The Final Oral Examination
for the Degree of

DOCTOR OF PHILOSOPHY
Department of Psychology

Tanya Lentz
2003 University of Victoria MA
2001 University of Winnipeg BA

Impact of Working Memory Constraints on Speech Monitoring in Healthy Children

Friday, November 29, 2013
9:00 AM
David Turpin Bldg., Room A136

Supervisory Committee:
Dr. Kimberly Kerns, Department of Psychology, UVic (Supervisor)
Dr. Mauricio Garcia-Barrera, Department of Psychology, UVic (Member)
Dr. John Walsh, Department of Educational Psychology & Leadership Studies, UVic (Outside Member)
Dr. Leslie Saxon, Department of Linguistics, UVic (Outside Member)

External Examiner:
Dr. Elina Mainela-Arnold, Department of Speech-Language Pathology, University of Toronto

Chair of Oral Examination:
Dr. Andrea McKenzie, Department of History, UVic
Abstract

The purpose of the current study was to examine the impact of working memory on speech monitoring processes in the primary language of school-age children using the framework of Levelt’s Perceptual Loop Theory of speech production (1983). A community sample of eight children aged 6-7 and fourteen children aged 10-12 completed 4 verbal description tasks under different conditions; control, working memory load, white noise and combined working memory load and white noise. Participants also completed measures of listening span, digit span and spatial span. The results indicate that with increasing working memory load, children make significantly more speech errors, silent pauses and repetitions. No relationship was found between working memory and total repairs per errors or between working memory and total number of editing terms used. Group differences across the conditions were not significant; however, age-related trends were notable. Younger children had greater difficulty monitoring their speech with the introduction of working memory load; whereas, older children had greater difficulty with the introduction of white noise. A revised speech production model incorporating aspects of working memory is recommended and implications for clinical populations are discussed.
**Awards, Scholarships, Fellowships**

2012  CIHR Health Professional Student Research  
2004  Canadian Psychological Association Student Merit  
2001-04  University of Victoria Fellowship  
2003  Dr. Michael Peet Scholarship  

**Presentations**

   Attentional basis of adaptive function deficits in Developmental  
   Coordination Disorder. *International Neuropsychological  
   Society Conference*. Poster presented in Portland, Oregon,  

   Intraindividual variability and severity of cognitive impairment.  
   *International Neuropsychological Society Conference*. Poster  
   presented in Honolulu, Hawaii, Feb 5 – 8.  

   Evaluation of the effectiveness of the Cognitive Orientation to  
   Occupational Performance treatment approach with children  
   with developmental coordination difficulties, within the school  
   setting. *6th International Conference on Children with DCD*.  

**Publications**

1. Dixon, R.A., Garrett, D.D., Lentz, T.L., MacDonald, S.W.S.,  
   cognitive impairment: Exploring the roles of speed and  
   inconsistency. *Neuropsychology*, 21(3), 381-399. doi:  
   10.1037/0894-4105.21.3.


