**Erasmus University Rotterdam CSC PhD 2014**

***Project Description***

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| ***School/Department:*** | Erasmus Graduate School of Social Sciences and the Humanities / Department of Psychology |
| ***Project Title:*** | Neurocognitive predictors of addictive behaviors in an adolescent population |
| ***Abstract:*** | **Summary proposal**  Addiction is a chronic disorder characterized by high risks of relapse and result in a high burden for patients, their environment and the society. In recent years it is becoming more and more clear that behavioral and neurocognitive mechanisms are associated with substance use disorders. These mechanisms are known to be involved in addiction and might help explaining the persistence of these behaviors. The neurocognitive underpinnings of these processes become increasingly well-understood. However, less is known about their role in the etiology of substance use and substance use disorders. What is largely lacking at the moment are longitudinal studies that could provide essential information about the etiology of substance use. The central question is “What are the causal risk factors that contribute to adolescents’ substance use?” It is important to address this question in order to be able to identify those adolescents who are most vulnerable to substance abuse in the (near) future and to develop treatment-programs. For this proposal, we will focus on several candidate neurocognitive mechanisms that might explain risky substance use in adolescents. The general research question is whether neurocognitive processes are able to predict future risky substance use in adolescents. These processes will be assessed using EEG/ERP measurements while participants engage in various cognitive tasks. Through the unique combination of cognitive, behavioral, and neurophysiological assessments, the results will provide important information about the etiology of risky substance use in young people that is previously unaddressed.  **Research group** The clinical psychology research program of the Erasmus University Rotterdam is excellently suited to investigate this proposal. Our research focuses on psychopathology that is associated with the brain's reward system, with special focus on addiction. This program is led by Prof. Dr. Franken, who is a leading expert in the field of addition. Techniques such as ERPs, fMRI, and psychopharmacological challenges are used to elucidate abnormal neurobiological, cognitive, motivational, and affective processes involved in these disorders. There is close collaboration with Bouman GGZ (Addiction Care). In addition, the research will be conducted in collaboration with the Child and Adolescent Psychiatry department of the Erasmus University Medical Center; Prof. Dr. Franken has also an appointment at this department. This department is world-leader in prospective longitudinal studies. Our research group publishes in the international top journals and we have many international collaborations. Below some examples of recent relevant publications and collaborations. The present research group publishes 15-20 papers each year in ISI journals, most with impact factors above 3.0. |
| ***Requirements of candidate:*** | Background: *Psychology, Psychiatry, Health Sciences.*  Master degree: Yes  IELTS Grade: 7.0 *(minimal 6.0 per component)*  *or*  TOEFL: 100 *(minimal 20 per component)* |
| ***Supervisor information:*** | *Prof.dr. I. Franken*  <http://www.clinicalpsychologyrotterdam.nl/>  ***Achievements Prof. Dr. Franken***  -Received two times a prestigious grant of the national Innovational Research Incentives Scheme (for exceptional research talents).  - >**125** international peer-reviewed articles, of which 18 articles in journals with a **high impact** factor (≥ 5).  -Frequently cited researcher: H-index = 27; >2200 citations (in Scopus).  -Research area: Neurocognitive aspects of psychopathology, particularly Addiction and related disorders (fMRI/EEG).  ***Recent publications*** *(only last year is listed)*  -El Marroun, H., Schmidt, M. N., **Franken, I. H. A**., ……& White, T. (in press). Prenatal tobacco exposure and brain morphology: a prospective study in young children. *Neuropsychopharmacology*.  -Marhe, R. & **Franken, I. H. A.** (in press). Error-related brain activity as a biomarker for cocaine relapse. *Neuropsychopharmacology* *Reviews.*  -Van der Veen, F.M., ….., & **Franken, I.H.A.** (in press). The heart-break of social rejection versus the brain wave of social acceptance. *Social Cognitive and Affective Neuroscience*.  -Luijten, M., Machielsen, M. W. J., … & **Franken, I. H. A.** (in press). A systematic review of ERP and fMRI studies investigating inhibitory control and error-processing in substance dependence and behavioral addictions. *Journal of Psychiatry and Neuroscience*.  -Luijten, M., O’Connor, D. A., Rossiter, S., **Franken, I. H. A.**, & Hester, R. (in press). Effects of reward and punishment on brain activations associated with inhibitory control in cigarette smokers. *Addiction*.  -Luijten, M., Field, M., & **Franken, I. H. A.** (in press). Pharmacological interventions to modulate attentional bias in addiction. *CNS Spectrums*.  -Field, M., Marhe, R., & **Franken, I.H.A.** (in press). The clinical relevance of attentional bias in substance use disorders. *CNS Spectrums*.  -Evans, B. E., Greaves-Lord, K., Euser, A. S., **Franken, I. H. A.**, & Huizink, A. C. (in press). Cortisol levels in children of parents with a substance use disorder. *Psychoneuroendocrinology*.  -Evans, B. E., Greaves-Lord, K., Euser, A. S., Tulen, J. H., **Franken, I. H.** **A.**, & -Huizink, A. C. (2013). Determinants of physiological and perceived physiological stress reactivity in children and adolescents. *PLoS ONE, 8*(4), e61724.  -Mies, G. W., Van den Berg, I., **Franken, I. H. A.,** Smits, M., Van der Molen, M. W., & van der Veen, F. M. (2013). Neurophysiological correlates of anhedonia in feedback processing. *Frontiers in Human Neuroscience, 7*, 96.  **-Franken, I. H. A.** (2013). Commentary on Moss et al. *European Addiction Research, 2013*(19), 305–306.  -Marhe, R., van de Wetering, B. J. M., & **Franken, I. H. A.** (2013). Error-Related Brain Activity Predicts Cocaine Use After Treatment at 3-Month Follow-up. *Biological Psychiatry, 73*(8), 782-788.  -Marhe, R., … & **Franken, I. H. A.** (2013). Individual differences in anterior cingulate activation associated with attentional bias predict cocaine use after treatment. *Neuropsychopharmacology, 38*(6), 1085-1093.  -Boog, M., … & **Franken, I. H. A**. (2013). The concepts of rash impulsiveness and reward sensitivity in substance use disorders. *European Addiction Research, 19*(5), 261-268.  -Luijten, M., …& **Franken, I. H. A.** (in press). The role of dopamine in inhibitory control in smokers and non-smokers: a pharmacological fMRI study. *European Neuropsychopharmacology*.  -Euser, A. S., … & **Franken, I. H.** (in press). Diminished error-related brain activity as a promising endophenotype for substance-use disorders: evidence from high-risk offspring. *Addiction Biology*.  -Euser, A. S., … & **Franken, I. H. A.** (2013). Parental rearing behavior prospectively predicts adolescents’ risky decision-making and feedback-related electrical brain activity. *Developmental Science, 16*(3), 409-427.  -Marhe, R., …..&, **Franken, I. H. A.** (2013). Implicit and explicit drug-related cognitions during detoxification treatment are associated with drug relapse: An ecological momentary assessment study. Journal of Consulting and Clinical Psychology, 81(1), 1-12.  -Euser, A. S., … & **Franken, I. H. A.** (in press). Blunted feedback processing during risky decision-making in adolescents with a parental history of substance use disorders. *Development and Psychopathology*.  -Littel, M., …& **Franken, I. H. A.** (2013). Reduced cognitive processing of alcohol cues in alcohol-dependent patients seeking treatment: an ERP study. *Journal of Experimental Psychopathology, 4*(3), 291-302.  -Roozen, …& **Franken, I. H. A.** (2013). Does alcohol craving mediate the impulsivity-aggression relationship in recently detoxified alcohol dependent patients? *The American Journal of Drug and Alcohol Abuse,* 39(1), 57-60.  -Luijten, M., …. & **Franken, I. H. A.** (2012). Brain activation associated with attentional bias in smokers is modulated by a dopamine antagonist. *Neuropsychopharmacology*, 37(13), 2772-2779.  -Evans, B. E., Greaves-Lord, K., Euser, A. S., Tulen, J., **Franken, I. H. A.**, & Huizink, A. C. (2012). Alcohol and tobacco use and heart rate reactivity to a psychosocial stressor in an adolescent population. *Drug and Alcohol Dependence,* 126(3), 296-303*.*  -Littel, M…. & **Franken, I. H. A.** (2012). Error-processing and response inhibition in excessive computer game players: an ERP study. *Addiction Biology*, 17(5), 934-947.  -Marissen, M. A. E., Deen, M. L., & **Franken, I. H. A.** (2012). Disturbed emotion recognition in patients with narcissistic personality disorder. *Psychiatry Research*, 98(2), 269-273.  -Littel, M., Euser, A. S., Munafò, M. R., & **Franken, I. H. A.** (2012). Electrophysiological indices of biased cognitive processing of substance-related cues: a meta-analysis. *Neuroscience and Biobehavioral Reviews*, 36(8), 1803-1816.  -Huizink, A. C., …. & **Franken, I. H. A.** (2012). Youth in the Netherlands Study (JOiN): study design. *BMC Public Health,* 14;12(1):350.  -Euser, A. S. & **Franken, I. H. A.** (2012). Alcohol affects the emotional modulation of cognitive control: An event-related brain potential study. *Psychopharmacology,* 222(3), 459-476.  -Van den Berg, I., …. & **Franken, I. H. A.** (2012). The role of monetary incentives in feedback processing: why we should pay our participants. *Neuroreport*, 23(6), 347-353.  -Nijs, I. M. T., & **Franken, I. H. A.** (2012). Attentional processing of food cues in overweight and obese individuals. *Current Obesity Reports*, 1(2), 106-113.  -Garland, E. L., **Franken, I. H. A.**, & Howard, M. O. (2012). Cue-elicited heart rate variability and attentional bias predict alcohol relapse following treatment. *Psychopharmacology, 222*(1), 17-26.  -Garland, E. L., **Franken, I. H. A.**, Sheetz, J. J., & Howard, M. O. (2012). Alcohol attentional bias is associated with autonomic indices of stress-primed alcohol cue-reactivity in alcohol dependent patients. *Experimental and Clinical Psychopharmacology*, 20(3), 225-235.  -Eerland, A., Guadalupe, T. M., **Franken, I. H. A.**, & Zwaan, R. A. (2012). Posture as Index for Approach-Avoidance Behavior. *PLoS ONE, 7*(2).  -Marissen, M. A. E., **Arnold, N., & Franken, I. H. A.** (2012). Anhedonia in borderline personality disorder and its relation to symptoms of impulsivity. *Psychopathology, 45*(3), 179-184.  -Waters, A. J., Marhe, R., & **Franken, I. H. A.** (2012). Attentional bias to drug cues is elevated before and during temptations to use heroin and cocaine. *Psychopharmacology, 219*(3), 909-921.  -Evans, B. E., Greaves-Lord, K., Euser, A., **Franken, I. H. A.**, & Huizink, A. C. (2012). The relation between hypothalamic-pituitary-adrenal (HPA) axis activity and age of onset of alcohol use. *Addiction, 107*, 312–322.  -Littel, M., & **Franken, I. H. A.** (2012). Electrophysiological correlates of associative learning in smokers: a higher-order conditioning experiment. *BMC Neuroscience, 13*, 8.  -Euser, A. S., … & **Franken, I. H. A.** (2012). The P300 event-related brain potential as a neurobiological endophenotype for substance use disorders: A meta-analytic investigation. *Neuroscience and Biobehavioral Reviews, 36*(1), 572-603. |
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