

**An Investigation into the Acquisition, Generalization, Facilitation and  
Immunization of Intergroup Anxiety**

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### **Declaration**

1. The data of Study 1 in Chapters 2 and 3 were collected prior to the commencement of Nicholas Harris' PhD and contributed to Nicholas' psychology honours thesis, which was submitted to the School of Psychology at the University of Newcastle in 2009. The breadth of the data, analytical approach, and scope of the analyses employed as part of this PhD submission differ significantly from those reported in his honours thesis. Towards inclusion in this PhD thesis, the psychophysiological data of this initial study were re-coded after consultation with expert research colleagues to perfectly adhere to standardized methodologies from established psychophysiology laboratories. The data from this initial study were re-analyzed in greater depth and larger scope: This included extending the initial focus on anxiety acquisition to incorporate an investigation of generalization, the moderating impact of individuals' prior contact, and mediational tests. As a result, this PhD thesis sheds a light on processes that have broader implications for theory and interventions. As such, this study's rationale, hypotheses, results, and implications, as discussed in this PhD thesis, are significantly different to those originally presented in Nicholas' honours thesis.
2. The rest of this PhD thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made. I give consent to this copy of my thesis, when deposited in the

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3. I hereby certify that the work embodied in this thesis contains a published paper of which I am a joint author. I have included as part of the thesis a written statement, endorsed by my supervisors, attesting to my contribution to the joint publication.
4. As second author of the review paper accepted for publication in *Group Processes and Intergroup Relations*, Nicholas Harris provided a significant contribution at all stages of the joint publication. Nicholas Harris contributed to the extensive literature review: He located the majority of the articles, coded them under guidance, adapted table structure from past publications, and populated the tables for the manuscript. He wrote selected parts of the manuscript, provided feedback on drafts and carried out extensive editorial changes of the manuscript under guidance; he also designed a first draft of figures and wrote a first complete draft of response to editors and reviewers during the revision process. As first author, Stefania Paolini contributed to the extensive literature review by designing the coding protocol, training Nicholas to the protocol, and carrying out quality checks on sample articles, and table entries. Stefania wrote the bulk of the first complete draft of the manuscript, and finalized the material for the revision process. As third author, Andrea Griffin gave feedback to the coding protocol, manuscript drafts, and letter of response to editor. She was instrumental in translating the conceptual model into the

graphical form depicted in the figures. All authors read and approved the final version of the manuscript. The full reference for this manuscript is:

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## **Abstract**

The anxiety, tension or uneasiness that individuals experience when in contact, or when anticipating contact, with members of a different social group is commonly referred to as intergroup anxiety (Stephan & Stephan, 2000). Past investigations of intergroup anxiety have focused on the anxiety attenuating effects of positive intergroup contact experiences, used self-report anxiety measures, and assessed either anxiety towards specific outgroup members (or ‘episodic anxiety’), or towards the outgroup in general (or ‘chronic anxiety’). The research reported in this thesis investigates the mechanisms underpinning the acquisition and generalization of anxiety towards outgroup members by using an adaptation of direct or first-hand (Olsson, Ebert, Banaji & Phelps, 2005) and vicarious or second hand (Olsson, Nearing & Phelps, 2007) aversive learning paradigms employed in previous research. The empirical work within this thesis employs self-reported and psychophysiological measurement tools, including skin conductance responses, to quantify episodic and chronic anxiety responses to outgroup stimuli, as well as examine the processes connecting episodic to chronic responses. Chapter 1 reviews the intergroup anxiety literature, with a focus on more recent behavioral and psychophysiological investigations (e.g., Blascovich et al., 2001). The literature review leads to the proposition of a learning model of intergroup anxiety that not only incorporates both episodic and chronic anxiety responding but also their interaction, suggesting that chronic responses moderate episodic ones. The four experimental chapters contained within this thesis provide an empirical test of the learning model of intergroup anxiety proposed in Chapter 1. Chapter 2 demonstrates that both direct and vicarious aversive experiences resulted in a comparable magnitude of episodic anxiety acquisition, and that acquisition is facilitated by increased perceived self-model similarity and increased model believability during vicarious experiences.

Chapter 2 also demonstrates the facilitating moderating role of chronic anxiety in the development of episodic anxiety and the protective role of past contact quality. Chapter 3 demonstrates that chronic responses, indexed by generalization of acquired anxiety responses to new outgroup members, were most pronounced when new outgroup exemplar stimuli were perceived as similar to the original CS+, and when self-model similarity was high. Chapter 4 demonstrates that the order in which one undergoes direct and vicarious aversive experiences affects anxiety acquisition and generalization: Undergoing a direct learning experience followed by a vicarious one caused anxiety responses of a higher magnitude, whereas undergoing a vicarious experience followed by a direct one resulted in a peak shifted response to a new member of the outgroup. Moreover, model anxiety and contingency awareness both facilitated episodic and chronic anxiety responses. A minimal group paradigm was used in Chapter 5's research to investigate the effects of aversive experiences towards artificial groups away from the influence of variables that typically confound interpretations of results from real social groups, including prior contact and group valence. This approach also enabled investigations into the relative contribution of group membership and facial cues to anxiety generalization. Results indicated that anxiety acquisition was stronger towards outgroup (vs. ingroup) stimuli, generalization was broader towards ingroup (vs. outgroup) stimuli, and group membership cues (vs. facial features) were more influential for generalization. Chapter 5 also confirmed that contingency awareness facilitates both episodic and chronic anxiety responses. Taken together, the research reported in the four empirical chapters provide empirical support for some of the proposed mediators and moderators of the learning model of intergroup anxiety, such as chronic anxiety and contact quality, and demonstrates the rich and dynamic interplay between episodic and chronic anxiety over the lifetime of an individual. Throughout the



thesis and particularly in Chapter 6, the implications of the research for the proposed learning model of intergroup anxiety, evolutionary theory, learning theory, and contact theory are discussed.

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