



3rd CEGLOC Conference
University of Tsukuba
CEGLOC FD Committee
in collaboration with the
*JALT Mind, Brain, and Education
SIG and the JALT Ibaraki Chapter*



Language Learning & the Brain

PROGRAMME

December 7, 2019

University of Tsukuba,
Laboratory of Advanced Research A, 1st floor
筑波大学 総合研究棟A・1階

Join Us (free)



**The CEGLOC Conference is an annual gathering aimed at sharing methods and ideas on common challenges we face in research and pedagogy related to teaching Japanese and international students in Japan.*

PROGRAMME

9:20 - 9:50 - Registration

9:50 - 10:00 Opening address (**room 110**)

Hirosada Iwasaki, Director - Center for Education of Global Communication,
University of Tsukuba

10:00 - 11:00 Keynote #1 (**room 110**)

"Contribution of cognitive neuroscience to second language acquisition research," Hyeonjeong Jeong, Tohoku University

11:00 - 11:30 Break & discussions with Dr. Hyeonjeong Jeong

	English language programme (Room 110)	Mixed languages programme (Room 111)
11:30-12:00	"Optimizing student performance, engagement, and enjoyment," Ai Murphy, Murphy School of Education	"Cognition process: when the leader supports his classmates," Mio Sekiguchi & Vorakan Chalaopak, University of Maryland Global Campus
12:05-12:35	"Have brain, will travel: study abroad and brain science," Stephen M. Ryan, Sanyo Gakuen University	「笑い」と言語習得:「漫才」を取り入れた授業の効果 Mio Sekiguchi, University of Tsukuba
12:35 - 14:00 Lunch break		
13:15 - 13:45 Round-table discussion (room 110)		
"Comparing and implementing 'desirable difficulties' and 'cognitive load theory' in the language learning classroom," John Duplice, Sophia University		
14:00 - 15:00 Keynote#2 (room 110)		
"NeuroELT in practice: pedagogical L2 maturation and cognitive development," Robert S. Murphy, Kitakyushu University		
15:00 - 15:30 Break & discussions with Dr. Robert S. Murphy		
15.30-16.20	"Neurodiversity in the age of hybrid human-artificial intelligence" (workshop), Thomas Gorham, J. F. Oberlin University	"Music and the brain: learn to accompany two simple songs by guitar" (workshop), Markus Rude, University of Tsukuba
16:25-16:55	"Binocular rivalry and language - practice-led artistic research," Will Hall, Miyazaki International College	言語認知のモダリティ Kouta Suzuki, University of Tsukuba
17:00-17:30	"Frequency discrimination: gateway to the learner's listening brain?" Bruno Jactat, University of Tsukuba	"Cognitive load theory: implications for language teaching," Caroline Handley, Asia University

17:30 - 17:45 Closing remarks (room 110)

Caroline Handley, Coordinator of the JALT Mind, Brain, and Education SIG

18:30 - 20:30 Dinner party at [Restaurant Cin-Cin](#) (Cost: JPY 3500; [Dayz Town, Tsukuba Center](#))

About keynote speakers & presentations



Hyeonjeong Jeong, Ph.D.

Dr. Hyeonjeong Jeong, Ph.D. (Tohoku University) is an Associate Professor in the Graduate School of International Cultural studies at Tohoku University. She is also a faculty member at the Department of Human Brain Science at the Institute of Development, Aging, and Cancer at Tohoku University. Her research interests include brain mechanisms of second language acquisition, in particular, the effect of cross-linguistic influence and social cognition in language learning and communication. She has published articles in *Human Brain Mapping*, *Bilingualism: Language and Cognition*, *Language Learning*, *NeuroImage*, and *Neuropsychologia*.

Contribution of cognitive neuroscience to second language acquisition research

Understanding the cognitive mechanisms of second language (L2) acquisition is of great interest among theoreticians, researchers and practitioners in the field of L2 teaching and learning. Similarly, a growing number of cognitive neuroscientists have recently paid special attention to the neural mechanisms of first-(L1) and second-language (L2) acquisition. Most-researched topics include the effects of the age of acquisition on the multilingual brain, bilingual language control in the brain, the neural plasticity of L2 learning, and learner differences in the brain.

In her talk, Dr. Hyeonjeong Jeong will provide a brief snapshot of relevant studies which she conducted with her colleagues. First, she will talk about a study that examined whether learning through an enriched environment improves L2 skills. Findings show that brain mechanisms of L2 learning in real-life situations (i.e., social contexts) differ from those of L2 learning from translation. Learners who recruited the brain network involved in the processing of non-verbal communication were able to acquire and retain L2 knowledge efficiently. The second study is concerned with the question of whether social interaction is important in L2 acquisition. Online, face-to-face communication was found to elicit more balanced and varied aspects of communicative ability with respect to brain mechanism than offline, recorded video communication. Third, she will report on a study that explored neural mechanisms in which learners received and responded to corrective feedback. Modifying self-generated speech following feedback during L2 communication elicited greater activation in the brain areas associated with the acquisition of language structures and motor-adaptation than observing such interactions. Finally, she will report on a study which attempted to distinguish between explicit (declarative) knowledge from implicit (procedural) knowledge. She examined the neural activities of L2 learners performing various tasks that are believed to tap into explicit and implicit knowledge. She will conclude her talk by arguing that cognitive neuroscience will deepen our understanding of the precise brain mechanisms underlying L2 learning and may provide pedagogical implications for L2 learning and teaching.



Robert S. Murphy, Ph.D.

Dr. Robert S. Murphy, PhD (University of Nottingham) is an Associate Professor at the University of Kitakyushu. He researches Science Teacher Education (Oxford), and is the author of several neuroELT-based textbooks. As a co-founder of the FAB neuroELT conferences, he is a leading voice in neuroELT research, stemming from studies in Mind, Brain, and Education (Harvard Graduate School of Education) and Neuroimaging (Edinburgh). He also has an MA in TESOL (Birmingham), and is a dissertation supervisor for graduate students.

NeuroELT in practice: pedagogical L2 maturation and cognitive development

Through classroom research spanning the past decade, Dr. Murphy has found that a purely pragmatic focus on linguistic development can be counterproductive in raising the maturation rates of students' L2 competence in EFL classrooms. While working on his PhD in neuroELT-based textbook design, what he found to be effective was a tri-elemental system that incorporated: (a) cyclically designed deep-thinking tasks, (b) explicit metacognitive nurturing of the L2, and (c) a teacher's comprehensive understanding of students' L2 maturation rates. All three of these elements combine dynamically to help create a more efficient EFL pedagogy—this can be understood well-enough on a theoretical level—but what do these three elements really mean for the classroom teacher?

We will spend time unpacking the meaning and significance of L2 maturation rates (how L2 matures within the brain) and discuss how teachers can learn to apply this knowledge to develop pedagogy for their own daily classroom teaching. We will therefore be able to tie the knot between the theoretical implications of these findings with clearly practical applications; Dr. Murphy will also spend ample time revealing pedagogical skills and techniques from his doctoral research that he found to work particularly well with EFL students in Japanese universities.

14:00 - 15:30 Keynote #1

(Dr. Hyeonjeong Jeong) See p.2.

English language presentations Room 110

Presentation (English)

11:30-12:00 (Room 110)

Optimizing student performance, engagement, and enjoyment

Ai Murphy, Murphy School of Education

Schools typically push all of their students into the next grade each year—but are all the students really ready to move on? Research shows that there is a wide variance across students' understanding that often goes unnoticed. What are we missing? And, how harmful is it to automatically promote all students each year? In contrast, we will examine highly efficient EFL pedagogy and discuss the positive affect of: (a) *dopamine* for motivation towards learning, and (b) *oxytocin* for socialized language-based bonding. This will lead to a discussion of neuro-based pedagogy that caters to individual student development while nurturing positive emotions toward L2 -- even while being held back a year. We will close by discussing what it means to build a classroom culture for individualized L2 growth, and why that should ultimately be the backbone of EFL syllabus design.

Presentation (English)

12:05-12:35 (Room 110)

Have brain, will travel: study abroad and brain science

Stephen M. Ryan, Sanyo Gakuen University

How can brain science inform our support of students who will be, have been, or are studying abroad? The presenter will highlight findings from brain science. These findings can help us to understand the whys and hows of learning in Study Abroad from a within-the-brain perspective. Moreover, they can lead to practical suggestions to guide those who design, implement, and/or take responsibility for student learning in both incoming and outgoing Study Abroad programmes.

Among the topics explored will be: Why do people travel? Why are the first days in a new context so tiring – and what can we do about it? How can we make the most of learning opportunities in the new environment? What should be the role of social media in Study Abroad? What kind of assignments will help students to make sense of their experiences abroad? How can we support students to continue their learning after they return home?

12:35 - 14:00 Lunch

Mixed languages presentations Room 111

Presentation (Japanese & English)

11:30-12:00 (Room 111)

Cognition process: when the leader supports his classmates

Mio Sekiguchi, University of Maryland
Vorakan Chalaopak, University of Maryland Global Campus

英語母語話者にとって日本語は最も学習困難な言語である (Foreign Service Institute)。言語間で類似点がほとんどないため、母語からの類推が困難である。本発表は、グループ学習時にリーダーとなった日本語学習者が、クラスメイトに文法事項の説明をした際に生じた言語理解の変化、特にカテゴリ化と記憶の過程を報告する。

リーダーの学習者は、過去の学習情報（講師からの説明）を学習者自身の言葉に置き換えて表現する際、その事項の理解が深まった。リーダーは、クラスメイトに身近な例をあげて説明する際、エピソード記憶との照合や意味ネットワーク（関口、2015）によるカテゴリ化を瞬時におこなわなければならない。それによって宣言型記憶の意味記憶としての記憶の定着（八木、2009）や関連のない事項と思われていた項目からの連想（ブライミング）も容易になる。リーダーの言語の理解の過程を知ることとは、言語習得の一学習方法として参考になる。

Presentation (Japanese)

12:05-12:35 (Room 111)

「笑い」と言語習得:「漫才」を取り入れた授業の効果

関口美緒、筑波大学

2019年春学期、筑波大学英語プログラム日本語中級クラスにおける「漫才」を取り入れたスピーチの研究授業、「笑い」がもたらす言語習得の効果と脳の活性化について発表する。Benson (1994)は、神経心理学の視点から、言語的情動が脳の後部皮質の左側を活性化させ、また非言語的情動が右脳側を活性化させると述べており、感情と言語は密接な関係にあると言える(関口2014)。「漫才」において、脳は話者だけでなく、聞き手とのコミュニケーションにより活性化される。「漫才」は観客に「笑い」をひき出させる話術であり、話者と聞き手の間に、必然的に強固なコミュニケーションを作る。話者は聞き手に「笑い」をひき出させるために、「笑う位置(聞き手の立ち位置での笑いの検出)」、「理解の問題(笑うための意味理解)」（ブッシュネル、2014）を分析し、表現しなければならない。話者が聞き手に「笑い」を求める場合の「究極要因(松坂、2014)」を参考に、話者が聞き手に与える「刺激」、「認知」、「(疑似)体験」、「(笑いの)表出」といった脳内での認知段階を追う。

本発表は、「漫才」での授業内活動の様子や経過をトランスクリプトやビデオを通して分析し、学生の「非言語表現」、会話上の「間」や「速度」、「強弱」、さらに「言葉の遊戯性」の向上の様子を、3例のケーススタディを対象として報告する。

Roundtable (English)

13:15 - 13:45 (Room 110)

Comparing and implementing 'desirable difficulties' and 'cognitive load theory' in the language learning classroom

John Duplice, Sophia University

Although second language learning goals can be clearly defined in the form of can-do statements, theories behind how students best learn material to reach these goals is not as clear; thus it is crucial that both teachers and learners understand effective ways of acquiring the material and skills to reach language learning goals.

Research from psychology has produced two seemingly opposing theories on how best to learn. These are "desirable difficulties" and "cognitive load theory." Desirable difficulties theory is based on the idea that including some difficulties in learning may help students' longer-term retention and their ability to transfer knowledge to other skills or settings. In contrast, "cognitive load theory" is built on the premise that brain resources, specifically short-term memory, is limited, and intentional study methods are best to reduce the cognitive load when learning.

Research has been conducted into these theories investigating their effectiveness, but little has been done in comparing the efficacy of the two theories in a controlled setting.

The presentation will address these two conflicting theories and discuss ways teachers can incorporate each effectively according to current research in both fields. Examples and comparisons of how and when to use desirable difficulties and cognitive load theory through practical mini lessons in the language learning classroom will be described with the caveat that research on the dichotomy of these theories is ongoing and still inconclusive.

Participants should come away with an understanding of how both these theories may be valid and may be used in the classroom depending on the goals of the curriculum and student variables. By having a better understanding of the theories, teachers will be able to choose the correct theory and method for their class.

14:00 - 15:30 Keynote #2

(Dr. Robert S. Murphy) see p.2.

Workshop (English)

15.30-16.20 (Room 110)

Neurodiversity in the age of hybrid human-artificial intelligence

Thomas Gorham, J. F. Oberlin University

Each human brain is singularly unique and the appreciation of this neurodiversity has led many teachers, administrators, and institutions to adapt their practices to best support each learner's needs through approaches such as Universal Design for Learning.

But now things are about to change dramatically. We are on the cusp of a massive expansion in neurodiversity fueled by the rise of machine learning and artificial intelligence (much of which has been inspired by human brains). Today more and more people are participating in reciprocal symbiotic relationships with these technologies in ways both big and small. So are language teachers prepared to interact with a student, colleague, or administrator who is augmenting their brains with AI?

This highly-interactive, beginner-friendly workshop will introduce some of the present and future implications (e.g. teaching techniques, assistive technologies, and job security) of hybrid human-artificial intelligence in the language learning classroom.

Workshop (English)

15.30-16.20 (Room 111)

Music and the brain: learn to accompany two simple songs by guitar

Markus Rude, University of Tsukuba

Music is a constructive element for language teaching. Yet, this resource is often underused in the language classroom. This workshop wants to spark participants' interest to use music, guitar and songs life in class.

After a 10-minute introduction on music and rhythm, and its importance for processing language in the right hemisphere, there will be a 20-minute guitar practice session (three guitars will be provided – please bring your own, if possible). Two songs that are very easy to accompany by guitar can be played and sung by the participants ("Lady in black," Uriah Heep, and "Grün, grün, grün sind alle meine Kleider." a German traditional children's song).

In the last 15 minutes, small groups will brainstorm about how to practice and integrate songs in language lessons, will share intermediate results, and will present the outcome in the final discussion. The best idea will receive a little prize.

Participant number limited to 12.

Presentation (English)

16:25-16:55 (room 110)

Binocular rivalry and language -
practice-led artistic research

Will Hall, Miyazaki International College

Binocular rivalry is a visual phenomenon, which occurs when our two eyes simultaneously look at very different things, causing our conscious perception to alternate uncontrollably between the two (Blake and Logothetis, 2002). Regarded as a curiosity in the past, developments in brain imaging techniques have led to a resurgence of interest. EEG studies on macaque monkeys (Leopold and Logothetis, 1996) and fMRI studies on humans (Polonsky et al., 2000) have shown that the parts of the brain activated when binocular rivalry occur are not limited to the stimulus driven primary visual cortex. In fact, activity can be found in higher areas linked to cognitive behavior and subjective experience.

In my ongoing practice-led research, I develop interactive systems that incorporate language (written text) into the visual stimulus. The systems have been shown as part of several art exhibitions in Japan. By showing, for example, Japanese and English text simultaneously to the left and right eye, an unstable perception is created, with both languages rivaling to dominate perception. In this presentation, I will introduce several stereoscopic devices I have developed to produce this experience, as well as possibilities in VR technology. Participants will be given the chance to experience for themselves the phenomenon and I hope that together we can consider new and exciting ways of thinking about language, education, art, and poetry.

Presentation (English)

17:00-17:30 (Room 110)

Frequency discrimination: gateway to
the learner's listening brain?

Bruno Jactat, University of Tsukuba

Sensitivity of the brain to auditory perception can be measured through detailed audiograms. These give us an accurate picture of the listening profile of the person tested and can reveal their degree of openness or closure to language.

In this talk I will explain one component of listening, Frequency Discrimination (FD), and how it evolves in the child's developing brain. I will then present an upcoming experiment that could elucidate whether as teachers, we can have leverage on this filter or not-- that is, whether we can help refine the brain's structure at a neurological level to enhance clarity toward listening to and learning a foreign language.

This experiment is funded by JSPS Grant-in-aid Kiban (C) #18K00777

Presentation (Japanese)

16:25-16:55 (Room 111)

言語認知のモダリティ

鈴木皓太、筑波大学

言語には音声だけでなく、手話のような視覚モダリティのものが存在する。手話は文字刺激と異なり動きを伴っており、文字認知と同様に提示した瞬間に認知が行われているとは考えにくい。また大森・寺内・長嶋(2009)では文の形で手話刺激を提示した時、ターゲットの手話の認知は前の語からのわたりのタイミングで始まるという。このように文字と手話の間で認知のタイミングが異なることを示唆する研究もあり、手話の特徴を無視して文字刺激と同様の分析が適切か疑問が残る。また、手話は先天的・後天的失聴者をはじめ様々な属性の話者があり認知が異なる可能性がある。手話認知タイミングの問題は、脳電図を利用する研究において音声や文字との比較のために非常に重要であると考えられる。本発表では音声の時間長や文字数が認知に与える影響を考え2音節と5音節語を利用し音声・文字・指文字を対象としたオドボール課題を実施した。その結果、振幅・潜時に違いが見られた。

Presentation (English)

17:00-17:30 (Room 111)

Cognitive load theory: implications
for language teaching

Caroline Handley, Asia University

This presentation will provide a brief introduction to cognitive load theory (CLT). CLT is based on the assumption that in formal education, which is concerned with teaching new knowledge and skills, successful learning is limited by students' restricted working memory capacity, especially in relation to learning complex skills, such as acquiring a foreign language. This has led to research into optimal instructional design, which should maximise learning of the target material (intrinsic load) by minimising aspects of design which interfere with learning (extraneous load), given students' prior knowledge. Key findings from this research and the implications for designing and sequencing language learning activities will be discussed. Participants will be invited to reflect on the extent to which this theory challenges and supports their beliefs and practices in teaching a foreign language.

17:30-17:35 Closing remarks Caroline Handley, Coordinator of the JALT Mind, Brain, and Education SIG

17:30-17:35 Dinner party [Restaurant Cin-Cin](#) (JPY 3500; [Dayz Town](#), Tsukuba Center)

About the presentations

The official languages used for presentations, roundtables and workshops are English and Japanese. Oral presentations last 20 minutes, plus 5 minutes for discussion. Workshops are 50 minutes and can include up to three presenters. Lunchtime roundtable discussions are 30 minutes but can freely cover the whole lunch period if participants would like that.

Conference Publication

As a cosponsor of the CEGLOC 3rd Conference, the JALT Mind, Brain, and Education (BRAIN) SIG would like to encourage you to publish a paper based on your presentation, your current research or classroom practices related to the SIG Journal or Think Tank topics. The editors would greatly appreciate papers and articles that connect brain science topics to language teaching.

There are two routes you can take for publishing with the BRAIN SIG: (1) submitting an academic paper to “The MindBrainEd Journal”, or (2) writing a 1500-word article for BRAIN SIG’s less formal bulletin, the “MindBrainEd Think Tanks”. You can view these publications and publishing guidelines here:

Journal: <https://sites.google.com/view/jalt-mind-brain-and-education/publications-journals>

Think Tanks: <https://sites.google.com/view/jalt-mind-brain-and-education/publications>

To submit an academic paper to the journal, please contact Mike Kelland at brainsig+publications@gmail.com

To submit an article, please contact the Think Tank editorial staff at brainsig+ThinkTankTeam@gmail.com. The editors will look at what future issue the article might fit (probably 6-12 mo. later) and get back to you.

Conference Registration Information

Admission to this event is free of charge, but you must register before the 30th of November 2019.

[REGISTER HERE](#) (Form in English)

[REGISTER HERE](#) (Form in Japanese)

Promotion of event

Thank you for helping promote this event in your university or institution by downloading the following poster and making it available to your colleagues and students:

- Poster with timetable, room numbers and map ([PDF](#))

Other information in English

- Restaurant options for lunch or where to buy your bento ([PDF](#))
- How to get to University of Tsukuba by car, train, highway bus, etc. ([PDF](#))
- Bus schedules from Tsukuba Station to University of Tsukuba & University of Tsukuba to Tsukuba Station (Conference venue is #5 on the schedule) ([PDF](#))
- Parking facilities at the University of Tsukuba ([PDF](#)) (We strongly encourage you to use public transportation).
- Dinner party at the Cin-Cin Restaurant from 18:30-20:30, fee: JPY 3500. Walk 5 mins from Tsukuba station ([homepage](#), [how to get there](#))