posterior Temporal Cortex in Argument Structure

This study examined the differential neural impact of semantic and thematic priming. fMRI images from 50 participants were analyzed in order to assess within and cross-grammatical class priming effects. There were within-grammatical class semantic suppression effects, whereas cross-grammatical class priming resulted in thematic enhancement effects.

The Relation between Arithmetic and Phonological Ability

In this study we examined the relationship between language measures, including phonological processing vocabulary size, and arithmetic addition task in children between the ages of 5 and 12. I recruited over 70 children, collected fMRI data and wrote a script for data analysis. The aim of the study was to determine whether language ability impacts arithmetic processing in children with differing phonological processing abilities.

ROI Analysis of Corpus Callosum

I measured corpus callosum in 50 children and adults to investigate the relationship between the volume of corpus-callosum, handedness and language development.

Computational Cognition & Learning Laboratory, Indiana University, Bloomington, IN May 2009 – Mar. 2011
Research Assistant (Advisor: Dr. Chen Yu)

Senior Honors Thesis: Spatial and Temporal Cues in Statistical Cross-Situational Learning

Cross-situational learning paradigm explains that word-referent mapping occurs with statistical regularity computation. I developed a senior honors thesis to explore the effect of environmental cues on cross-situational learning. Using four conditions with varying contiguity of spatial and temporal cues, I assessed which cues were most salient. The hypothesis was that word-referent mapping would be most successful with associative cues. However, maximal facilitation in word-referent mapping was due to temporal cues alone.

Mutual Exclusivity in Cross-Situational Learning

Studied the word-referent mapping when objects have more than one referent. My role was to recruit 14-18 months old infant from the local community in order to run the experiments and analyze the data.

Cognitive NeuroImaging Laboratory, Indiana University, Bloomington, IN May 2010 – Aug. 2010
Research Intern (Advisor: Dr. Sharlene Newman)

Researched the effects of individual differences on sentence comprehension, and analyzed the correlation between working memory capacity and sentence comprehension ability

PUBLICATIONS

Newman, S.D., Malaia, E., & **Seo, R.** (*under review*). Does degree of handedness in a group of right-handed individuals affect language comprehension? *Brain and Cognition*.

Prat, C. S., **Seo, R.**, & Yamasaki, B. Y. (*under review*). The role of individual differences in working memory capacity on reading comprehension ability. To appear in P. Afflerbach (Ed), *Handbook of Individual Differences in Reading: Text and Context*.

Newman, S.D., Malaia, E., **Seo, R.**, & Cheng, Hu. The effect of differences in working memory capacity on sentence comprehension: an fMRI study. *Brain Topography*.

PRESENTATIONS

Newman, S. D., Lee, D., Malaia, E., Pruce, B., & **Seo, R.** (2012). The role of the left IFG and MTG during thematic priming: an fMRI study. Presented at Neurobiology of Language Conference, San Sebastian, Spain.

Newman, S. D., **Seo, R.**, Malaia, E. (2011) The differential effect of working memory on sentence processing and responding to the comprehension probe. Neurocognitive of Language Conference, Annapolis, MD, USA.

Seo, R., & Newman, S. (2012). Arithmetic ability and language. Presented at Midwestern Cognitive Science Conference, Bloomington, IN, USA.

Denton, J., **Seo, R.**, & Newman, S. (2012). Embodied cognition of finger counting. Presented at 13th annual meeting of the Women in Science Research Conference, Bloomington, IN, USA.

Seo, R., Fricker, D., & Yu, C. (2011). Spatial and temporal cues in statistical cross-situational learning. Cognitive Science Society, Boston. (Camera Ready)

Undergraduate Presentation:

Oral

- 2010 Cognitive Science Student Conference at Case Western Reserve University Cleveland, OH
- Midwest Undergraduate Cognitive Science Conference at Indiana University Bloomington, IN

Poster

- Undergraduate Research Conference at Butler University Indianapolis, IN
- 2010 Undergraduate Research Symposium & Fair at Indiana University Bloomington, IN
- Women in Science Research Conference at Indiana University Bloomington, IN

INVITED TALK

Institute of Gifted Education of Gang Nam District Office of Education, Seoul, Korea

Jul. 2011

‘Brain and Language’

TEACHING EXPERIENCE

University of Washington, Seattle, WA

Sep. 2013 – Dec. 2013

Teaching Assistant

- Fundamentals of Psychological Research (P209)
- Taught two of quiz and lab sessions.

Chung Dam Public High School, Seoul, Korea

English Teacher (10th grade)

- Led English immersed classes with a native speaker
- Developed paper based written / audiovisual test teaching and assessment methods

Dong Guk University Girls’ Private High School, Seoul, Korea

May 2011 – Aug. 2011

English Teacher(10th, 11th, 12th grade)

- Taught SAT Prep Course for U.S. college / university applicants
- Co-taught English immersed classes with a native speaker

Department of Psychological Brain Sciences, Indiana University, Bloomington, IN

Teaching Assistant

Sep. 2009 – May 2010

- Introduction to Psychology I and II (P101, P102)
- Developed study guides, graded 150 papers and tests, and advised 250 students

Statistics Tutor

Sep. 2009 – Sep. 2010

- K300 (Statistical Techniques) department selected tutor

Seoul Metropolitan School Corporations - Department of Mathematics Education, Indiana University

Summer 2008, 2009, 2010

Translator and Facilitator

- Co-facilitated Seoul Metropolitan School Corporation’s secondary mathematics teacher workshop
- Translated and facilitated workshop and cultural activity programs, including introduction to American culture

Deasung Genex Academy, Seoul, Korea

Summer 2007, 2008

Math and Science Teacher

- Led after school programs in math and science by providing enjoyable learning environment
- Mentored 50 junior high school students with feedback to parents

ADVISING

Indiana University, Bloomington, IN Jan. 2012 – Present
Jessica Denton: Current mentor on Senior Honor Thesis
Kevin Cao, Evan Marrero, Galen Hartmen, Lynssey Cline

Indianapolis Project SEED (Subcommittee on the Education & Employment of the Disadvantaged) High School, Indianapolis, IN May 2012 – Aug. 2012

Ghosh, P., **Seo, R.**, & Newman, S. (2012). Exploring the relationship between phonological processing and arithmetic ability in children. *Proceedings of the 40th annual meeting of the Indianapolis Project Seed*, Indianapolis.

Hurst, T., **Seo, R.**, & Newman, S. (2012). The role of working memory in phonological abilities. *Proceedings of the 40th annual meeting of the Indianapolis Project Seed*, Indianapolis.

- Trained students on behavioral/fMRI study, and analyzing SPM neuroimaging data
- Advisor for the SEED project poster presentation

Indiana University, Bloomington, IN May 2010 – Aug. 2010
Sarah Cimbalista: Trained student on eye tracking methodology

VOLUNTEER

Advocates for Public Interest Law Oct. 2012

- Translated reports on human trafficking in Korea for East Asia Symposium: Forced Migration and Human Trafficking in Thailand

Piano Accompanist Jan. 2006 – Present

- Traveled to Indianapolis weekly and served as a piano accompanist for a Korean Presbyterian church
- Performed for a weekly on-campus ministry program

Sunshine Inner City Mission Mar. 2010

- Participated in workshop on inner city poverty situation in Chicago
- Served and interacted with homeless people in downtown Chicago

Kenya 2010 May 2010 – Jul. 2010

- Participated in fund raising for the trip, and small group meetings concerning cross cultural barriers
- Helped digging water wells and experienced new culture in Turkana tribe
- Held medical clinic, sorted and gave out medicine, organized patient records, and assisted doctors and nurses
- Visited house to house in Mathare North to provide education about prevention of HIV transmission and sanitation

IU Sing Nov. 2009, 2010

- Participated in annual fund raising for student scholarships
- Served as a piano accompanist for 30 performers
- 2nd place performance of the campus house

Philadelphia Inner City Mission Spring 2007, 2008

- Served the community through food donation; cleaning downtown public facilities, and rebuilding of shelters
- Developed and led after school programs, and held vacation bible school for

children

Save the Children

2005

- Trained to work with abused children, and led weekly feedback meetings
- Trained weekly volunteers, managed recreational and religious activities

LAB INSTRUMENTATION

Clear View 2.7, Eprime, EyeCoder 0.8, Praat, Microsoft Excel, MATLAB, SPSS, Afni, SPM, Beginner in C++

LANGUAGES

Native in Korean, fluent in English

REFERENCES

Newman, Sharlene

Department of Psychological and Brain Sciences
Indiana University

sdnewman@indiana.edu

Vlachos-Weber, Irene

Department of Psychological and Brain Sciences
Indiana University

vlachosi@indiana.edu

Lee, Chungmin

Department of Linguistics
Seoul National University

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