Face emotion processing deficits in schizophrenia: identification and remediation utilising visual scanpath technology

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STATEMENT OF ORIGINALITY

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I hereby certify that the work embodied in this thesis contains a published paper/s/scholarly work of which I am a joint author. I have included as part of the thesis a written statement, endorsed by my supervisor, attesting to my contribution to the joint publication/s/scholarly work.

Dr Carmel Loughland Date:

PUBLICATIONS

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SYNOPSIS

Social cognition deficits in schizophrenia are now widely accepted as both a core feature of the condition and an area lacking effective treatment regimes. The aim of this thesis was to explore novel strategies for the remediation of one aspect of social cognition, namely face emotion processing. We utilised visual scanpath technology to first characterise the nature and extent of face emotion processing dysfunction in a schizophrenia sample (Chapter 2). In this study we sought to determine whether the visual scanpath deficits observed to face emotion stimuli generalise to complex, socially relevant stimuli that are matched on component features and response dimensions. The data presented in Chapter 2 showed support for the generality of information processing dysfunction in schizophrenia to complex visual stimuli. After establishing the generality of higher order object recognition dysfunction, we examined in Chapter 3 whether generalised scanpath impairment is likely to be associated with other measures of basic visual processing. The findings from this investigation showed that measures of smooth pursuit eye movement (SPEM) and scanpath behaviour during recognition tasks were significantly associated. The findings from these empirical studies guided the development of a novel remediation strategy targeting face emotion recognition. The treatment utilised visual scanpath technology to provide biofeedback designed to enhance the quality and sampling of visual information. This strategy was compared to an existing face emotion remediation tool. The data from the study described in Chapter 4 provides preliminary evidence that computerised biofeedback-based

training markedly improves recognition and information processing functions associated with face emotion perception in schizophrenia. In conclusion, this thesis provides the first evidence of the utility of both ‘‘top-down’’ and ‘‘bottom-up’’ approaches to the remediation of social cognition deficits in schizophrenia.

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