DI LIU (AURORA)

School of Psychology
Beijing Normal University, P. R. China
+86 18519026526 | e: 201911061110@mail.bnu.edu.cn

EDUCATION

Beijing Normal University **Beijing, China**
Psychology in the school of Psychology 9.1 2019 – Ongoing

- GPA: 4.00/4.00, 94.77/100 (rank: 1/130)

Lady Margaret Hall, Oxford University **Oxford, Britain**
Psychology in the Department of Experimental Psychology 9.5 2022 – 12.3 2022

SELECTED AWARDS

Oct. 2020 & Oct. 2021.	National Scholarship (¥8000, awarded for outstanding academic performance, top 0.2%)
Oct. 2020 & Oct. 2021.	The First-Class Jing Shi Scholarship (honor, top 10%)
Oct. 2020 & Oct. 2021.	Merit Students (¥1000, awarded for comprehensive development, 6 out of 130)
Sep. 2020, 2021, & 2022.	The First-Class scholarship of Beijing Normal University (¥5000)
Nov. 2019.	Freshman Scholarship of Beijing Normal University (¥5000, top 5%)

PUBLICATIONS

Manuscript in Preparation

Liu, D., Wang, X., Zheng, Q., Xin C, & Bi, Y. (in preparation). Mapping emotional knowledge representational structure and its prediction of emotional well-being. Manuscript to be submitted to *Emotion*

Li, Z., Lu, H., **Liu, D.,** & Gendron, M. (in preparation). Active emotion vocabulary is associated with emotion segmentation ability. Manuscript to be submitted to *Nature Communication*

RESEARCH INTERESTS

Language and Conception; Emotional knowledge; Development of categorization; Acquisition of knowledge

RESEARCH EXPERIENCE

Yanchao Bi's concept Lab - Beijing Normal University September, 2019 – Ongoing
Research assistant to Professor Yanchao Bi, supervisor for doctors, Changjiang Scholar

Project Name: Verbal Knowledge Predicts the Individual Traits in Sociality and Morality
June. 2020 – June, 2021
Funded by IDG/MCGOVERN Institute for Brain Research and Beijing Normal University (Campus sponsored)

- This project aimed at exploring individualistic representational knowledge structure and uncovering its connection with other non-verbal traits, including the morality and sociality.
- Accountable for literature review, material process, data collection, analysis pipeline construction, and report writing. We adopted methodologies including training SVM model and applying RSA to behaviour data.

Project Name: Emotional knowledge representational structure and its prediction of emotional well-being
June. 2021 – Ongoing
This is a **National-funded** project

- Based on my previous attempts in understanding the knowledge representation on an individual-level, I went further in exploring the individualistic organization of emotional concepts in mind. Do people tend to understand emotional words and experiences differently? If yes, then what information can that diversity tell us? By adopting a clustering approach, we are tackling these two major questions at the moment.
- Completely in charge of writing the proposal and arranging materials for this project. This project is still running currently, and I'm responsible for recruiting the participants, analyzing data together with two teammates. At the current stage, an initial manuscript has been completed documenting our analysis and conclusions.

Affective Science and Culture Lab - Yale University May, 2021 – Ongoing
Research assistant to Professor Maria Gendron, assistant professor

Project Name: Emotional segmentation: a new methodology to detect emotional differentiation ability
May, 2021 – Present

- We aimed at uncovering the individual difference in recognizing and segmenting emotions in movie clips. This project also targets at finding possible correlations between emotional segmentation and self-report subjective emotional experience.
- As my first remote RA project, I devoted the whole summer time to it. Starting from writing basic R script and helped with cleaning raw data files, I kept making more contributions and later became one of the core researchers in this program. I was in charge of writing two major data processing scripts with R, and took lead in writing a manuscript for data analysis which will later become a part of the publishment.
- For this project, I was challenged to learn R within a week, and I made it. This gave me confidence to approach more and more programming language (e.g., Python) I had more experience with factor analysis, reliability and validity test via this project as well.

Project Name: Enhance emotional granularity via experimental control

September, 2021 – Ongoing

- Few existing studies have explored the possibility to promote emotional granularity, and this work is devoted to find how to do so via experimental control. We're working with empirical data as well as some meta-analysis to acquire more information about this less-studied field.
- It is my honor to join this project as a designer. For this project, I learned how to compute NLP analysis via R, VOCABULATE and TAEELS. Besides, I took lead in building analysis pipeline and writing report for the study.

Language and Cognition Lab - Stanford University September, 2021 - Ongoing
Research assistant to Professor Michael C. Frank, director

Project Name: How language and culture influence reasoning development in children

September, 2021 – Ongoing

- Exploring the cultural difference in developmental process of reasoning. We focus on describing possible influence of language in children's cognitive styles.
- Having been attracted by developmental psychology for a long time, this is my first time to officially join one. I am the captain of data collection in Chinese restrict, and will further participate in the coding process, pipeline building and report writing.

Lab for cognition development - Beijing Normal University December, 2021 – Ongoing
Research assistant to Professor Yinghe Chen, supervisor for doctors

Project Name: Children's adoption of proportional reasoning contributes to the alter of number line representations

December. 2021 – Present

- The alter of number line representation has always been a hot topic in the field, here, we aim at reviewing the existing literature, and further explore the mechanism underlying the alternation. We propose that the adoption of proportional reasoning might be one factor contributing to the development of representational patterns.
- After taking a course about numeric knowledge representation in infancy and children, I became intrigued by this topic, and joined Chen's Lab for a practice. I'm accountable for the literature review, setting up experiment using Psychtoolbox in MATLAB, and will be involved in analyzing the data and writing the paper.

Individual Exploration

Project Name: How language arrive at a converging stage: a dynamic model

This is a course project that I initiated for a modeling class, it is still being developed at the current stage.

- By postulating that language evolve with communication through a converging process, I initiated a dynamic model by simulating a population of N, each starting with a individualistic word repertoire of M, the effectiveness of communication E, and a personality parameter of openness O via MATLAB.
- The results suggests that the community will converge to share a similar word corpus after communicating with each other. And if some words were intendedly repeated for a few more times by some individuals in the beginning, these words will murder the diversity of expressions, and become the only survivors in the shared corpus after communication.

Project Name: Do mice have concept of shape in mind? Evidence from a radical six arm maze experiment

This is a course project for advanced physiological psychology. The project gained 100 points in the final.

- Can mice represent information about shape in mind? How abstract can that representation be? I designed an training-test experiment using radical six arm maze, with a door of 3 different shapes (circle, triangle and rectangle) at the entrance of each arm. Distribution of the shapes is randomized, and a blue box was placed at the end of each arm to hold food. In the training trials, only boxes at the end of arms with a circle door are filled with yellow mealworm as food reward. Training lasts for 6 days, and we tested whether the mice have represented circle shape as a signal for food in the test trials on the 7^{th} day.

- Results showed that if tested with door shapes, mice enter the circle arm significantly more frequently; however, when tested with stickers of the same shapes, mice failed to identify the circle arms. Possible inference is that they can only represent shape information in a concrete form, that cannot switch to other "modalities".
- I was fully in charge of experiment design and data analysis. And together with two teammates, we built the hand-made maze and completed the training process.

SKILLS

Programming	Python, MATLAB (experienced with setting up experiment with Psychtoolbox & data analysis), R (experienced with data analysis, figure production & especially familiar with NLP and clustering) Also have experience with decoding models, see: https://github.com/AuroraLiuDi/Decoding-scripts-for-sharing
Data analysis	SPSS (skilled and experienced), JASP (familiar with Bayesian analysis)
Experience	Behavioral data collection (especially familiar with children participants); f-MRI data collection; Enthusiastic about adopting new methodologies, e.g., having learnt representation similarity analysis and SVM within a week;
Languages	TOEFL 115 (reading 29; listening 30; speaking 27; writing 29); GRE 332 (verbal 162; quant 170).