Notice of the Final Oral Examination for the Degree of Doctor of Philosophy

of

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“Neural mechanisms of affective instability in substance use”

Department of Psychology

Tuesday, November 28th, 2017
12:00 p.m.
Clearihue Building
Room B007

Supervisory Committee:
Dr. Clay Holroyd, Department of Psychology, University of Victoria (Supervisor)
Dr. Kimberly Kerns, Department of Psychology, UVic (Member)
Dr. Eric Roth, Department of Anthropology, UVic (Outside Member)

External Examiner:
Dr. Anna Weinberg, Department of Psychology, McGill University

Chair of Oral Examination:
Dr. Myer Horowitz, School of Educational Psychology and Leadership Studies, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies
Abstract

Substance use disorders (SUDs) are a growing concern in today's society. Substantial research has advanced our understanding of how cognitive control, reward processing, and emotional difficulties may contribute to the development and maintenance of SUDs; however, the impact of affective instability in SUDs has received limited attention. I sought to examine how different dimensions of affective instability interact to increase substance misuse, and to investigate the impact of affective instability and substance use on neural mechanisms of reward and emotion processing. Specifically, I was interested in two event-related potential (ERP) components, the reward positivity and the late positive potential (LPP), which respectively reflect the neural mechanisms of reward and emotion processing. Toward this end, I recorded the ongoing electroencephalogram (EEG) from undergraduate students as they navigated two T-maze tasks in search of rewards. Further, one of the tasks included neutral, pleasant, and unpleasant pictures from the International Affective Picture System (IAPS). Participants also completed several questionnaires pertaining to substance use and personality. A principal components analysis (PCA) revealed a factor related to affective instability, which I named reactivity. This factor significantly predicted increased substance use. Interestingly, individuals reporting higher levels of affective reactivity also displayed a larger reward positivity following stimuli with emotional content. The current study identified a group of high-risk substance users characterized by greater levels of affective reactivity and increased reward processing. It is my hope that these results further elucidate the complexities of SUDs and help to create efficacious, individually-tailored treatment programs for those struggling with SUDs.