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The International *Language Learning* Roundtable on Memory and Second Language Acquisition

Venue: Council Chamber, Room 7336 (Lift 13-15, 7/F), The Hong Kong University of Science and Technology

Date: 11-12 June 2012


1. **Organizer**
   Language Center, The Hong Kong University of Science and Technology, China

2. **Sponsors**
   *Language Learning* Roundtable Conference Grant (LL)
   Language Center, The Hong Kong University of Science and Technology (HKUST)
   Universidade Federal de Santa Catarina, Brazil (UFSC)
   Asian Journal of English Language Teaching (AJELT)

3. **Conference Organizing Committee**
   **Conveners/Chairs**
   Dr. Arthur McNeill, Hong Kong University of Science and Technology
   Dr. Edward Zhisheng Wen, Hong Kong Shue Yan University
   Dr. Mailce Mota, Universidade Federal de Santa Catarina/CNPq

   **Registration, Hospitality and Publicity**
   Ms Candice Poon, Hong Kong University of Science and Technology
4. **Contacts**

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Registration: Ms Candice Poon (lcpoon@ust.hk; 852-23587850)

5. **Invited Speakers and Topics**

**Workshop**

**Prof. Michael Ullman**, Georgetown University, USA  
*(Topic: Learning and Memory in the Human Brain)*

**Keynote Speakers:**

**Prof. Michael Ullman**, Georgetown University, USA  
*(Topic: A Multidisciplinary Investigation of the Neurocognition of Second Language)*

**Prof. Peter Skehan**, University of Auckland, New Zealand  
*(Topic: Working Memory and Second Language Speech Performance)*

**Prof. Cem Alptekin**, Bogazici University, Turkey  
*(Topic: How Different Reading Span Tasks Affect the Relationship between Working Memory and L2 Reading: A DP-based Perspective)*

**Invited Speakers:**

**Dr. Mohammad Javad Ahmadian**, University of Isfahan, Iran  
*(Topic: Working Memory, Online Planning and L2 Self-Behavior)*

**Prof. Hintat Cheung**, Hong Kong Institute of Education, China  
*(Topic: Constructing Nonword Repetition Span Tasks)*

**Prof. Yanping Dong**, Guangdong University of Foreign Studies, China  
*(Topic: Working Memory and Interpreting)*

**Dr. Gulcan Ercetin**, Bogazici University, Istanbul, Turkey  
*(Topic: WM, Implicit and Explicit Knowledge in L2 Reading)*
Dr. Alan Juffs, University of Pittsburg, USA  
(Topic: Working Memory and L2 Sentence Processing of Relative Clauses)

Dr. Michael Harrington, Queensland University, Australia  
(Topic: The Episodic Buffer in L2 Working Memory Models)

Dr. Sun-A Kim, Hong Kong Polytechnic University, China  
(Topic: Working Memory and Reading Chinese as a Second Language)

Dr. Shaofeng Li, University of Auckland, New Zealand  
(Topic: Working Memory, Language Analytical Ability and L2 Corrective Feedback)

Dr. Yanbin Lu, Tsinghua University, China  
(Topic: Working Memory and L2 Writing)

Dr. Yasunori Morishima, International Christian University, Japan  
(Topic: Long-term Working Memory and L2 Discourse Processing)

Dr. Mailce Mota, Universidade Federal de Santa Catarina/CNPq, Brazil  
(Topic: Working Memory and L2 Pre-task Planning and Performance)

Dr Ali Shehadeh, UAE University, United Arab Emirates  
(Topic: Memory, Noticing and Repair Strategies in L2 Interactions)

Dr. Zhisheng Wen, Hong Kong Shue Yan University, China  
(Topic: Working Memory & SLA – Towards an Integrated Account)
Welcome

As conveners of the Language Learning Roundtable on “Memory and Second Language Acquisition”, we wish to welcome you all warmly to the Hong Kong University of Science and Technology (HKUST) and thank you for attending this event. The Roundtable was initiated following our successful bid for the competitive Language Learning Roundtable Conference Grant Program, and it is to the Language Learning (LL) Journal that we wish to express our deepest gratitude for its generous financial support that has made the conference possible in the first place.

The objective of the Roundtable is to provide an interactive forum for a group of cognitive and psycholinguistic-oriented SLA researchers to get together and discuss (with some senior cognitive neuroscientists and SLA researchers) and explore the roles of key memory systems, particularly working memory, in different aspects of SLA. We hope that our in-depth discussions at the Roundtable will have some bearing on key theoretical and methodological issues surrounding the intricate relationships between key memory systems and SLA processes, a topic that has become increasingly central to our SLA field, but is still under-researched. Therefore, our ultimate goal in hosting the Roundtable is, to quote from the LL roundtable conference grant program, “to chart the course for its immediate future”.

To achieve this goal, we have organized the Roundtable seminar around three core components: (1) a workshop by Michael Ullman which provides an overview of the major learning and memory systems in the human
brain; (2) three keynote speeches (by Michael Ullman, Peter Skehan and Cem Alptekin) that serve to offer innovative perspectives on relevant theoretical and methodological issues; (3) a series of invited speeches by SLA researchers that address both theoretical and practical issues surrounding the role of memory, in particular, working memory, in second language learning and processing. We wish to thank all the speakers for their contributions to the Roundtable.

Finally, we hope that all participants will find the discussion and exchanges at the Roundtable stimulating and inspiring. Thank you all once again for being with us at HKUST,

Arthur, Edward, & Mailce
June, 2012, Hong Kong
Michael Ullman, PhD is now Professor in the Department of Neuroscience, with secondary appointments in the Departments of Linguistics, Psychology and Neurology at Georgetown University, USA. At Georgetown, Prof. Ullman is co-director of the Center for the Brain Basis of Cognition (CBBC), Director of the Brain and Language Lab, and Director of the Georgetown EEG/ERP Laboratory. He was a Presidential Columnist for American Psychological Society Observer in 2005.

Prof. Ullman received his BA in Computer Science from Harvard University in 1988 and his PhD from the Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology in 1993. His main field of research is the relationship between language, memory and the brain and so far he has published numerous articles in top-notch journals of all these multidisciplinary fields. Among these, his Declarative/Procedural model of language has greatly influenced the fields of psycholinguistics, cognitive neuroscience and second language acquisition. E-mail: michael@georgetown.edu
Peter SKEHAN, PhD is currently Professor of Applied Linguistics at the University of Auckland, New Zealand. Professor Skehan recently retired from Department of English, The Chinese University of Hong Kong. Prior to these, Prof. Skehan had worked as professor at Thames Valley University and King’s College, University of London.

Prof. Skehan’s main research interests include foreign language aptitude and other individual differences in second language learning, task-based language teaching and learning, and language testing. He has published widely in the field of applied linguistics and his papers have appeared in such key journals as Language Learning, SSLA, Applied Linguistics and Language Teaching etc. His numerous publications have also included two monographs: “Individual differences in second language learning” (1989, with Arnold) and “A cognitive approach to language learning” (1998, with Oxford University Press, which won the Kenneth W. Mildenberger Prize), and an edited volume “Researching pedagogic tasks: Second language learning, teaching and testing (with M. Bygate & M. Swain, 2002, with Longman). Skehan has a forthcoming edited volume (“Investigating a processing perspective on task performance”) to be published by John Benjamins later this year.

Email: peterskehan@gmail.com
Biographical Sketches of Keynote Speakers

CEM ALPTEKIN

Cem ALPTEKIN, PhD is Professor of Foreign Language Education at Bogazici University in Istanbul, Turkey. He received his postgraduate training in the United States and earned his PhD from New York University. So far, Prof. Alptekin has published numerous articles on various aspects of L2 learning and his widely cited publications have appeared in all major journals in applied linguistics and psycholinguistics, including ELT Journal, TESOL Quarterly, System, Language Teaching, Journal of Research in Reading, International Journal of Applied Linguistics, Applied Linguistics and Applied Psycholinguistics.

B.A., Robert College (now Boğaziçi University), Istanbul, Turkey, 1965.

Email: alptekin.cem@gmail.com
## Program Schedule:

**Day 1, June 11 (Monday)**

**Venue:** Council Chamber (Rm. 7336; 7th Floor, Lift 13-15)

<table>
<thead>
<tr>
<th>Time</th>
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<tr>
<td>09:00 – 09:30</td>
<td>Registration</td>
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<td>09:30 – 10:00</td>
<td>Opening ceremony</td>
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<td>Chair: Arthur McNeill</td>
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<td>Welcome: Dr David Mole, Associate Provost</td>
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<td>Mailce Mota, Edward Wen</td>
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<td>Group Photo</td>
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<td>10:00 – 11:00</td>
<td>Workshop</td>
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<td>Learning and Memory in the Human Brain (Michael Ullman)</td>
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<td>Chair: Mailce Mota</td>
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<td>11:00 – 11:30</td>
<td>Coffee Break</td>
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<tr>
<td>11:30 – 12:00</td>
<td>Presentation 1 (Alan Juffs)</td>
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<td>WM and L2 Sentence Processing of RelativeClauses</td>
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<td>12:00 – 12:30</td>
<td>Presentation 2 (Michael Harrington)</td>
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<td>EB in L2 Working Memory Models</td>
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<td>12:30 – 14:00</td>
<td>Lunch (UC Bistro)</td>
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<td>14:00 – 14:30</td>
<td>Presentation 3 (Yasunori Morishima)</td>
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<td>Long-Term Working Memory and L2 Comprehension</td>
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<td>14:30 – 15:00</td>
<td>Presentation 4 (Gulcan Ercetin)</td>
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<td>WM, Implicit vs. Explicit Knowledge in L2 Reading</td>
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<td>15:00 – 15:30</td>
<td>Presentation 5 (Yanping Dong)</td>
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<td>Working Memory and Interpreting</td>
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<tr>
<td>15:30 – 16:00</td>
<td>Break</td>
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### Plenary 1 (Lecture Theatre F)
A Multidisciplinary Investigation of the Neurocognition of Second Language (Michael Ullman)
Chair: Edward Wen

### Plenary 2 (Lecture Theatre F)
Working Memory and Second Language Speech Performance (Peter Skehan)
Chair: Arthur McNeill

### Coffee Break (Outside Lecture Theatre F)

### Day 2, June 12 (Tuesday)
Venue: Council Chamber (Rm. 7336; 7th Floor, Lift 13-15)

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<tr>
<th>Time</th>
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<tr>
<td>09:30 – 10:00</td>
<td><strong>Presentation 6</strong> (Mailce Mota) WM and L2 Pre-Task Planning &amp; Performance</td>
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<tr>
<td>10:30 – 11:00</td>
<td><strong>Presentation 7</strong> (Mohammad Ahmadian) WM, Online Planning and L2 Self-Repair Behavior</td>
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<td>11:00 – 11:30</td>
<td>Coffee Break</td>
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<tr>
<td>11:30 – 12:00</td>
<td><strong>Presentation 8</strong> (Shaofeng Li) WM, Language Analytical Ability &amp; L2 Feedback</td>
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<tr>
<td>12:00 – 12:30</td>
<td><strong>Presentation 9</strong> (Yanbin Lu) WM and L2 Writing</td>
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<tr>
<td>12:30 – 14:00</td>
<td>Lunch (Chinese Restaurant)</td>
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<td>14:00 – 15:00</td>
<td><strong>Plenary 3</strong></td>
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<td>How Different Reading Span Tasks Affect the Relationship between Working Memory and L2 Reading: A DP-based Perspective (Cem Alptekin) Chair: Arthur McNeill</td>
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<td>15:00 – 15:20</td>
<td><strong>Presentation 10</strong> (Ali Shehadeh)</td>
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<td>Memory, Noticing, Repair Strategies: Perspectives from L2 Interactions</td>
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<td>15:20 – 15:40</td>
<td>Coffee Break</td>
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<td>15:40 – 16:00</td>
<td><strong>Presentation 11</strong> (Sun-A Kim &amp; Kiel Christianson)</td>
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<td>WM and Reading Chinese as a Second Language</td>
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<td>16:00 – 16:20</td>
<td><strong>Presentation 12</strong> (Hintat Cheung)</td>
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<td>Nonword Repetition Span Tasks: Methodological Issues</td>
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<td>16:20 – 16:40</td>
<td><strong>Presentation 13</strong> (Edward Wen)</td>
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<td>Theorizing and Measuring WM in SLA: Towards an Integrated Account</td>
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<td>16:40 – 17:10</td>
<td><strong>Closing: Roundtable Discussion</strong></td>
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<td>Chair: Edward Wen, Mailce Mota &amp; Arthur McNeill</td>
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Abstracts for the Workshop and Keynotes

Workshop:

Learning and Memory in the Human Brain

Dr. Michael T. Ullman
Professor in Departments of Neuroscience, Linguistics, Psychology and Neurology
Director of Brain and Language Lab
Director, Georgetown EEG/ERP Laboratory
Co-Director of Center for the Brain Basis of Cognition;
Georgetown University, Washington, DC, USA
michael@georgetown.edu

This tutorial provides an overview to all the major learning and memory systems in the human brain, including very short term memory (iconic and echoic memory), working memory, and the various longer term memory systems (declarative memory, procedural memory, associative learning, priming, etc.). I will discuss each memory system’s functional characteristics, neuroanatomical substrates, biological (e.g., genetic) underpinnings, and clinical correlates (which disorders affect which memory systems with what consequences). Audience participation and discussion is encouraged.


Keynote 1:

A Multidisciplinary Investigation of the Neurocognition of Second Language

Dr. Michael T. Ullman
Professor of Departments of Neuroscience, Linguistics, Psychology and Neurology
Georgetown University, Washington, DC, USA

I will present a brief overview and some particular examples of a broad ongoing multidisciplinary investigation of the biological and computational bases of second language (L2). This highly collaborative investigation is multidisciplinary in various respects. It attempts to integrate various disciplines (e.g., neuroscience, psychology, SLA, linguistics, endocrinology, genetics), brings together studies of human and animals, and crosses language and non-language domains. It examines the acquisition, retention and processing of L2, and compares these to normal and disordered first language, in both developmental and adult-onset disorders. The investigation uses a variety of behavioral and neuroimaging techniques, with a number of different experimental paradigms, in both natural and artificial languages.

This wide-ranging approach is used specifically to examine the dependence of language on two long-term memory brain systems, declarative memory and procedural memory. Crucially, because the behavioral, anatomical, physiological, molecular and genetic correlates of these two systems are quite well-studied in animals and humans, they lead to specific predictions
about language that would not likely be made in the more circumscribed study of language alone. The approach is thus very powerful in being able to generate a wide range of novel predictions for language. I will first give background on the two memory systems, and then discuss the manner in which both first and second language are predicted to depend on them. One of the key concepts is that to some extent both systems can subserve the same functions (e.g., for navigation, grammar, etc.), and thus they play at least partly redundant roles for these functions. This has a variety of important consequences for first and second language, in normal and disordered populations. I will then present evidence that basic aspects of language do indeed depend on the two memory systems, though in different ways across different populations. I will discuss normal first and second language, individual and group differences (sex and handedness differences), and a variety of developmental disorders (e.g., Specific Language Impairment, autism and Tourette syndrome), although the focus of the talk will be on second language.

Altogether, I will suggest that such a multidisciplinary approach is quite helpful, and perhaps even necessary, for understanding the nature of second language in the mind and brain.
Research into second language task based performance has been an active area in recent years, with a range of findings, and emerging theoretical accounts. In addition, links are increasingly being made to models of first language speech production, such as Levelt's. We have some idea of how WM might function in such first language models, linked as they are to models of the mental lexicon, and also controlled and automatic stages in speech production. However, we know less about how WM contributes to second language performance. To address this gap, this presentation will consider the relevance of WM models, and explore how attentional functioning depends upon the structure of WM and to limitations in its size. Such attentional functioning is related to real-time performance by second language speakers with limited second language mental lexicons. It will be argued that WM limitations play a key role in relation to the interplay between the Conceptualizer and Formulator stages in speech production; and that second language mental lexicon limitations spill over, in their consequences, to all aspects of speech performance. In particular, such limitations make second language speech production a serial rather than a parallel process. As a result, it is task characteristics and task conditions
which impact upon attentional functioning, and the ways that the tendency
towards serial processes is overcome, as far as is possible. It will be argued
that if serial processes are inevitable, at least some of the time, the key then
becomes, for the second language speaker, of how parallel processing can
be enhanced through task design, especially in relation to task structure.
The analysis also has relevance to theories of second language performance,
such as the Tradeoff and Cognition Hypotheses.
How Different Reading Span Tasks Affect the Relationship between Working Memory and L2 Reading: A DP-based Perspective

Dr. Cem Alptekin
Professor of Applied Linguistics
Faculty of Education, Bogazici University, Istanbul, Turkey

The paper focuses on the relationships between working memory, measured by reading span tasks, and second language reading by probing the effects of differences in secondary task design (semantic vs. syntactic) and the language of the task (first vs. second), with adult learners of English with a relatively advanced proficiency level. Exploratory factor analysis results suggest that storage is task- and language-independent. However, processing is affected by the linguistic nature of the secondary task and the language in which the task is presented. The findings are discussed in relation to the DP model of second language acquisition.


reading. *TESOL Quarterly, 45*, 235-266.

Dr. Mohammad Javad Ahmadian
Lecturer of Applied Linguistics, the University of Isfahan, Iran
Email: ahmadian.edu@gmail.com

There is now ample empirical evidence suggesting that inter-individual variations in working memory capacity is related to second language reading, writing, speaking, vocabulary development, learning L2 grammar, and the processing of input and intake. In the area of task-based planning, too, research findings point to meaningful correlations between working memory capacity and complexity, accuracy, and fluency of L2 speech under different planning conditions. In this talk, I will report and discuss the results of a study which aimed to investigate the way working memory capacity relates to second language self-repair behavior under different performance conditions (i.e., pressured vs. careful online planning conditions). Self-monitoring of L2 speech is believed to lead to second language development by making learners notice ‘the gaps’ in their interlanguage systems. Therefore, unraveling how L2 speech monitoring might relate to working memory capacity under different planning conditions is of particular importance.

Mohammad, M.J. (2011) The effects of simultaneous use of careful online planning and task repetition on accuracy, complexity, and fluency in EFL


**Bio-data:**

*Mohammad Javad Ahmadian* holds a Ph.D. in Applied Linguistics from the University of Isfahan, Iran. His major research efforts and output have been in the area of task-based planning. He has published internationally in numerous journals including: *Language Teaching Research, TESOL Quarterly, The Language Learning Journal, Educational Action Research, ELT Journal,* and *International Journal of Applied Linguistics* (forthcoming). He is interested in cognitive approaches to SLA, task-based language teaching and learning, and L2 speech production processes. His current research program focuses on exploring the way working memory capacity interacts with L2 oral production and L2 self-repair behavior under different performance conditions using different task types.
Altogether 19 tests (including English-Chinese and Chinese-English consecutive interpreting, tests of language skills, seven different measures of WM spans, etc.) were conducted on a group of third-year English majors who had just completed two semesters of interpreting training. Based on the analysis of correlations between the interpreting scores and the other test scores, a valid structural equation model was established for English-Chinese consecutive interpreting. The results indicate that, for student interpreters, although language skills are important to English-Chinese interpreting performance, these skills mostly function through the mediation of psychological competence which includes interpreting anxiety, English listening span and Chinese speaking span.

However, no measurement of WM span was related to interpreting performance in the pretest which was taken just when the participants had started their interpreting training. Interpreting training is thus perhaps a process to learn to assemble and coordinate one’s relevant capabilities in the process of the demanding task of interpreting.


Interactions among Explicit/Implicit Knowledge Resources, Working Memory Capacity, and Reading Comprehension in the L2

Dr. Gulcan Ercetin
Associate Professor of Applied Linguistics, Faculty of Education
Bogazici University, Istanbul, Turkey
Email: gulcan.ercetin@gmail.com

The paper explores the relationships between L2 explicit/implicit knowledge resources and working memory on one hand and L2 reading on the other. It also examines the relationship between working memory and L2 reading. Based on correlation and exploratory factor analyses, the findings of the study, conducted with adult learners of English with a relatively advanced proficiency level, suggest that L2 working memory is able to manipulate and store both explicit and implicit L2 input through controlled and automatic processes. However, whereas L2 reading is associated with explicit L2 knowledge and L2 working memory, it does not relate to implicit knowledge. The findings are discussed in light of the divergence or convergence of long-term memory systems in L2 acquisition.

Alptekin, C. & G. Ercetin (2010). The role of L1 and L2 working memory in
The Episodic Buffer in Models of L2 Working Memory

Dr. Michael Harrington
Senior Lecturer, School of Languages &
Comparative Cultural Studies
Queensland University, Brisbane, Australia
Email: m.harrington@uq.edu.au

Baddeley’s multi component model of working memory has had a profound influence on L2 memory research. The original 1974 model consisted of phonological and visual ‘slave’ buffers whose workings were coordinated by a higher central executive function. Subsequently a fourth element, the episodic buffer (EB), was added in 2000 to address significant shortcomings in the original (Baddeley, 2007). The EB is proposed as a temporary multidimensional store that forms the interface between the two slave systems, the central executive and long term memory. It allows the binding of various knowledge subsystems represented in different codes in a process accessible to conscious awareness. The EB deserves close attention for a number of reasons. The multi-feature binding mechanism represents a key function of consciousness (Baars 2002). The positing of an EB independent of a central executive function provides a potentially better understanding of the respective contributions of capacity and attention to performance. And of particular relevance here, the buffer provides a compelling memory-based account of sentence comprehension and recall. The inability of the original model to adequately account for this important domain (and visual processing) in a satisfactory way was a central
motivation for positing the EB (Baddeley et. al., 2009)

Although a decade has passed since first proposed, the EB has attracted little attention in L2 working memory research (Juffs & Harrington, 2011). In this paper I will examine implications of the construct for our understanding of the memory processes that subserve L2 discourse processing, specifically the processing of pragmatic (causal) inferences. Particular attention will be given to how the EB interacts with the central executive and long term memory in the retrieval of the linguistic (e.g. language structure, lexis) and specific domain knowledge needed to make appropriate inferences, as well as to the factors affecting the binding of this knowledge in the buffer. Among these factors the role of automatic retrieval processes is particularly important given the variable nature of L2 knowledge.


Bio-Data

*Michael Harrington* is a Senior Lecturer in Second Language Acquisition, Program in Applied Linguistics, in the School of Languages & Comparative Cultural Studies at the University of Queensland, Australia. He has published in various areas in applied psycholinguistics, including second language WM, sentence processing, lexical processing and the measurement of second language vocabulary skills. Current research projects include response time performance as an index of proficiency in second language lexical processing, retrieval-based approaches to Chinese character instruction in the CFL classroom, post-enrolment language assessment in EFL settings, and WM in second language discourse processing.
This paper first reviews results of major SLA studies that have explored the role of WM (e.g. as measured by the Reading Span Tasks, Daneman & Carpenter, 1980) in L2 grammatical processing, in particular research conducted within the generative approach. The main issue that the paper will confront is the failure to find WM effects in sentence processing in adult L2 learners in self-paced reading studies. The paper goes on to review a specific case of full relative clause processing where WM effects were not found in self-paced reading but were found in the reading of longer passages.

Although reduced relative clauses in L2 processing have been explored (e.g., Juffs, 1998, 2006; Rah & Adone, 2010), no on line L2 processing studies of full relative clauses (RCs) has been published to my knowledge. This gap is surprising given early interest in RCs in SLA (Gass, 1979), the large literature in L1 (e.g., Gibson et al. 2005), and recent interest in RCs in Asian languages (Shirai, 2007). Typically, in English subject RCs are easier to process than object RCs. This paper explores data from Spanish-speaking, advanced learners of English in processing sentences containing subject and object relative clauses modifying main clause subjects and objects.
Individual differences that might be attributable to working memory are explored.

20 Spanish-speaking learners (MTEL P mean/sd = 67.75 (9.23)) and a comparison group of 27 native speakers of English participated in a self-paced reading task that included 4 types of relative clause: those that modify a subject (a) and (b) and those that modify an object (c) and (d).

a. The tiger that chased the lion killed the antelope.
   b. The tiger that the lion chased killed the antelope.
   c. The tiger chased the lion that injured the antelope into the forest.
   d. The tiger chased the lion that the antelope injured into the forest.

In addition, participants read short passages that required the recovery of the antecedent of a pronoun. Sentences containing a Subject RC, an Object RC, and no RC intervened between the pronoun and its antecedent. Accuracy on a yes/no truth-value judgment task (White et al., 1997) matching the pronoun and its antecedent was the dependent variable. A non-word span and an on-line reading span task in the L1 (Spanish or English) were administered to assess working memory.

Results on comprehension accuracy in the self-paced reading task (repeated measures ANOVA F(3, 57) = 6.92, p ≤ .002) for the Spanish speakers on structures 1a-1d was reliable. Spanish speakers’ accuracy is in the predicted direction, with Subject extraction being reliably easier than object extraction for subject modifying relative clauses, but not for object modifying relative clauses. Native speakers only had problems with type (1b), an object RC modifying a Subject.
Word-by-word reading times (residual) were analyzed, focusing on the main verbs in (1a,b) and the embedded verbs in (1c,d). For the Spanish speakers, none of the key comparisons were reliably different. Hence, although differences exist in accuracy on comprehension questions, differences in processing time do not reflect these differences.

Preliminary analysis shows that neither measure of working memory related to reading times on the main verbs in (1a,b). However, a moderate negative correlation (r= -0.56, p≤ .01) was found the RST score and the subordinate verb in (1d). Interestingly, this was the one type that Spanish speakers did worse on than the comparison group.

For the reading of longer passages containing different types of RC, the Spanish learners and native speakers showed identical accuracy results, with passages containing Subject relatives being comprehended more accurately than passages with Object RCs or no RCs at all. While WM effects were not evident for native speakers, for Spanish-speakers RST WM positively correlated with accuracy and correlated negatively with latency in responding to the truth value judgments.

These results suggest that, while somewhat different, these learners may not be fundamentally different when processing RCs in their L2. Moreover, the reading span WM results suggest that WM in L2 processing predicts global comprehension and efficiency in processing rather micro-level syntactic processing routines. These results are linked to the literature on WM as a measure of attention (e.g., Sunderman & Kroll, 2009).


In written Chinese, many strokes are condensed in one square of a character (e.g., 繁 and 魏), and a difference even in a slant or length of a stroke sometimes makes another character (e.g., 千 vs. 千; 天 vs. 夫). Some recent comparative studies with L1 English have reported that L1 Chinese readers rely on visuospatial memory more than phonological memory (Tavassoli, 2001; Tavassoli, 2002; Tavassoli, 2003) and involve more right hemisphere cortical regions related to visual analysis (Tan, Liu, Perfetti, Spinks, Fox, & Gao, 2001). However, the Chinese writing system is internally complicated, containing characters ranging in complexity from structurally simple to extremely complex. The results of research on reading Chinese related to visual skills are still not conclusive (McBride-Chang, 2004).
The current study aimed to examine the influence of individual working memory (WM) on learning to read L2 Chinese in two different conditions. The first condition was designed to lead participants to using visual memory more, while the second condition was intended to involve more phonological memory. A total of 70 American college students enrolled in beginning/intermediate Chinese classes participated in two computerized written character learning experiments and a visuospatial and a verbal WM task. In Experiment 1, participants learned to read 18 novel simple Chinese characters without any pronunciation cue, which were divided into three levels of visual distinctiveness of characters: distinctive, normal, and similar sets. In the distinctive set, one stroke of each character was artificially enhanced to make the characters visually distinctive. The normal set consisted of normal characters, and the similar set consisted of character pairs whose members were visually similar to each other. Experiment 2 required participants to learn another 18 unknown Chinese characters, six of which were simple characters and also served as phonetic radicals for the remaining 12 compound characters. The consistency of six phonetic families in these 18 characters was divided into three levels: consistent, semi-consistent, and inconsistent.

Logit mixed modeling (Jaeger, 2008) analysis of the data revealed WM effects in Experiment 1. Participants who had higher visuospatial WM spans were better able to learn the visually enhanced characters, while those with higher verbal WM capacities performed better in learning the regular Chinese characters belonging to the normal and the similar sets. In Experiment 2, on the other hand, WM effects disappeared when participants learned to read the six groups of phonetic families whose
consistency levels varied. The theoretical and pedagogical implications of the results will be discussed.


The Differential Roles of Working Memory and Language Analytic Ability in Mediating the Effects of Implicit and Explicit Feedback

Dr. Shaofeng Li
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This presentation reports an empirical study on the interactions between learners’ aptitude differences in working memory and language analytic ability and different learning conditions defined by feedback type and the choice of linguistic target. A structural equation modeling analysis confirmed that working memory was a component of language aptitude; multiple regression analyses showed that the two aptitude components played differential roles in affecting the effects of implicit and explicit feedback.


Working Memory and L2 Writing

Dr. Yanbin Lu
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This article reports on part of a larger study which investigates the relationships of English learners’ essay writing and various factors such as L2 language proficiency, L1 writing ability, use of writing strategies, and working memory (WM) capacity from a cognitive perspective. In particular, it focuses on the relationship of WM capacity and L2 writing in the context of Chinese EFL learners’ timed essay writing in English. Correlation and multiple regression analyses show slight contribution of WM capacity to L2 writing performance. The results are discussed in terms of the measurement instruments used for WM capacity and the concept of WM as a domain-specific or domain-general construct.

Bio-data

Yanbin Lu has a PhD in Applied Linguistics. Her dissertation investigates the cognitive factors that contribute to Chinese EFL learners’ L2 writing performance in timed essay writing, in which she incorporates WM as a variable and explores, among various relationships, the relationship between WM and L2 writing. Currently she is a lecturer at the Department of Foreign Languages and Literatures, Tsinghua University, Beijing, China. Her research interests include academic L2 writing and assessment, WM and L2 writing, and English for academic purposes.
Long-Term Working Memory and L2 Comprehension

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Working memory (WM) plays an important role in various cognitive processes including language comprehension. One of the recent developments in the understanding of WM is the theory of long-term working memory (LTWM) proposed by Ericsson and Kintsch (1995). One of the motivations for the formulation of this memory is to account for reading comprehension. It is generally accepted that short-term working memory (STWM) operates under severe capacity constraints. A number of observations concerning on-line comprehension processes cannot be accounted for by the capacity-limited STWM. Hence, the notion of LTWM has been devised and shown to explain many of such observations (e.g., Kintsch, 1998). Given the importance of LTWM in L1 comprehension, this notion has begun to gain attention from researchers in L2 comprehension in recent years. A key and basic question concerning LTWM in L2 comprehension is whether this memory plays a role in on-line processes in L2 reading. Though such a question may seem obvious, it is actually worth asking because LTWM is claimed to be restricted to well-practiced and familiar knowledge domains (Kintsch, Patel, & Ericsson, 1999). While native language (L1) comprehension falls well in this domain, L2 comprehension does not because of insufficient proficiency. LTWM is a
portion of LTM that is not activated but can easily be activated by STWM elements as retrieval cues. One model that specifies a mechanism of such activation is that of resonance (e.g., Gerrig & O’Brien, 2005). The degree to which information in LTM is activated and functions as LTWM, therefore, depends on the amount of cognitive resources available for the knowledge activation process. On the one hand, much of language processing in L1 is considered to be automatic and consume little cognitive resources. On the other hand, L2 language processing is largely controlled, requiring a substantial amount of cognitive resources. L2 readers do not seem to have sufficient resources available for activating LTWM. Morishima (in preparation) conducted a study with Japanese learners of English. The experiment employed the contradiction detection paradigm (Albrecht and O’Brien, 1993), and found that the L2 participants could not detect a contradiction in a text during reading unless the contradicting sentences were adjacent. This outcome suggests that the accessible text memory is limited to a single sentence immediately preceding a currently processed sentence. It seems sensible to assume that this accessible preceding sentence still remained in STWM because it had just been processed. Then, this finding suggests that the L2 participants failed to access and integrate the text elements that presumably resided in LTM. In other words, they were not capable of making use of LTWM by reactivating the relevant information in LTM. Though this evidence should not be taken as rejecting the role of LTWM in L2 comprehension in general, yet it seems tenable to argue that the degree to which LTWM functions in L2 comprehension is severely limited because of resource limitation, and that the inaccessibility of a functioning LTWM could cause difficulties for successful comprehension such as the construction of a coherent text representation.
Cognitive Studies, 10 (1), 29-44.
In T. Tsuzuki and T. Kusumi, (eds.) Connectionist modeling of higher-level 
cognitive functions: Neural networks and symbolic connectionism. Tokyo: 
second Language: Issues of anaphoric resolution. Educational Studies, 50, 
211-219.
WM and L2 Pre-task Planning and Performance

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Research Fellow of the Brazilian National Council for Scientific and Technological Development (CNPq), Brazil
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The role of tasks within L2 learning has been investigated for over 30 years now. In the study of second language pedagogic tasks, a procedural factor that has attracted a great deal of attention is planning. Different aspects of planning have been investigated, including the various types of planning, different amounts of planning time, and the interaction between planning, task types, and levels of proficiency in the L2. As pointed out in Guará Tavares (2011), for the most part, studies have shown a positive impact of planning on L2 but have also provided evidence of trade-off effects among the goals of fluency, accuracy, and complexity of L2 performance. These trade-off effects have been attributed to learners’ limited attentional resources (e.g., Yuan & Ellis, 2003). I present the findings of a study that investigates the relationship between individual differences in working memory capacity, pre-task planning, and L2 speech production. A total of 50 Brazilian college students enrolled in intermediate English classes participated in the study. Participants in the control group performed a working memory test and two narrative tasks under a no-planning condition. Participants in the experimental group performed a working
memory test and two narrative tasks (one under a no-planning and one under a planning condition). In order to examine what participants did when they planned, retrospective online protocols and retrospective interviews were also carried out. L2 speech performance was assessed in terms of fluency, accuracy, and complexity, following Fortkamp (2000, 2003). Results show that under a no-planning condition, working memory capacity significantly correlates with L2 speech accuracy (for the control group) and L2 speech fluency (for the experimental group). Under a planning condition, working memory capacity significantly correlates with L2 speech fluency and complexity. The results also show a significant effect of planning on L2 speech accuracy and complexity, but not on fluency. The analysis of the protocols and interviews shows that learners engage mainly in organization of ideas, rehearsal, lexical searches, and monitoring when they plan an oral task. In addition, higher spans employ significantly more metacognitive strategies during planning when compared to lower spans. These results are discussed with reference to the executive attention theory of working memory capacity proposed by Kane et al (2007).


Kane, M.J., Conway, A.R.A., Hambrick, D.Z., & Engle, R.W.


**Bio-Data**

*Dr. Mailce Borges Mota* is Associate Professor in the Department of Foreign Languages and Literatures at the Federal University of Santa Catarina, Brazil, and a research fellow of the Brazilian National Council for Scientific and Technological Development (CNPq). Her research focuses on the relationship between memory systems and L2 acquisition and processing.
Noticing and Repair Strategies in NS-NNS and NNS-NNS Interaction:
What are the Implications for Memory, Retrieval and L2 Learning?

Dr. Ali Shehadeh
Associate Professor of Department of Linguistics
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A number of SLA researchers have confirmed that self-initiated self-completed repairs as an internally-driven mechanism and in which attention arises through production processes work better for promoting noticing and L2 learning than input enhancement or other-initiated other-completed repairs, a mechanism in which attention is induced by external means. It is not clear yet however what implications these findings have for memory, language retrieval and L2 development as well as, from a pedagogical perspective, for task-based interaction in the L2 classroom. This short presentation will argue that understanding the interplay of all these factors (repair strategies, noticing, memory, retrieval, L2 development, and task-based language teaching) is essential because it has both theoretical implications for our understanding of SLA, and pedagogical implication for interaction in the L2 classroom.
Bio-Data

**Dr. Ali Shehadeh** is Associate Professor in the Department of Linguistics at the UAE University, UAE. His research papers have appeared in *Language Learning, TESOL Quarterly, System, Journal of Applied Linguistics, Journal of Second Language Writing*, and *ELT Journal*. Recently, he has co-edited two volumes on task-based language teaching: One was published by TESOL, Inc. in the US (2010), and the other (in press) to be by John Benjamin’s publishing company in the summer of this year. Currently, he is the co-editor of Brief Reports and Summaries of *TESOL Quarterly* and co-editor of *Asian Journal of English Language Teaching*. 
In this presentation, I will first try to tease out some theoretical and methodological issues (as well as their consequences) inflicting current WM/SLA studies (e.g. a lack of consensus on the conceptualization of the WM construct in cognitive psychology; a lack of standardized procedures for measuring and scoring WM span tasks; a lack of meaningful and constructive theoretical/hypothetical links between WM and SLA cognitive processes). Next, I will try to summarize the presentations at the Roundtable and discuss how they have contributed to a deeper understanding of some aspects (nodes) of the WM/SLA nexus (Wen, 2012). Then, based on previous research findings together with current research efforts made at the Roundtable, I will try to propose some general principles in this integrated account of theorizing and measuring the WM construct in SLA studies. I will conclude my presentation by highlighting some possible directions in constructing a research agenda that incorporates the WM construct in major SLA research areas.


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Public Transport Map to HKUST

Transportation from airport to HKUST:
For passengers with bulky luggage, taking a taxi to HKUST direct is recommended.
Those with simple luggage may take Airport Bus A22 to Lam Tin, and change for taxi to HKUST.
Travel Choices from HK International Airport to HKUST

1. **Taxi**: This is the easiest and most convenient way. It takes around 40 minutes and costs around HK$360.00. There is no need to tip taxi drivers in Hong Kong.
   
   **Total cost: HK$360**
   
   **Estimated transit time: 40 mins**

2. **Airport Express**: You may take the Airport Express to Central MTR station [See the attached map of the MTR (Mass Transit Railway) system]. It takes about 24 minutes and the fare is HK$100. Trains depart at 12-minute intervals. Once you have reached Central MTR station, take the subway from Central to North Point (Island Line). Then transfer to the Tseung Kwan O Line and travel from North Point to Hang Hau station. This trip costs HK$11.2. There is a minibus (11M) at the bus terminal heading to HKUST which costs HK$4.2. Alternatively you may take a taxi to HKUST from Hang Hau Station. A green taxi should cost around HK$26 while a red taxi should cost around HK$35. The approximate travel time from Central to HKUST is 1 hour.
   
   **Total cost: HK$115-145**
   
   **Estimated transit time: 1.5 hrs**
3. **Public bus**: You may take the A22 Citybus from the airport to its final stop at Lam Tin (HK$39, operating hours 6am-1am, travel time about 1 hr). From Lam Tin station, take a taxi to HKUST, which should cost around HK$60.

   **Total cost**: HK$100

   **Estimated transit time**: 1.5 hrs

4. **Public bus**: You may also take the E22A Citybus from the airport to Hang Hau or Po Lam. It takes about 1.5 hours and the fare is HK$24. It runs from 7am to 11.50pm. You may then take a taxi from Hang Hau or Po Lam to HKUST for around HK$30 to HK$50.

   Alternatively, there is a minibus (11M) at the Hang Hau bus terminal that heads to HKUST which costs HK$4.2. While at Po Lam Station, there is a double-decker bus (91M) that goes to HKUST which costs HK$5.9.

   **Total cost**: HK$30-70

   **Estimated transit time**: 2 hrs
Hong Kong Mass Transit Railway (MTR) System
Campus Map of HKUST (Workshop/Roundtable Venue: Council Chamber, Rm. 7336D, 7th Floor, Lifts 13-15)
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Prof. David C.S. Li, Head of Center for Language in Education, HKIED
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Prof. Yuncai Dai, Dean, School of Foreign Languages, Zhejiang Agriculture and Forestry University
Prof. Huang Ruoyu, College of Foreign Studies, Jinan University

**Workshop and Keynote Speakers**

Prof. Michael Ullman, Georgetown University
Prof. Peter Skehan, University of Auckland
Prof. Cem Alptekin, Bogazici University

**Invited Speakers**

Dr. Mohammad Javad Ahmadian, University of Isfahan
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Prof. Yanping Dong, Guangdong University of Foreign Studies
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