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# Application for a Grant

<b>Identification</b>						
This page will be made available to selection committee members and external assessors.						
Funding opportunity <b>Insight Grants</b>						
Joint or special initiative						
Application title <b>The Road to Friendship: The Role of Stress and Resilience in the Development of Positive Intergroup Relations</b>						
Applicant family name <b>Page-Gould</b>			Applicant given name <b>Elizabeth</b>		Initials <b>EP-G</b>	
Org. code <b>1350911</b>	Full name of applicant's organization and department <b>University of Toronto Psychology (Scarborough Campus)</b>					
Org. code <b>1350911</b>	Full name of administrative organization and department <b>University of Toronto Psychology (Scarborough Campus)</b>					
Scholar type	Regular <input checked="" type="radio"/>	New <input type="radio"/>	Research Group			
If New, specify category	1 <input type="radio"/>	2 <input type="radio"/>	3 <input type="radio"/>	4 <input type="radio"/>	435-5	
Does your proposal require a multidisciplinary evaluation?					Yes <input type="radio"/>	No <input checked="" type="radio"/>
Is this a research-creation project?					Yes <input type="radio"/>	No <input checked="" type="radio"/>
Does your proposal involve human beings as research subjects? If "Yes", consult the <i>Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans</i> and submit your proposal to your organization's Research Ethics Board.					Yes <input checked="" type="radio"/>	No <input type="radio"/>
Does your proposal involve activity that requires a permit, licence, or approval under any federal statute; or physical interaction with the environment? If 'Yes', complete Appendices A and B.					Yes <input type="radio"/>	No <input checked="" type="radio"/>
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Total funds requested from SSHRC	<u>42,649</u>	<u>81,062</u>	<u>50,718</u>	<u>60,868</u>	<u>56,201</u>	<u>291,498</u>



### Participants

List names of your team members (co-applicants and collaborators) who will take part in the intellectual direction of the research. Do not include assistants, students or consultants.

Role

Co-applicant

Collaborator

Family name

Given name

Initials

Org. code

Full organization name

Department/Division name

Role

Co-applicant

Collaborator

Family name

Given name

Initials

Org. code

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Role

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Collaborator

Family name

Given name

Initials

Org. code

Full organization name

Department/Division name



### Research Activity

The information provided in this section refers to your research proposal.

### Keywords

List keywords that best describe your proposed research or research activity. Separate keywords with a semicolon.

intergroup relations, cross-group friendship, intergroup interaction, psychophysiology

### Priority Areas - Priority area(s) most relevant to your proposal.

### Disciplines - Indicate and rank up to 3 disciplines that best correspond to your activity.

Rank	Code	Discipline	If "Other", specify
1	63000	Psychology	
2	63024	Social Psychology	
3	63099	Other Psychology	Psychophysiology

### Areas of Research

Indicate and rank up to 3 areas of research related to your proposal.

Rank	Code	Area
1	300	Multiculturalism and ethnic studies
2	350	Social development and welfare
3		

### Temporal Periods

If applicable, indicate up to 2 historical periods covered by your proposal.

From	To
<p>Year</p> <p>BC AD</p> <p>_____ ○ ○</p> <p>_____ ○ ○</p>	<p>Year</p> <p>BC AD</p> <p>_____ ○ ○</p> <p>_____ ○ ○</p>



Family name, Given name  
Page-Gould, Elizabeth

**Research Activity (cont'd)**

**Geographical Regions**

If applicable, indicate and rank up to 3 geographical regions covered by or related to your proposal. Duplicate entries are not permitted.

Rank	Code	Region
1		
2		
3		

**Countries**

If applicable, indicate and rank up to 5 countries covered by or related to your proposal. Duplicate entries are not permitted.

Rank	Code	Country	Prov./ State
1			
2			
3			
4			
5			



Family name, Given name

Page-Gould, Elizabeth

**Response to Previous Critiques - maximum one page**

Applicants may, if they wish, address criticisms and suggestions offered by adjudication committees and external assessors who have reviewed previous applications.

Empty response area for addressing criticisms and suggestions.



Family name, Given name

Page-Gould, Elizabeth

### Summary of Proposal

The summary of your research proposal should indicate clearly the problem or issue to be addressed, the potential contribution of the research both in terms of the advancement of knowledge and of the wider social benefit, etc.

The development of friendship between people of different ethnicities holds benefits for prejudicial attitudes (Davies, Tropp, Aron, & Wright, 2011; Wright, Brody, & Aron, 2005) and the quality of interethnic social interactions (Page-Gould, Mendoza-Denton, Alegre, & Siy, 2010; Page-Gould, Mendoza-Denton, & Tropp, 2008). Despite the apparent value of cross-group friendship for members of diverse societies like Canada -- where interethnic interaction is a regular aspect of most Canadian's daily lives -- most Canadian friendships are still formed with ethnic ingroup members (Aboud & Sankar, 2007; Smith & Schneider, 2000). Moreover, when new cross-group friendships form, they are much more likely to dissolve in the early stages of the friendship (Aboud & Sankar, 2007; Schneider, Dixon, & Udvari, 2007). This is why we need to understand the barriers to and facilitators of cross-group friendship formation during the initial stages of intergroup contact. The proposed research is a multi-method investigation of the intermediary stages from an initial intergroup interaction between strangers to the ongoing maintenance of friendship.

The first objective of this research is to investigate when and why an intergroup interaction leads to subsequent intergroup contact, the friendship initiation phase. Studies 1 through 3 examine the features of initial intergroup interactions that lead to friendship initiation. Study 4 will combine stationary (lab) and ambulatory (field) psychophysiological measures to test if stress responses to laboratory intergroup interactions are reflective of responses to intergroup interactions in everyday life.

The second objective is to understand the processes that promote friendship in the time between when someone is simply an acquaintance to when they have become a close friend. Building on past research (Aboud & Sankar, 2007; Schneider et al., 2007), we will recruit social networks and follow them over time to observe the dynamic nature of shifting social networks and network integration (Studies 7 and 8). Simultaneously, I will examine how the personality, identity, and intergroup attitudes of one's cross-group friend interact with one's own personality, ethnic identity, and intergroup attitudes over the intermediate periods of friendship development to predict friendship stability and changes in attitudes and self-views (Studies 6 and 8).

The studies proposed here represent a true multi-method approach to the study of intergroup relations. The lab studies (1 - 4) will be tested through a multi-method combination of subjective (e.g., closed- and open-ended self-report), behavioural (e.g., video, decisions), and physiological (i.e., neuroendocrine reactivity and chronic regulation, autonomic nervous system reactivity) measures simultaneously to evaluate the relative importance of each. Study 6 introduces a new paradigm for experimentally testing questions about cross-group friendship. Almost all studies (except Study 5) involve some form of longitudinal designs, reflecting a desire to test whether phenomena observed in the lab are reflective of everyday processes. Altogether, the proposed research represents an attempt to tackle the complexity of the social environment by considering how different contextual features and subjective experiences of each friendship partner contribute to the success and quality of their burgeoning friendship.

The key to a successful multicultural society is one where people of different backgrounds interact with each other as neighbours and friends, so that, together, everyone will contribute to the growth of the community. Indeed, the development of friendship between people of different ethnicities is related to benefits for the individuals who have these friendship and intergroup relations, on the whole (Aboud & Sankar, 2007; Davies, Tropp, Aron, Pettigrew, & Wright, 2011; Killen, Kelly, Richardson, Crystal, & Ruck, 2010; Page-Gould, 2012; Page-Gould, Mendoza-Denton, Alegre, & Siy, 2010; Page-Gould, Mendoza-Denton, & Tropp, 2008; Wright, Aron, & Tropp, 2002; Wright, Brody, & Aron, 2005). Despite the apparent value of cross-group friendship for members of diverse societies like Canada, the research that SSHRC has funded in my lab over the past two years has demonstrated that people become increasingly interested in friendship with *ingroup members* as the ethnic diversity of their social group increases. Perhaps this explains why, despite the diversity and spirit of multiculturalism of Canada, most Canadian friendships are still formed with ethnic ingroup members (Aboud & Sankar, 2007; Smith & Schneider, 2000). We need to understand the barriers to and facilitators of cross-group friendship formation from the initial moment of intergroup contact (i.e., intergroup interaction) to the early and intermediate stages of new friendships. The objectives of this proposal are two-fold:

1. *Friendship Initiation*: Why do some intergroup interactions lead to friendship formation and others do not?
2. *Acquaintances to Close Friends*: What factors promote the retention and development of early friendships?

### **Research Background**

Research on intergroup contact has taught us a good deal about the moment of initial contact between strangers, *intergroup interaction*. Overall, it seems that intergroup interactions are more likely than same-group interactions to elicit anxiety (Butz & Plant, 2006; Stephan & Stephan, 1985; 2000), physiological stress (Mendes, Blascovich, Hunter, Lickel, & Jost, 2007; Page-Gould et al., 2008), and involve greater miscommunication about interest in friendship (Vorauer & Sakamoto, 2006). These findings are disconcerting, because negative intergroup interactions lead to avoidance of future intergroup interactions (Page-Gould, 2012; Plant & Devine, 2003), and thus less opportunities to make cross-group friends. However, it seems that once people have established high-quality relationships with outgroup members (e.g., cross-group friendships), then they respond with adaptive stress responses to intergroup interactions with members of their cross-ethnic friend's group (Page-Gould et al., 2010). Similarly, people with prior intergroup contact show efficient, healthy recovery of hormonal and autonomic stress responses after stressful intergroup interactions (Page-Gould, Mendes, & Major, 2010). Those who have established cross-group friendships respond to intergroup conflict prosocially by seeking outgroup members for social support (Page-Gould, 2012). These processes are explained in part by an inclusion of social outgroups into one's own Self-concept as cross-group friendship grows closer (Page-Gould, Mendoza-Denton, et al., 2010). However, research on intergroup interaction implies that these friendships have a rocky start, so how does anyone develop close cross-group friendships? At what point does the self-concept begin to include the personal qualities and collective identities of close friends?

There is a gap in our understanding of how strangers from different backgrounds grow to be close friends. We know that intergroup interactions are more likely to go awry than same-group interactions and that people avoid them, but we also know that people who have managed to cross racial barriers in their friendships exhibit positive intergroup attitudes that are robust against negative intergroup experiences. Clearly, there is an interim phase in which people's orientation toward – and reactions to – outgroup members fundamentally shifts. The proposed research focuses on this critical period in the early stages of adult friendship development. For the purposes of this research, the intermediary period is divided into two conceptually-distinct stages of interest: (1) the friendship initiation phase, which spans the time from an intergroup interaction between strangers to the initiation of subsequent interaction between the same people; (2) the early to intermediate period when the acquaintanceship turns into a lasting, close friendship.

***Friendship Initiation.*** Despite a strong research focus on intergroup interaction in the last ten years,

relatively little of this work has measured interest in friendship. One exception is a study that demonstrated that people (particularly prejudiced individuals) are more likely to overestimate the amount of friendship interest that they convey to another participant, which can lead to ultimately feeling rejected and distancing oneself (Vorauer & Sakamoto, 2006). In addition, research on intergroup anxiety and avoidance has repeatedly shown that anxiety during intergroup interactions predicts subsequent avoidance of outgroup members (e.g., Dovidio, Gaertner, Kawakami, & Hodson, 2002; Butz & Plant, 2006; Plant & Devine, 2003). In addition to these findings, most of my hypotheses surrounding the stage between an initial intergroup interaction and the initiation of second contact (enumerated below) will be drawn from major intergroup and psychophysiological theories. According to integrated threat theory (Stephan & Stephan, 2000), intergroup interactions should be more negative than same-group interactions to the extent that intergroup interactions are perceived as threatening. In addition, psychophysiological research on the Biopsychosocial Model (Blascovich, Mendes, Tomaka, Salomon, & Seery, 2003), demonstrates that people with more past intergroup contact are likely to respond positively to new intergroup interactions (Blascovich et al., 2001), and this may be in part because intergroup contact makes outgroup members seem more predictable (c.f., Mendes, Blascovich, Lickel, Hunter, & Jost, 2007). However, an open question within work on the biopsychosocial model is whether physiological stress actually affects subjective experience. Finally, social identity theory (Tajfel, 1970) posits that intergroup behaviour arises from the desire to maintain a positive self-view.

***Acquaintances to Close Friends.*** Cross-group friendships are more likely to dissolve than same-group friendships during the early stages of the friendship (Aboud, Mendelson, & Purdy, 2003; Rude & Herda, 2010; Schneider, Udvari, & Dixon, 2007), and friendship dissolution was predicted by lack of integration into the social network (Aboud et al., 2003; Reagans, 1998; Schneider, et al., 2007) and less intimacy and shared activities (Aboud & Sankar, 2007), but not for cross-group friendships that were intimate relatively early on in the relationship (Hallinan & Williams, 1989; Schneider et al., 2007). From a relationships perspective, specifically self-expansion theory (Aron, Aron, Tudor, & Nelson, 1991), social network integration and early closeness suggest that those friends were growing increasingly close, which should affect cognitive associations between the Self and a friend's characteristics. In the context of cross-group friendships, the *collective* qualities of a friend (i.e., their social group) become associated with the Self-concept such that people begin to identify with the social outgroups to which their friends belong. This social cognitive process in turn explains why cross-group friendships are related to positive intergroup attitudes and interactions (Page-Gould, Mendoza-Denton, et al., 2010; Turner, Hewstone, Voci, & Vonofakou, 2008; Wright, Aron, & Tropp, 2002). To further our understanding of the intraindividual and interpersonal factors that affect the stability of cross-group friendship, the proposed research will study changes in the Self-Concept and intergroup attitudes as new social networks form, change, and stabilize over the first few years of university.

In addition, I am growing increasingly interested in examining whether the qualities of one's *friend* (e.g., their ethnic identification) moderate the impact of the friendship on intergroup attitudes. Past research has shown that personality similarity predicts less early relationship dissolution among cross-group friends (Rude & Herda, 2010), and so personality, the self-concept, and ethnic identity will be measured for each participant and their friends or social network members, when applicable.

### **Overview of Proposed Research and Common Methods**

This research begins by focusing on the features of initial intergroup interactions that predict interest in friendship with an interaction partner. The next set of studies will follow the daily experiences of participants after a laboratory intergroup interaction to predict which participant dyads will remain in contact. The final studies proposed will follow friendship dyads and extended social networks over time to observe the dynamic landscape of early friendship development. Together, these studies test the following sets of core hypotheses:

1. All intergroup theories predict that friendship interest will be higher among ingroup than outgroup part-



- ners, so many of the proposed studies will compare the intergroup context with ingroup contexts (Studies 1 and 5-8). The other hypotheses here focus on the context of intergroup interaction.
2. Following from integrated threat theory (Stephan & Stephan, 2000), *friendship initiation* among cross-group partners should be most common when the intergroup interaction was non-threatening, such as when the nature of the joint task is cooperative (Studies 1-4), physiological and subjective stress states are low (Studies 1-4). When partners grow from *acquaintances to friends*, integrated threat theory would predict that individual differences in perceptions of threat from outgroup members – such as prejudice (Hugenberg & Bodenhausen, 2003), Social Dominance Orientation (Pratto, Sidanius, Stallworth, & Malle, 1994), and status-based rejection sensitivity (Mendoza-Denton, et al., 2002)—should moderate processes of friendship stability during this intermediate period.
  3. Following from social identity theory (Tajfel, 1970), *friendship initiation* should be more common when intergroup competition is low (varied in Studies 1-3) as there is less of a need for psychological distinctiveness among the groups, and friendship initiation should be highest following a self-affirmation (Study 3), as the theory states that the underlying motivation for intergroup behaviour is the need for positive self-regard. However, social identity theory would mostly view physiological stress responses as outcomes of intergroup interactions that may serve to amplify the situation, but not represent causal factors (i.e., predicted null results for Study 2).
  4. Following the biopsychosocial model (Blascovich et al., 2003), *friendship initiation*, an approach-related behaviour, should be predicted by individuals who feel they have the personal resources to successfully make a new friend. The nature of the interaction as cooperative or competitive (Studies 1-3) should increase the perceived demands of the situation, whereas manipulations of stress levels (Study 2) or positive self-views (Study 3) should both lead to increased physiological states of challenge (correlated with approach) and subsequent initiation of contact with the the partner. In addition, physiological correlates of approach versus avoidance in the lab should predict field measurements during everyday social interactions (Study 4) and the success of experimentally-manipulated friendship (Study 6).
  5. Applied to the period when people transition from *acquaintances to friends* (Studies 5 – 8), the self-expansion theory (Aron et al., 1991) predicts that participants self-concepts should shift to include characteristics of close friends and to reduce the centrality of characteristics that are not shared with close friends, and this process will be manifested in friendship quality, network integration and stability.

***Self-report and Behavioural Measures.*** All proposed studies will begin by completing a battery of *Background Measures* that assess individual differences in personality and attitudes. Personality will be measured with the 44-item Big 5 Inventory (John, Donahue, & Kentle, 1991). Prejudicial attitudes will be measured using an explicit self-report measure (Social Dominance Orientation; Pratto et al., 1994), a pictorial self-report measure (“Feeling Thermometer”; Campbell, 1981), and an implicit reaction time measure (Affect Misattribution Procedure; Payne, Cheng, Govorun, & Stewart, 2005). In line with social identity theory, both personal self-esteem (Rosenberg, 1965) and collective self-esteem (Luhtanen & Crocker, 1992) will also be measured. Finally, participants’ pre-existing quantity and quality of intergroup contact (Islam & Hewstone, 1993) will also be measured. The Affect Misattribution Procedure is a reaction time task, but it can be collected over the Internet along with the rest of the survey items through the use of my lab’s SSHRC-funded Inquisit Perpetual Web License. Participants’ *Self-Concepts* will be measured with the *Bullseye Task* (Page-Gould, Miller, & Cupchik, in prep), which is a pictorial measure that collects both quantitative and qualitative data about how a participant sees him or herself. Participants write 20 self-descriptive traits inside a circle, writing more central traits closer to the middle of the circle. The traits listed can be coded for common themes (e.g., social groups), and the trait’s distance from the origin of the circle is a quantitative measure of trait centrality. Following the recommendations of Smith (2002) for minimizing demand characteristics in the report-

ing of cross-group friends, *Social Networks* will be measured by asking participants to list the first names of up to 6 of their closest friends and later return to the list and answer a set of questions about each friend.

*Friendship Interest* will be assessed in a few ways. In the initial lab studies, interest in the friendship immediately after an intergroup interaction will be assessed behaviourally through a *Contact Information Exchange*. At the end of the intergroup interaction, each participant will be asked privately if they would like to exchange contact information with each other. If both participants agree to exchange contact, their contact information will actually be exchanged. *Friendship Quality* will be assessed in a superficial manner in all studies by summing together closeness ratings from the social network questionnaire. However, for the later studies, we wanted to use a better scale to capture friendship quality. The brief version of the McGill Friendship Questionnaire (Mendelson & Aboud, 1999) is a well-validated, multi-faceted measure of friendship quality.

***Autonomic Nervous System (ANS) and Hormonal Stress Responses.*** *Acute stress reactivity* of both the autonomic (e.g., cardiovascular) and neuroendocrine (i.e., hormonal) stress systems will be measured both in the laboratory and during everyday life by collecting: (1) electrical activity of the heart will be measured with electrocardiography (ECG), (2) blood volume processed by the heart on each beat will be derived from vascular impedance cardiography (ICG), and (3) blood pressure will be measured with a standard brachial blood pressure (brachial BP) monitor. Hormonal stress reactivity will be assessed by examining changes in two stress hormones from baseline values, the catabolic stress hormone, cortisol, and the sulphate form of the anabolic stress hormone, dehydroepiandrosterone (DHEA-S). DHEA-S counteracts the wear-and-tear that catabolic hormones like cortisol can cause on body tissues, so, in times of stress, it is considered to be most adaptive to exhibit a strong anabolic response (i.e., increase in DHEA-S) relative to catabolic response (i.e., increase in cortisol). It should be noted that stress hormone levels in the saliva reflect responses in the blood stream approximately 20 minutes prior, which is why collection of hormone samples are staggered in time. In Study 4, *chronic stress* will be measured with the Cortisol Awakening Response (CAR), which reflects regulation of the hormonal stress systems, and measure levels of cortisol in hair samples, which measures average exposure to cortisol over the previous 2-3 months (Sauvé, Koren, Walsh, Tokmakejian, & van Uum, 2007).

***Analytic Plan and Power Calculations.*** Almost all the data described here is either longitudinal or involves observations that may be dependent (e.g., interaction partners), so most studies will be analyzed using multilevel modelling in R 2.15. Study 5 will be analyzed using structural equation modelling in R 2.15. Study 8 will be analyzed with Social Network Analysis using the RSiena module for R 2.15. Cohen (1992) and G\*Power statistical software was used to estimate sample sizes at 90% statistical power for linear models. Across studies 1 - 4, there is a common design element in that the interaction was manipulated to be either cooperative or competitive, and the average effect size for prejudice in cooperative versus competitive intergroup contexts is large,  $r = 0.48$  (c.f., Brewer, 1979). For studies 5 – 8, the average effect size for dissolution of cross-group versus same-group friends was found to be medium-to-large ( $r = .46$ ; Aboud & Sankar, 2007).

***Conceptual versus Chronological Order of the Proposed Studies.*** The friendship initiation stage comes first in the development of cross-group friendship, but it is a shorter stage than the time when closeness is developing in burgeoning friendships. The first set of studies focus on the initial stage of cross-group friendship initiation, testing hypotheses 1 – 4 (see pp. 2-3 of this proposal). The second set of studies focus on the longer time period when cross-group friends transition from acquaintances to friends, and so the longitudinal studies that test hypotheses 1, 2, and 5 will begin in the first two years of the granting period.

#### ***Procedures: Friendship Initiation (Years 3 – 5)***

***Study 1.*** Beginning in Year 3, Study 1 examines whether the competitiveness of an intergroup interaction affects interest in friendship development differentially from the development of same-group friendship. The study has a 2 (Intergroup Context: Ingroup or Intergroup) x 2 (Social Context: Cooperative or Competitive) experimental design, where participants interact with a same-group or cross-group partner on a task that

is designed to be cooperative or competitive. Participants will be brought to individual physiological testing rooms to be connected to the stationary physiological hardware to measure *Acute Stress Responses*. They will complete the *Background Measures* and the *Bullseye Task* while resting for a 5-minute baseline. During the intergroup interaction, *behaviour* will be recorded by two wall-mounted security cameras. After returning to their individual testing rooms, participants will be presented with the *Contact Information Exchange*. Hormones will be measured 20 minutes after the start of baseline, the interaction, and post-interaction recovery. One month after the lab session, all participants will be contacted to ask if they have been in contact with their partner since the lab study. A computer script (already programmed by the principal investigator for similar studies) will manage follow-up survey emails and ensure they are sent 30 days after the lab session. The social interaction data will be coded to assess behavioural mimicry (Chartrand & Bargh, 1999), meta-perceptions during the interaction (Vorauer, Hunter, Main, & Roy, 2001), physiological linkage (Levenson & Ruef, 1992), and challenge and threat responses (Blascovich et al., 2001). A sample size of 127 is required for 90% power.

**Study 2.** Beginning in year 4, Study 2 will address the question of whether physiological stress reflects subjective experience using the same procedures and measures as Study 1, except that all participants will interact with an outgroup member and stress states will be manipulated prior to the intergroup interaction. Thus, Study 2 will have a 3 (Physiological Response: Stress Manipulation, Relaxation Manipulation, Control) x 2 (Social Context: Cooperative or Competitive) experimental design. The stress manipulation is a 10-min. version of the Trier Social Stress Test (Kirschbaum, Hellhammer, & Pirke, 1993). The Relaxation Manipulation will be a guided 10-minute relaxation exercise. The control condition will involve a low-resource, non-social task. The same follow-up as with Study 1 will be conducted 1-month later. Estimating power for a 3x2 linear model, a sample size of 145 is required.

**Study 3.** Beginning in Year 5, Study 3 uses the same procedures as Studies 1 and 2, except that participants undergo a self-affirmation manipulation prior to an intergroup interaction and all participants have an intergroup interaction in the lab. So, Study 3 has a 2 (Self-Affirmation Condition: Self-Affirmation or No Affirmation) x 2 (Social Context: Cooperative or Competitive). A sample size of 132 is required for 90% power.

**Study 4.** Beginning in Year 2, Study 4 will examine whether acute physiological and subjective responses observed during laboratory intergroup interactions reflect responses to intergroup interactions in real life. A second question addressed by this study is whether acute stress responses to intergroup interactions are predictive of chronically-elevated stress levels. Participants will complete *Background Measures* and *Bullseye Task*, and sit for a baseline. Next, participants will engage in a conversation while behaviour and *Acute Stress Reactivity* are recorded. After the interaction, participants will be presented with the *Contact Information Exchange*, and will complete intergroup attitudes measures. The next day, participants will collect 4 saliva samples for the CAR, return to the lab to don the ambulatory equipment, and return to the lab in the evening to remove the ambulatory hardware and complete a final survey. Participants will be beeped throughout the day and asked to report the start time and duration of their last social interaction, descriptive characteristics of the interaction partner(s), and current emotional state. Finally, participants will be asked to provide hair samples approximately 2 months after the field observation. These data will allow for a direct test of whether acute stress in intergroup contexts predicts chronic stress in everyday life and whether these physiological states feedback in any way to predict subjective experience. A sample size of 127 is required.

#### ***Procedures: Acquaintances to Close Friends (Years 1 – 5)***

**Study 5.** In Year 1 of the grant, Study 5 is designed to observe natural processes of friendship development. Survey data will be collected from a large sample ( $N = 200$ ) of undergraduates completing the survey for course credit. The survey will include all the *Background Measures* and a *Social Network Questionnaire*. Social network integration will be measured with idiographic feedback (using Inquisit), where participants will be prompted to “join” two network members who know each other. Participants will then complete meas-

ures of *Friendship Quality* with each social network member, as well as rating the network member's personality. Finally, participants will indicate how likely they think it is that they will still be friends with each person in 10 years, with both Likert scale and binary (Will/Won't) responses. The "critical sample size" of 200 for structural equation modelling is requested (Hoelter, 1983).

**Study 6.** Beginning in year 3, Study 6 takes advantage of new technologies to examine how ongoing "social interactions" contribute to friendship development. Participants will be recruited through the psychology participant pool and randomly-assigned to become Facebook Friends with someone of the same- or different ethnic background. Participants will come into the lab in same- and cross-ethnic dyads. They will complete the *Background Measures*, *Bullseye Task*, and a *Social Network Questionnaire*. Next, they will then login to Facebook and become "friends" with their partner, whom they have not yet met. Finally, partners will complete the original, 1-session Fast Friends Procedure (Aron, Melinat, Aron, Vallone, & Bator, 1997) together. One month later, participants will be brought back to the lab and asked to go through their Facebook wall while we "capture" video data of the screen. They will also complete measures of intergroup attitudes and measures about their experimentally-assigned Facebook Friend, including whether they intend to maintain the Facebook friendship. The amount of contact that participants have with each other through Facebook will be used as a mediating variable to explain differences in intergroup attitudes and friendship retention. A sample size of 94 is needed to obtain 90% power.

**Studies 7 – 8.** Studies 7 and 8 examine the dynamic environment of social network integration. For both of these studies, incoming undergraduates are the ideal population, because their social networks should be changing. Myself and my team will recruit freshman during "Frosh Week" first-year student orientation. Once recruited, participants will complete the *Background Measures*, *Bullseye Tasks*, and a *Social Network* questionnaire worded to capture the participant's six closest *new* friends they have made at university. Initial network integration will be assessed using the same measure as in Study 5. Every 3 months for the next year, friendship quality, participants' self-concept, and social network will be assessed. Study 7 (Year 1) will simply follow participants over the next two years to assess changes in social network, and an estimated sample size of 134 is required to obtain 90% power. All the same, Study 7 will only be able to measure one friend's *perceptions* of the other's identity. Beginning in Year 2, Study 8 will address this issue by collecting data from other members of the social network. After measuring the *Social Network*, we will recruit other social network members through a modified version of Snowball sampling, although only recruiting one network member away from the originally-recruited participant. Original participants will be asked to forward recruitment email to their network members for an incentive of \$1 for every friend who joins. Participants will complete these measures once every three months for one year. Fifty participants will be recruited originally, operating on an assumption that we will successfully recruit 4 social network members per original participant (including social network additions over the time of the study). Therefore, funds to support a total of 250 participants are requested for Study 8. Because we will be obtaining reports from friends as well as participants, the data obtained in Study 8 will also represent one of the first studies to investigate how individual differences in the personalities, self-concepts, and attitudes of *each friend* interact with each other to predict relationship stability and positive intergroup attitudes.

### **Conclusion**

Despite the ongoing focus on intergroup interaction, intergroup contact, and close cross-group relationships, the transition between these stages is relatively uncharted. The research proposed here plugs directly into one of the largest areas of social psychology – intergroup relations – and the largest theories within intergroup relations. This suggests that the research findings will be relevant to hundreds of researchers across the globe, in addition to stakeholders outside of academia. Ultimately, this research seeks to understand why an outgroup members are transformed from strangers to close friends.

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Due to the breadth of disciplines that study intergroup relations and the relevance of intergroup relations to pressing social issues, the proposed research has the potential for high impact in multiple disciplines. I have a threefold plan for mobilizing the knowledge gained from the proposed research. The first route is through traditional routes of scientific communication. Secondly, as Chair of the Social/Personality Section of the Canadian Psychological Association (CPA), I actively promote the research and interests of social and personality psychologists across Canada. Finally, I am engaged in the transfer of knowledge tools to local and international colleagues through a series of invited statistical workshops.

Foremost, I plan to communicate the results of my SSHRC-supported research through traditional means of scientific discourse, namely publications and conference presentations. The results will be submitted to high-impact, peer-reviewed journals within social psychology (e.g., *Journal of Personality and Social Psychology*, *Journal of Experimental Social Psychology*, *Social Psychological and Personality Science*) and psychology on the whole (e.g., *Psychological Science*, *Journal of Experimental Psychology – General*). The research findings will also be integrated into refereed chapters in later years. Whenever publishers provide open access options (e.g., Sage Publishers), I plan to take advantage of these opportunities and aim to publish at least two open access articles during the 5 years of the granting period. In addition, results will be presented to targeted audiences in the academic community through refereed conferences each year of study. I will attempt to present the results of this research at the top conferences in social psychology (*Society for Personality and Social Psychology*), psychophysiology (*Society for Psychophysiological Research*), and psychology-wide (*CPA* and *Association for Psychological Science*). Finally, I also hope to continue sharing my research findings through invited colloquia. I also have the opportunity to share the results of the proposed research with the media through the University of Toronto media relations.

As Chair of the Social/Personality Section of the CPA, I am actively promoting the work of social and personality psychologists in Canada and abroad. Currently, I am engaged in nominating our country's top social/personality psychologists for professional awards. I am also in charge of social and personality psychology programming at the 2013 CPA convention. As my primary communication initiative as Chair, the section is establishing a "News Submission" online system for Canadian social and personality psychologists that will help the Social/Personality Section communicate summaries of research findings to the public, the mass media, and policy makers.

Finally, I am actively engaged in promoting access to empirical tools to the local and international community through invited statistical workshops. Beginning in May 2011, the *Association for Psychological Science* (APS) invited me to give a 4-hour workshop on a statistical analysis that I have used extensively in my research, multilevel modelling (MLM; also known as, "Hierarchical Linear Modelling"). The workshop was sufficiently successful that they invited me to give it again at APS 2012 and APS 2013. The *American Psychological Association* also invited me to give the workshop at their 2012 convention. The *U.S. National Science Foundation* (NSF) and the *Society for Multivariate Experimental Psychology* co-sponsored my workshop at a NSF training conference, the *Quantitative Training for Underrepresented Groups*. I also give the workshop locally every year at the University of Toronto. These workshops have given me a unique opportunity to share MLM – a widely-applicable quantitative skill – with the international research community. The workshops also serve to promote my work in a more abstract sense. For example, I was recently invited to become a Consulting Editor for *Psychological Methods*, and the invitation letter cited the quality of my conference workshops as a factor they considered.

I have a strong commitment to the dissemination of knowledge created by this research and the empirical skills required to conduct this research, which is evidenced by the fact that I have sought out opportunities to participate in the transfer of knowledge both within and beyond academia.



Family name, Given name

Page-Gould, Elizabeth

### Expected Outcomes

Elaborate on the potential benefits and/or outcomes of your proposed research and/or related activities.

### Scholarly Benefits

Indicate and rank up to 3 scholarly benefits relevant to your proposal.

Rank	Benefit	If "Other", specify
1	Knowledge creation/intellectual outcomes	
2	Student training/skill development	
3	Enhanced research methods	

### Social Benefits

Indicate and rank up to 3 social benefits relevant to your proposal.

Rank	Benefit	If "Other", specify
1	Social outcomes	
2	Enriched public discourse	
3	Training and skill development	

### Audiences

Indicate and rank up to 5 potential target audiences relevant to your proposal.

Rank	Audience	If "Other", specify
1	Academic sector/peers, including scholarly associations	
2	International audiences	
3	Federal government	
4	General public	
5		



Family name, Given name

Page-Gould, Elizabeth

### Expected Outcomes Summary

Describe the potential benefits/outcomes (e.g., evolution, effects, potential learning, implications) that could emerge from the proposed research and/or other partnership activities.

The proposed program of research has the potential to benefit the broader community in addition to adding to knowledge within academia.

A core theme of my research is getting people of different backgrounds to work together, which is also a core tenant of Canadian multiculturalism. This "relational diversity" is the fundamental precursor to community involvement and participation. Understanding the barriers to these friendships will help us understand why ethnic homophily exists, even within modern Canada. Contained within my research are a number of actionable paradigms for fostering cross-group friendships. The first set of studies test whether a short exercise (< 10 minutes) affects how we respond during intergroup interactions. If found to predict positive intergroup attitudes, then these short exercises (i.e., meditation, self-affirmation) could be easily implemented. In service of my commitment to open access, I provide the full stimuli or materials/instructions for new paradigms that I present in my published findings. Thus, the paradigms used in Studies 1 - 3 will be publicly available for general use. Moreover, the friendship manipulations are fun for people to complete and are relatively easy to scale up to accommodate a large size. Thus, this task is particularly amenable to the demanding situation posed by policy integration. These manipulations have been shown to increase institutional well-being among people who previously felt marginalized by the institution (Mendoza-Denton & Page-Gould, 2008). Policy makers will be contacted during the research communication process through the University of Toronto Media Relations Office and through the Social/Personality Section of the Canadian Psychological Association, as described in the KMB Plan.

Within intergroup relations, the proposed research has the potential to provide a union between two major areas of research that appeared to have different conclusions: (a) research on intergroup interaction; and (b) research on intergroup contact and cross-group friendship. That is, there has been extensive research on intergroup contact, but almost all of that work measures intergroup contact as a whole. At a fundamental level, however, intergroup contact, as it is typically measured, is simply an amalgamation of past intergroup interactions. So, why does research on intergroup interaction paint a picture of intergroup interactions as being wrought with miscommunication and anxiety, but research on intergroup contact and cross-group friendship seem to tell us a different story? Given that hundreds of publications have focused on intergroup contact or intergroup interaction, the field needs to understand the initial stages of friendship. The present research represents a systematic investigation of this time period. Moreover, I approach the topic from multiple theoretical perspectives to have a broad -- but guided -- set of hypotheses and to allow me to speak directly to researchers in those theoretical camps. I intend for this research to answer a key paradox that occupies thousands of intergroup researchers across the globe.

### A. Research Team (N/A)

### B. Description of previous and ongoing research results

Cross-group friendship is the central topic of my program of research. I view close relationships that cross group boundaries as embodying the ideals of intergroup relations. Strongly influenced by both intergroup contact theory (Allport, 1954) and self-expansion theory (Aron, Aron, Tudor, & Nelson, 1991), I have systematically devoted my research to understanding the nature and benefits of cross-group friendship. As such, the proposed research builds directly from my past research. Moreover, my past work makes me uniquely suited to be tackling the research questions proposed here. In what follows, I describe how my research has demonstrated that: (1) cross-group friendship *improves* intergroup experiences (Page-Gould, Mendoza-Denton, & Tropp, 2008; Page-Gould, Mendoza-Denton, Alegre, & Siy, 2010); (2) cross-group friendship involves an adoption of the social identities of close friends, at both the individual and institutional levels (Mendoza-Denton & Page-Gould, 2008; Page-Gould et al., 2010; Page-Gould & Mendoza-Denton, 2011); (3) people with close cross-group friends and high-quality past contact exhibit resilient behaviours in the face of intergroup adversity (Page-Gould, 2012; Page-Gould, Mendes, & Major, 2010; Page-Gould, Mendoza-Denton, & Mendes, in press).

**Causal Effects of Cross-Group Friendship.** Although the positive impact of close cross-group relationships on intergroup experiences had been discussed at a theoretical level for over 50 years (Allport, 1954; Amir, 1976; Pettigrew & Tropp, 2006), advances in the field were stunted by a lack of experimental methods (Pettigrew, 1998). I conducted one of the first experimental tests of cross-group friendship, reporting a longitudinal, dyadic experiment where friendship was experimentally induced between same- and cross-group pairs of Latino and White students (Page-Gould, et al., 2008). Participants came into the lab 3 times over the course of 3 weeks to complete the “fast friends” procedure (Aron, Aron, Melinat, Vallone, & Bator, 1997) with their friendship partner, and saliva samples were collected at the beginning and end of each interaction to assess hormonal stress responses by measuring levels of the catabolic hormone, cortisol. Both Latino and White participants who were racially prejudiced at the start of the study exhibited significant increases in cortisol during the first meeting with a cross-group partner, but this stress response attenuated as closeness increased over multiple friendship meetings. In addition, the effects of making a new cross-group friend in the laboratory carried over into daily life. Beginning the first day after the final friendship meeting, participants reported on their social interactions each day for 10 days using a web diary survey. Prejudiced participants who had made a cross-group friend in the lab initiated significantly more cross-ethnic interactions during the diary period than their counterparts in the same-group friendship condition (Page-Gould et al., 2008). As described in greater detail in the next section, I also developed a new method for experimentally-testing the effects of cross-group friendship (Page-Gould, Mendoza-Denton, et al., 2010) that involves priming participants with either a same- or cross-group friend prior to engaging in subsequent laboratory tasks. In the research proposed in this grant, I present a third method for experimentally-manipulating cross-group friendship (Study 6) that takes advantage of modern technologies (i.e., social networking) to randomly-assign strangers to engage in an ongoing online friendship following a 1-session Fast Friends procedure (Aron et al., 1997).

**Including Outgroups in the Self-Concept.** Throughout the proposed research, the self-concept is measured (i.e., Self-Concept Bullseye) due to the important role that this self-other overlap plays in reducing prejudice. Across three studies (Page-Gould, Mendoza-Denton, et al., 2010), myself and my colleagues examined the hypothesis that cross-group friendship improves intergroup experiences because people with cross-group friends incorporate their friend’s group in their own self-concept. Participants were asked to describe either a close same-race or close cross-race friend in detail to prime one type of

friendship before interacting with an unfamiliar outgroup member. Participants who were primed with a cross-race friend exhibited more adaptive hormonal stress responses during the novel intergroup interactions than participants who had described a same-race friend in detail. Participants who had just described a cross-race friend in detail also took significantly longer to classify their friend's ethnic group as non-self-descriptive, suggesting that these participants held an association between themselves and their friend's group. Finally, a multilevel mediation analysis revealed that the effects of cross-group friendship on novel intergroup interactions were explained because people self-identified with the ethnic groups of their close cross-group friends. This research later received the honourable mention for the Gordon Allport Intergroup Relations Prize.

At the institutional level, cross-group friendship increases a sense of institutional belonging and satisfaction among ethnic minority students at universities with a history of discrimination (Mendoza-Denton & Page-Gould, 2008). In Study 1, we followed Black students over the first two years of college, finding that students who expected to be the victim of prejudice felt less satisfied with the university and less a part of the university community but only if they had all same-race friends. Among Black students with diverse friendship networks, concerns about prejudice victimization was unrelated to institutional outcomes. In Study 2, we experimentally manipulated cross-group friendship using the data from Page-Gould et al. (2008) and found that making a new cross-group friendship in the lab improved institutional belonging among Latino students who were initially concerned about being victimized by prejudice.

**Cross-group Friendship and Resilience to Negative Intergroup Encounters.** Applying the stress and coping model of Lazarus & Folkman (1984), I hypothesized that cross-group friends provide people with resources for dealing with negative intergroup interactions, such as intergroup conflict. I tested this idea through a 10-day diary study of the daily social interactions of a sample of adults from the Scarborough neighbourhood (Page-Gould, 2012). I found that people who did not have cross-group friends avoided interethnic interactions on the days that followed an interethnic conflict, but people who had close cross-group friends did not exhibit post-conflict intergroup avoidance. In fact, people with cross-group friends sought out more social support from outgroup members after interethnic conflict. Moreover, the increase in intergroup support seeking among people with cross-group friends mediated the relationship between cross-group friendship and post-conflict intergroup avoidance.

In Page-Gould, Mendes, & Major (2010), we invited a sample of more than 100 White and Black community members to complete the Trier Social Stress Task (Kirschbaum, Pirke, & Hellhammer, 1993) in the presence of two, stoic same-race or cross-race evaluators. Prior to the laboratory session, participants reported their degree of prior intergroup contact with members of the other race. We measured physiological recovery in both the autonomic nervous system – specifically looking for the parasympathetic nervous system to overshoot baseline activity after a stressor, which is evidenced by higher vagal nerve activity relative to baseline – and the neuroendocrine stress system for 5 minutes after the evaluators had left the room. After a stressor, the parasympathetic nervous system becomes over active, presumably as a part of the restorative process. This hyperactivity of the parasympathetic nervous system after stress is called “vagal rebound,” and is an integral component of the bodies restorative processes. Although all participants were able to recover after undergoing a stressful same-race interaction, only participants who had ample prior intergroup contact exhibited vagal rebound and hormonal recovery after a stressful cross-race interaction. Page-Gould, Mendes, and Major (2010) contributes to the literature by providing inceptive evidence of a link between prejudice and chronic stress, as physiological recovery is a key indicator of whether acute stress will build into a chronic problem.

**Conclusion.** My research on cross-group friendship is programmatic and the interest is long-standing. Thus, the proposed program of research is solidly grounded in my past and present research

activities. Moreover, having the opportunity to complete the proposed research would position me to continue defining myself through an expertise in cross-group friendship.

### **C. Description of Proposed Student Training Strategies**

Graduate students and post-docs in my lab become experts in psychophysiology and statistics. In what follows, I describe the unique research infrastructure and training environment that supports the development of this expertise. My research lab, the *Embodied Social Cognition Laboratory* (ESC), was designed from the ground-up through support from the Canada Foundation for Innovation, the Ontario Ministry of Research and Innovation, the Connaught Fund, the Social Sciences and Humanities Research Council, and the University of Toronto. ESC is the only dyadic psychophysiology lab in Canada, and one of three dyadic psychophysiology laboratories in North America. As such, the training that students receive in my lab is unparalleled in Canada and helps me attract and retain top students (see *Research Contributions – Contributions to Training*).

The ESC lab infrastructure enables psychophysiological research on social interactions involving 2 to 4 participants simultaneously. That is, the physiological responses of between one to four participants can be measured at the same time and synchronized. Particularly for social psychophysiologicals, the simple configuration of my psychophysiological lab rooms and hardware provides students with the flexibility to test almost any psychophysiological research question. In addition, the abundance of lab resources are such that between 1 to 4 physiological studies could run participants during the same time slot, depending on the specifics of the studies involved. Thus, there is ample opportunity for student researchers to get hands-on experience and long-term exposure to the intricacies of psychophysiological data acquisition and data scoring. The fundamentals of physiological systems and psychophysiological theory and inference is taught through directed readings and a biweekly graduate lab meeting. The reading group combines readings from the Handbook of Psychophysiology with empirical psychophysiological articles. Approximately 1 semester after the beginning of theoretical development, lab members begin hands-on training with the handling of neuroendocrine samples, application of physiological sensors, the purpose and meaning behind rigorous placement and lab practices, and are introduced to the operation and action of the psychophysiological hardware. By being involved in the day-to-day research environment, students develop an intimate knowledge of how and why this equipment works. Psychology is moving in the direction of embodiment research, and the training received in my lab will ideally place the lab's alumni at the forefront of modern psychological research.

Students in my lab also receive personal training and extensive research experience using advanced statistical methods with an emphasis on multilevel modelling (MLM), which is an analysis that I use regularly in my research due to the dyadic and longitudinal nature of most of my research designs. As described in my Knowledge Mobilization Plan, I am recognized internationally for my expertise in MLM. I also teach PhD-level statistics at the University of Toronto, where I introduce students to a variety of advanced techniques, including Bayesian Hypothesis Testing. Graduate students and post-docs receive this quantitative training on a one-on-one basis and will typically use these skills for their first research project in my lab. Altogether, I am qualified to train students on the use of these advanced quantitative methods, and the use of the statistical tools will enable the students to use research paradigms that cannot be tested with classical statistical methods.

The final unique aspect of the training environment is the opportunity to learn computer programming in a scientific context. I have more than 10 years of experience with the Linux-Apache-MySQL-Perl framework (known as "LAMP"), and use these tools for data cleaning, data processing, stimulus creation, experimental materials, and lab personnel management. Computer programming has allowed my research to have an emphasis on idiographic methods where I collect individualized infor-

mation about participants prior to their lab session and automatically tailor research stimuli to be relevant to the participant. In addition, I use programming to conduct random assignment and many other research tasks that lend themselves well to automation. I feel that my use of computer programming has allowed me to accomplish much more than I am otherwise capable, which is why I train my primary graduate students to harness computer programming for their research.

Moreover, the proposed research project provides a rich training environment for the research team involved, and assistance from graduate students and an undergraduate Lab Manager will be critical for this project. All the students involved in this project will gain advanced training in psychophysiological theory, inference, data collection, and post-processing. Studies 1 through 4 will involve training in psychophysiological theory and methods, and all studies have longitudinal elements. Due to the importance of attention to detail for these types of projects, an undergraduate Lab Manager (15 hours/week) is considered vital to my research operations. The Lab Manager's primary task will be the administrative tasks involved in the SSHRC-funded research projects, which will involve recruiting and scheduling participants, ensuring participant compliance, coordinating the lab visits of Study 4, managing ongoing participant communication, and debriefing and paying participants individually.

Graduate students will serve as project coordinators and principal investigators. For the primary aims of this research, graduate students will be responsible for developing and organizing project materials and data, managing a team of undergraduate researchers, ensuring the quality and organization of data, and sharing in data analysis and writing. In addition to authorship and training in psychophysiology, their responsibilities as project coordinators will also give them an intimate knowledge of rigorous administration of large-scale research projects. Most importantly, graduate students will also be encouraged to develop their own research questions and include measures within the methods of the proposed studies, which will form the basis for conference posters and journal articles where they will be the first author. This will not only help them develop skills in communicating research results, but also prepare them to be involved members of the academic community. In service of this goal, I am budgeting funds for them to travel to two major conferences each year, the Canadian Psychological Association and the Society for Personality and Social Psychology, which will be vital for establishing themselves within the field of social psychology. Graduate students will be strongly encouraged to attend and present findings at these conference every years, as well as take advantage of the conference's student programmes like the mentorship luncheon and professional development seminars. Altogether, the SSHRC-funded project will provide young researchers with advanced research skills within a supportive lab environment to facilitate their development as autonomous, innovative scientists.

Undergraduate volunteers will be involved in data collection for all studies of the proposed project. The University of Toronto Scarborough has many students with high achievement goals who are interested in volunteering in research labs to prepare themselves for graduate school. Each semester, approximately 10 undergraduate volunteers will be accepted into the laboratory. Undergraduates emerge from the lab trained in the rigorous application of physiological sensors that assess electrocardiograph, vascular impedance, blood pressure, and electrodermal responding. They are trained in the safe handling of saliva samples at Biosafety Level 1 and certified by the University of Toronto Biosafety Officer.

In sum, my laboratory environment provides specialized research training and a unique and versatile lab environment for students and postdoctoral researchers. They will develop advanced knowledge and skills that will make them attractive candidates on both the academic job markets and to the research industry as a whole. The goal for lab alumni is to become leaders in their fields, emerging from the lab with advanced research toolkits and deep understanding of appropriate applications for these methods.



Family name, Given name  
Page-Gould, Elizabeth

### Funds Requested from SSHRC

For each budget year, estimate as accurately as possible the research costs that you are asking SSHRC to fund through a grant. For each Personnel costs category, enter the number of individuals to be hired and specify the total amount required. For each of the other categories, enter the total amount required.

Personnel costs	Year 1		Year 2		Year 3		Year 4		Year 5	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
<b>Student salaries and benefits/Stipends</b>										
Undergraduate	1	11,357	1	11,470	1	11,584	1	11,698	1	11,819
Masters	1	6,000	1	6,000	0	0	1	6,000	1	6,000
Doctorate	2	8,000	3	14,000	4	20,000	3	18,000	3	18,000
<b>Non-student salaries and benefits/Stipends</b>										
Postdoctoral										
Other										
<b>Travel and subsistence costs</b>										
	Year 1		Year 2		Year 3		Year 4		Year 5	
<b>Applicant/Team member(s)</b>										
Canadian travel	1,960		1,960		1,960		1,960		1,960	
Foreign travel	3,955		3,955		3,955		3,955		3,955	
<b>Students</b>										
Canadian travel	2,400		3,200		3,200		3,200		3,200	
Foreign travel	2,100		2,800		2,800		2,800		2,800	
<b>Other expenses</b>										
Professional/Technical services	0		15,939		4,382		6,670		4,554	
Supplies	0		396		792		438		396	
<b>Non-disposable equipment</b>										
Computer hardware	2,857		2,857		0		2,857		2,857	
Other										
<b>Other expenses (specify)</b>										
Participant Payment	4,020		15,485		2,045		290		660	
Open Access Publication	0		3,000		0		3,000		0	
<b>Total</b>	42,649		81,062		50,718		60,868		56,201	



**Personnel Costs: Student salaries and benefits/Stipends. Undergraduate.** My current lab manager is paid a base salary of \$14/hour for 15 hours of work per week. The University of Toronto mandates that an additional 4% the base salary be paid as vacation pay. The base salary is increased each year of the grant [\$14.00, \$14.14, \$14.28, \$14.42, \$14.57] by 1.0% of the previous year's base salary to account for inflation using the percentage increase in the Ontario Consumer Price Index between August 2011 and August 2012 (Statistics Canada, 2012).

The University of Toronto Fellowship provides additional support for graduate students, which is directly leveraged against the stipend provided by SSHRC. All funds reflect this mutual investment. **Masters.** The University of Toronto Psychology Graduate Department requires that all supervisors provide \$6000 in Research Assistantship stipend to primary Masters Students. I hope to admit one Masters student per year for four of the five years (years 1, 2, 4, and 5) of the granting period to build and maintain mentorship of four primary graduate students in the lab. Thus, I am requesting a total of \$24,000 in Masters students stipends over the entire granting period. **Doctorate.** As described in the previous section, \$6000 in doctoral stipends are required to support each primary doctoral student in my lab. My doctoral student, Chad Danyluck, was awarded a SSHRC Doctoral Fellowship in May 2012. Thus, doctoral student support is \$4,000 lower than a multiple of \$6000 until Chad obtains his PhD (expected 2016).

**Travel and Subsistence Costs: Applicant: Canadian Travel.** As described in my KMP plan, I plan to contribute to *Canadian Psychological Association* (CPA) convention each year, including the Social/Personality Section pre-conference. The costs are based on estimates from registration fees from last year (\$295.00), and airfare for flying from Toronto to the 2013 location, Québec City (\$490 on Air Canada), hotel costs (~\$180/night for 5 nights), daily meal expenses at the University of Toronto Canadian per diem rates (\$55/day for 5 days). Altogether, \$1960/year is requested to support travel to the CPA.

**Travel and Subsistence Costs: Applicant: Foreign Travel.** The budget for international travel supports presentations at the two top conferences in my subfields, the *Society for Personality and Social Psychology* (SPSP) and the *Society for Psychophysiological Research* (SPR). Basing airfare on the average cost of flights from Toronto to the US (~\$650), hotel costs (~\$180/night for 4 nights), daily international per diem rates for meal expenses (\$75/day for 4 days), ground transportation to and from the airport (~\$60 per conference), and conference registration for SPSP members (\$260) and SPR members (\$235). In total, \$3955/year is sought to support scientific communication to the international community.

**Travel and Subsistence Costs: Students: Canadian Travel.** The cost of CPA attendance will be similar to the *Applicant: Canadian Travel* section, except that student registration (\$50) is cheaper, so it will cost \$1600/year for graduate students to present at CPA and the Social/Personality Pre-conference. Graduate students will be encouraged to apply for internal funding from the University of Toronto School of Graduate Studies and the University of Toronto Scarborough to support travel to the CPA, and the remaining \$800/year is requested in Canadian Travel for all graduate students.

**Travel and Subsistence Costs: Students: Foreign Travel.** Student expenses for SPSP will be similar to applicant expenses, except the conference registration fee is lower (\$50) and hotel costs will be capped at two rooms, one for graduate students of each sex to share (\$200/night). We will share a cab from the airport to pool costs for ground transportation. I will also strongly encourage students to apply for external travel awards for the professional value that comes with these awards. I estimate each student should require \$1100 to travel to SPSP each year. I anticipate each student will secure \$400 per year in external conference funding, and have requested a total of \$700/year for each graduate student to attend this international conference.

**Other Expenses: Professional/Technical Services: Saliva Assays.** In total, \$25,829 is being requested for saliva assays. The Dresden Lab Service is run by one of the world's leading neuroendocrinologists,

Prof. Clemens Kirschbaum, and also has among the lowest rates for assays. The Dresden Lab Service charges \$4.50 USD/sample for cortisol, \$7.00 USD/sample for DHEA-S, and \$45/sample for hair.

**Other Expenses: Supplies: *Supplies for Measuring Activity of the Autonomic Nervous System.*** Disposable electrodes are needed to collect electrocardiograph (ECG), impedance cardiograph (ICG), and skin conductance response (SCR). Disposable ECG and SCR electrodes are sold by Biopac Canada for \$35/100 electrodes and \$50/100 electrodes, respectively. The ambulatory ICG machines use 4 spot ECG electrodes per participant instead of band electrodes. Two ECG electrodes, two SCR electrodes, and 1/20 of a band electrode role are required per participant for the laboratory psychophysiological studies (Studies 1 – 4;  $N = 531$ ), and three spot ECG electrodes for ECG and four spot ECG electrodes for capturing ICG are required per participant for the ambulatory studies (Study 4;  $N = 127$ ). In total, 1951 ECG electrodes (20 packs; \$700) and 1062 SCR electrodes (11 packs; \$550) are needed. Disposable ICG band electrodes are sold for \$41.60 per roll by BioImpedance Tech. Studies 1 - 4 will each require one ICG hookup per participant ( $N = 531$ ), so 27 packs (\$1123) are needed.

***Supplies for Measuring Hormones.*** 2-mL saliva vials are sold by Affinity Diagnostics in sets of 500 vials (including sanitary straws and labels) for \$70. Nitrile gloves are sold by Uline in cartons of 100 for \$14. To measure acute reactivity and recovery, each participant in Studies 1, 3, and 4 (386 total participants) will require the use of 3 saliva vials and 6 nitrile gloves. Participants in Study 2 ( $N = 145$ ) will require the use of 4 saliva vials and 8 gloves each. Participants in Study 4 ( $N = 127$ ) will also need an additional 4 saliva vials and 8 gloves to assess the cortisol awakening response. In total, 2246 vials (5 boxes) and 4492 gloves (45 boxes) are needed, for a total of \$980 in neuroendocrine supplies.

**Other Expenses: Non-disposable equipment: *Computer Hardware and Software.*** In order for my new graduate students to be effective, they will need their own personal computers, and so I am allotting \$2029 (educational price of MacBook Pro) in years 1, 2, 4, and 5 to purchase a laptop for my new MA students. In addition, I will also require my new MA students to have certain software totalling \$828 (Years 1, 2, 4, and 5) in order to work efficiently. Specifically, I am requesting funds for educational licenses of Adobe Acrobat Pro (\$44), TotalFinder (\$18), OmniGraffle Pro (\$120), OmniGraphSketcher (\$20), OmniFocus (\$50), OmniOutliner Pro (\$50), VMWare Fusion (\$80; this is virtualization software because the student will need the flexibility to use software that only runs on either Macs or Windows), Microsoft Windows 7 for VMWare Fusion (\$225), and Microsoft Office Pro (\$271).

**Other Expenses. *Participant Payment.*** The nature of my research objectives (i.e., understanding the early to intermediate stages of friendship formation) requires longitudinal data collection, although I have tried to pair participant payments with course credit compensation when possible. Participants in Studies 1 - 3 will be offered \$5 in cash for completing the follow-up, so a total of \$2,020 is requested in participant payments for those studies. Study 4 participants ( $N = 127$ ) have 4 lab visits and ambulatory monitoring for one day, which is a relatively high degree of participant investment. Participants will be paid \$15 for their 1.5-hour initial lab session, \$30 total for the lab observation and second and third lab visits, and \$10 for the 2-month hair collection follow-up (\$6985 for Study 4). Participants in Study 6 will have a lab session that will be compensated with 1.0 course credits and a longitudinal component (i.e., “friending” one’s lab partner on Facebook) that is combined with a subsequent lab visit. Given the level of disclosure involved, participants will be compensated with an extra \$15 at the final lab session (\$1410 for Study 6). Studies 7 and 8 require participants to complete 6 ½-hour surveys (4 quarterly surveys + 2 annual longitudinal follow-ups), such that they should be paid \$30 each (Study 7: \$4020; Study 8: 8500).

**Other Expenses: *Open Access Publication.*** As described in the KMB plan, I will take advantage of open access publishing options when available. I estimate I will have this opportunity twice in the grant tenure. Currently, both PLOS ONE and Sage Open Access charge \$3000 per open access publication.





Family name, Given name  
Page-Gould, Elizabeth

### Suggested Assessors

List Canadian or foreign specialists whom SSHRC may ask to assess your proposal.  
List keywords that best describe the assessor's areas of research expertise. Please refer to the Suggested Assessors section of the detailed instructions for more information on conflicts of interest.

Family name <b>Schmitt</b>		Given name <b>Michael</b>		Initials	Title <b>Professor</b>
Org. code	Full organization name <b>Simon Fraser University</b>		Keywords <b>intergroup relations, coping, stigma, social justice</b>		
Department/Division name <b>Psychology</b>			Address <b>RCB 8309 8888 University Drive</b>		
Country code		Area code	Number	Extension	City/Municipality
Telephone number		1	778	782-4342	<b>Burnaby</b>
Fax number		Prov./State <b>BC</b>		Postal/Zip code <b>V5A1S6</b>	
E-mail		<b>mschmitt@sfu.ca</b>			
Country code		Area code		Number	Extension
Telephone number		Prov./State		Postal/Zip code	
Fax number		Country			
E-mail					
Family name		Given name		Initials	Title
Org. code	Full organization name		Keywords		
Department/Division name			Address		
Country code		Area code	Number	Extension	City/Municipality
Telephone number		Prov./State		Postal/Zip code	
Fax number		Country			
E-mail					
Family name		Given name		Initials	Title
Org. code	Full organization name		Keywords		
Department/Division name			Address		
Country code		Area code	Number	Extension	City/Municipality
Telephone number		Prov./State		Postal/Zip code	
Fax number		Country			
E-mail					

Personal information will be stored in the Personal Information Bank for the appropriate program.

Application WEB



Do not photocopy this page.

<b>Internal use</b>	CID (if known)
954517	194093

<b>Identification</b>				
Only the information in the Name section will be made available to selection committee members and external assessors. Citizenship and Statistical and Administrative Information will be used by SSHRC for administrative and statistical purposes only. Filling out the statistical and Administrative Information section is optional.				
<b>Name</b>				
Family name		Given name		Initials
Page-Gould		Elizabeth		EP-G
				Title
				Professor
<b>Citizenship</b> - Applicants and co-applicants must indicate their citizenship status by checking and answering the applicable questions.				
Citizenship status	<input type="radio"/> Canadian	<input checked="" type="radio"/> Permanent resident since (yyyy/mm/dd)	<input type="radio"/> Other (country)	Have you applied for permanent residency?
		2012/04/12		<input type="radio"/> Yes <input type="radio"/> No
<b>Statistical and Administrative Information</b>				
Birth year	Gender	Permanent postal code in Canada (i.e. K2P1G4)	Correspondence language	Previous contact with SSHRC? (i.e. applicant, assessor, etc.)
1980	<input checked="" type="radio"/> F <input type="radio"/> M	M5T1Z4	<input checked="" type="radio"/> English <input type="radio"/> French	<input checked="" type="radio"/> Yes <input type="radio"/> No
Full name used during previous contact, if different from above				

<b>Contact Information</b>				
The following information will help us to contact you more rapidly. Secondary information will not be released by SSHRC without your express consent.				
Primary telephone number			Secondary telephone number	
Country code	Area code	Number	Extension	Country code
1	416	2082795		Area code
				Number
				Extension
Primary fax number			Secondary fax number	
Country code	Area code	Number	Extension	Country code
1	416	2877642		Area code
				Number
				Extension
Primary E-mail <b>elizabeth.page-gould@utsc.utoronto.ca</b>				
Secondary E-mail				

Personal information will be stored in the Personal Information Bank for the appropriate program.

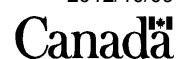
**Checked**

Web CV

2012/10/09

Identification

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Family name, Given name

Page-Gould, Elizabeth

<b>Current Address</b> Use only if you are not affiliated with a department at a Canadian university. (If you are affiliated with a department at a Canadian university, the department's mailing address will be used.) If you wish to use another address, specify it under the Correspondence Address.			<b>Correspondence Address</b> Complete this section if you wish your correspondence to be sent to an address other than your current address.		
Address			Address		
City/Municipality	Prov. / State	Postal/Zip code	City/Municipality	Prov. / State	Postal/Zip code
Country			Country		
<b>Temporary Address</b> If providing a temporary address, phone number and/or E-mail, ensure that you enter the effective dates.			<b>Permanent Address in CANADA</b>		
Address			Address		
City/Municipality	Prov. / State	Postal/Zip code	City/Municipality	Prov. / State	Postal/Zip code
Country			Country <b>CANADA</b>		
Start date (yyyy/mm/dd)	End date (yyyy/mm/dd)	Temporary telephone/fax number			
		Country code	Area code	Number	Extension
Temporary E-mail					



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Family name, Given name

Page-Gould, Elizabeth

**Research Expertise (optional)**

The information provided in this section refers to your own research expertise, not to a research proposal. Filling out the following 4 sections is optional. This page will not be seen by selection committee members and external assessors. This section will be used for planning and evaluating programs, producing statistics, and selecting external assessors and committee members.

**Areas of Research**

Indicate and rank up to 3 areas of research that best correspond to your research interests as well as areas where your research interests would apply. Duplicate entries are not permitted.

Rank	Code	Area
1	300	Multiculturalism and ethnic studies
2	220	Health
3	360	Science and technology

**Temporal Periods**

If applicable, indicate up to 2 historical periods covered by your research interests.

From				To			
Year				Year			
		BC	AD			BC	AD
_____		<input type="radio"/>	<input type="radio"/>	_____		<input type="radio"/>	<input type="radio"/>
_____		<input type="radio"/>	<input type="radio"/>	_____		<input type="radio"/>	<input type="radio"/>

**Geographical Regions**

If applicable, indicate and rank up to 3 geographical regions covered by your research interests. Duplicate entries are not permitted.

Rank	Code	Region
1	0000	Not subject to geographical classification
2		
3		

**Countries**

If applicable, indicate and rank up to 5 countries covered by your research interests. Duplicate entries are not permitted.

Rank	Code	Countries	Prov./ State
1			
2			
3			
4			
5			



Family name, Given name

Page-Gould, Elizabeth

## Curriculum Vitae

### Language Proficiency

	Read	Write	Speak	Comprehend aurally	Other languages
English	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
French	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

### Work Experience

List the positions, academic and non-academic, you have held beginning with the current position and all previous positions in reverse chronological order, based on the start year.

Current position		Start date (yyyy/mm)
Assistant Professor		2009/8
Org. code	Full organization name	
1350911	University of Toronto	
Department/Division name		
Psychology		
Position type	<input type="radio"/> Tenured <input checked="" type="radio"/> Tenure-track <input type="radio"/> Non-tenure <input type="radio"/> Non-academic	Employment status
		<input checked="" type="radio"/> Full-time <input type="radio"/> Non-salaried <input type="radio"/> Part-time <input type="radio"/> Leave of absence
Position	Start date (yyyy/mm)	End date (yyyy/mm)
Postdoctoral fellow or associate	2008/8	2009/8
Org. code	Full organization name	
9927102	Harvard University	
Department/Division name		
Psychology		
Position	Start date (yyyy/mm)	End date (yyyy/mm)
Org. code	Full organization name	
Department/division name		
Position	Start date (yyyy/mm)	End date (yyyy/mm)
Org. code	Full organization name	
Department/Division name		

Personal information will be stored in the Personal Information Bank for the appropriate program.

Web CV





<b>Academic Background</b>				
List up to 5 degrees, beginning with the highest degree first and all others in reverse chronological order, based on the start date.				
Degree type	Degree name	Start date (yyyy/mm)	Expected date (yyyy/mm)	Awarded date (yyyy/mm)
Doctorate		2002/08		2008/05
Disc. code	Discipline			Did SSHRC support enable you to get this degree?
63024	Social Psychology			<input type="radio"/> Yes <input checked="" type="radio"/> No
Org. code	Organization			
9983101	University of California, Berkeley			
Country	UNITED STATES			
Degree type	Degree name	Start date (yyyy/mm)	Expected date (yyyy/mm)	Awarded date (yyyy/mm)
BA Hon.		1998/08		2002/05
Disc. code	Discipline			Did SSHRC support enable you to get this degree?
51299	Statistics			<input type="radio"/> Yes <input checked="" type="radio"/> No
Org. code	Organization			
9933112	Carnegie-Mellon University			
Country	UNITED STATES			
Degree type	Degree name	Start date (yyyy/mm)	Expected date (yyyy/mm)	Awarded date (yyyy/mm)
BA Hon.		1998/08		2002/05
Disc. code	Discipline			Did SSHRC support enable you to get this degree?
63000	Psychology			<input type="radio"/> Yes <input checked="" type="radio"/> No
Org. code	Organization			
9933112	Carnegie-Mellon University			
Country	UNITED STATES			
Degree type	Degree name	Start date (yyyy/mm)	Expected date (yyyy/mm)	Awarded date (yyyy/mm)
Disc. code	Discipline			Did SSHRC support enable you to get this degree?
				<input type="radio"/> Yes <input type="radio"/> No
Org. code	Organization			
Country				
Degree type	Degree name	Start date (yyyy/mm)	Expected date (yyyy/mm)	Awarded date (yyyy/mm)
Disc. code	Discipline			Did SSHRC support enable you to get this degree?
				<input type="radio"/> Yes <input type="radio"/> No
Org. code	Organization			
Country				



Family name, Given name

Page-Gould, Elizabeth

### Credentials

List up to 6 licences, professional designations, awards and distinctions you have received and feel would be the most pertinent to the adjudication of your application. List them in reverse chronological order, based on the year awarded.

Category	Name	Source or Country	Duration (Months)	Value / Year awarded
Academic Prize	Honourable Mention, Gordon Allport Prize	Society for Psychological Study of Social Issues UNITED STATES		\$0 2010
Postdoctoral Fellowship	Harvard Mind/Brain/Behavior Postdoctoral Fellow	University UNITED STATES	12	\$37,000 2008
Academic Prize	SPSP Graduate Poster Award	Society for Personality and Social Psychology UNITED STATES	0	\$100 2008
Academic Prize	Maslach-Zimbardo Award for Outstanding Research	Western Psychological Association UNITED STATES		\$500 2006
Academic Prize	Greater Good Science Center Graduate Fellowship	University UNITED STATES	12	\$3,000 2004
Fellowship	National Science Foundation Graduate Fellowship	Federal Government UNITED STATES	36	\$90,000 2004

### Research Expertise

The information provided in this section refers to your own research expertise, not to a research proposal.

#### Keywords

List keywords that best describe your areas of research expertise. Separate keywords with a semicolon.

cross-group friendship; intergroup relations; social interaction; social cognition; psychophysiology; quantitative methods

#### Disciplines

Indicate and rank up to 5 disciplines that best correspond to your research interests. Duplicate entries are not permitted.

Rank	Code	Discipline	If Other, specify
1	63024	Social Psychology	
2	63099	Other Psychology	Psychophysiology
3			
4			
5			



Family name, Given name

Page-Gould, Elizabeth

**Funded Research**

List up to 8 grants or contracts you have received from SSHRC or other sources. List them in reverse chronological order, based on the year awarded. If you are not the applicant (principal investigator), specify that persons' name.

Org. code 3010325	Full name of funding organization Social Sciences and Humanities Research Council of Canada	Year awarded (yyyy) 2012	Total amount (CAN\$) \$1,108
Role Applicant		Completion status <input type="checkbox"/> Complete	
Project title (SSHRC Small Institutional Grant) Cross-sex friendship: Good for me, bad for my partner?			
Applicant's family name		Applicant's given name	
Initials			
Org. code 3010325	Full name of funding organization Social Sciences and Humanities Research Council of Canada	Year awarded (yyyy) 2011	Total amount (CAN\$) \$500
Role Applicant		Completion status <input type="checkbox"/> Complete	
Project title (SSHRC Small Institutional Grant) Category salience and physiological stress during intergroup interactions			
Applicant's family name		Applicant's given name	
Initials			
Org. code 1	Full name of funding organization Connaught Fund New Researcher Award	Year awarded (yyyy) 2011	Total amount (CAN\$) \$50,000
Role Applicant		Completion status <input type="checkbox"/> Complete	
Project title We are all in this together: Measuring physiology from multiple people and across time during social interactions			
Applicant's family name		Applicant's given name	
Initials			
Org. code 1	Full name of funding organization Ontario Ministry of Research and Innovation (Matching Funds)	Year awarded (yyyy) 2010	Total amount (CAN\$) \$54,584
Role Applicant		Completion status <input checked="" type="checkbox"/> Complete	
Project title Dyadic psychophysiology lab: A multi-method approach to intergroup relations			
Applicant's family name		Applicant's given name	
Initials			



Family name, Given name  
Page-Gould, Elizabeth

**Funded Research (cont'd)**

Org. code 3010325	Full name of funding organization Social Sciences and Humanities Research Council of Canada	Year awarded (yyyy) 2010	Total amount (CAN\$) \$83,900
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Role Applicant	Completion status <input type="checkbox"/> Complete
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Project title Opportunity Hypothesis of Cross-group Friendship: Cause or Confound?

Applicant's family name	Applicant's given name	Initials
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Org. code 1	Full name of funding organization Canada Foundation for Innovation	Year awarded (yyyy) 2009	Total amount (CAN\$) \$54,584
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Role Applicant	Completion status <input checked="" type="checkbox"/> Complete
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Project title Dyadic psychophysiology lab: A multi-method approach to intergroup relations

Applicant's family name	Applicant's given name	Initials
-------------------------	------------------------	----------

Org. code 1	Full name of funding organization Harvard Mind/Brain/Behavior Initiative	Year awarded (yyyy) 2008	Total amount (CAN\$) \$3,000
----------------	---	-----------------------------	---------------------------------

Role Applicant	Completion status <input checked="" type="checkbox"/> Complete
-------------------	--

Project title Understanding the Intergroup Benefits of Cross-group Friendship

Applicant's family name	Applicant's given name	Initials
-------------------------	------------------------	----------

Org. code 1	Full name of funding organization Greater Good Science Center	Year awarded (yyyy) 2004	Total amount (CAN\$) \$3,000
----------------	--	-----------------------------	---------------------------------

Role Applicant	Completion status <input checked="" type="checkbox"/> Complete
-------------------	--

Project title Friendship & Adjustment to College

Applicant's family name	Applicant's given name	Initials
-------------------------	------------------------	----------

## 1. Research Contributions Over the Last Six Years

### Refereed Contributions – Journal Articles

- \*Page-Gould, E. (2012). To whom can I turn? Maintenance of positive intergroup relations in the face of intergroup conflict. *Social Psychological and Personality Science*, 3, 462 - 470.
- \*Teper, R., Inzlicht, M., & Page-Gould, E. (2011). Are we more moral than we think? Exploring the role of affect in moral behavior and moral forecasting. *Psychological Science*, 22, 443 - 558.
- Page-Gould, E., Mendoza-Denton, R., Alegre, J. M., & Siy, J. O. (2010). Understanding the impact of cross-group friendship on interactions with novel outgroup members. *Journal of Personality and Social Psychology*, 98, 775 - 793.
- Page-Gould, E., Mendes, W. B., & Major, B. (2010). Intergroup contact facilitates physiological recovery following stressful intergroup interactions. *Journal of Experimental Social Psychology*, 46, 854 - 858.
- Aceves, M. J., Hinshaw, S. P., Mendoza-Denton, R., & Page-Gould, E. (2010). Seek help from teachers or fight back? Student perceptions of teachers' actions during conflicts and responses to peer victimization. *Journal of Youth and Adolescence*, 39, 658 - 669.
- Page-Gould, E., Mendoza-Denton, R., & Tropp, L. R. (2008). With a little help from my cross-group friend: Reducing anxiety in intergroup contexts through cross-group friendship. *Journal of Personality and Social Psychology*, 95, 1080 - 1094.
- Mendoza-Denton, R., & Page-Gould, E. (2008). Can cross-group friendships influence minority students' well being at historically White universities? *Psychological Science*, 19, 933 - 939.

### Refereed Contributions – Book Chapters

- \*Page-Gould, E. (2010). The Unhealthy Racist. In J. H. Marsh, R. Mendoza-Denton, & J. Adam Smith (Eds.), *Are We Born Racist? New Insights from Neuroscience and Positive Psychology* (pp. 41 - 44). Boston, MA, US: Beacon Press.
- \*Page-Gould, E. & Mendoza-Denton, R. (2011). Friendship and social interaction with outgroup members. In L. R. Tropp & R. Mallett (Eds.), *Beyond prejudice reduction: Pathways to positive intergroup relations* (pp. 139 - 158). Washington, D. C., US: APA Books.

### Other Refereed Contributions – Chaired Conference Symposia

- \*Page-Gould, E., & Finch, B. (2012, Co-Chairs). *A Double-Edged Sword: Prejudice, Stress, and the Health of Both Targets and Perceivers*. Symposium conducted at the 13th annual scientific meeting of the Society for Personality and Social Psychology in San Diego, CA, US.
- \*Page-Gould, E. (2010, Chair). *Embodiment of the social context: Psychophysiological advances in intergroup interaction research*. Symposium conducted at the 50th annual scientific meeting of the Society for Psychophysiological Research in Portland, OR, US.

### Other Refereed Contributions – Conference Symposia Presentations

- \*Page-Gould, E., Vanniyasingam, V., & Finch, B. K. (2012, January). *The relationship between prejudice, chronic stress, and poor health*. In L. D. Hamilton (Chair), Data Blitz. Symposium conducted at the first annual Social Neuroendocrinology Pre-conference of the Society of Personality and Social Psychology, San Diego, CA, US.
- \*Page-Gould, E. (2011, July). *Cross-group friendship and resilience to everyday intergroup conflict*. In S. Paolini (Chair), A dynamic and multilevel outlook on daily contact: Compensatory mechanisms and process disassociation. Symposium conducted at the biennial meeting of the European Association of Social Psychology, Stockholm, Sweden.

- Page-Gould, E., Koslov, K., & Mendes, W. B. (2011, May). *Physiological and behavioral coordination across the status divide*. In Kraus, M. W. (Chair), Hierarchy, judgmental accuracy, and the person-in-context. Symposium conducted at the annual meeting of the Association for Psychological Science, Washington D. C., US.
- Page-Gould, E., Koslov, K., & Mendes, W. B. (2011, January). *Powerful and contagious: Social status drives physiological synchrony during social interactions*. In A. Pearson & T. West (Chairs), Connecting social minds: Perceptual, physiological, and behavioral coordination within and between groups. Symposium conducted at the annual meeting of the Society for Personality and Social Psychology, San Antonio, TX, US.
- Page-Gould, E., Mendoza-Denton, R., & Mendes, W. B. (2010, June). *The importance of contact quality for health in diverse societies*. Paper presented at the biennial scientific meeting of the Society for the Psychological Study of Social Issues, New Orleans, LA.
- Page-Gould, E., Koslov, K., & Mendes, W. B. (2010, January). *Socio-Economic Status and Social Interaction*. In N. C. Maisel & P. K. Piff (Chairs), Social psychology for an economic recession: Examining the effects of socioeconomic status on psychological processes. Symposium conducted at the annual scientific meeting of the Society for Personality and Social Psychology, Las Vegas, NV.

#### **Non-refereed Contributions – Invited Colloquia Talks**

- \*Page-Gould, E. (2011, November). *Cross-group friendship*. University of Waterloo, Social Psychology Brownbag Series.
- \*Page-Gould, E. (2011, November). *How cross-group friendships affect intergroup relations*. Brock University, Psychology Department Colloquium.
- \*Page-Gould, E. (2011, May). *Effects of cross-group friendship*. University of Wisconsin-Madison, Social-Developmental Brownbag Series.
- \*Page-Gould, E. (2010, September). *Effects of cross-group friendship*. Colby College, Psychology Department Colloquium.
- Page-Gould, E. (2010, April). *Why interethnic friendship is good for your health (and the world)*. Middlebury College, Psychology Department Colloquium.
- Page-Gould, E. (2009, October). *Effects of cross-group friendship on intergroup interaction*. York University, Social Psychology Brownbag Series.
- Page-Gould, E. (2009, February). *When "Them" Becomes "Us": Unpacking the Benefits of Cross-group Friendship*. University of Massachusetts Amherst, Social Psychology Speaker Series.

#### **Non-refereed Contributions – Invited Conference Workshops and Addresses**

- Page-Gould, E. (2012, August). *Multilevel Modeling*. Invited workshop presented at the annual meeting of the American Psychological Association, Orlando, FL, US.
- Page-Gould, E. (2012, August). *Multilevel Modeling*. Invited workshop presented at the annual Quantitative Training for Underrepresented Groups, Orlando, FL, US.
- Page-Gould, E. (2012, May). *Multilevel Modeling*. Invited workshop presented at the annual meeting of the Association for Psychological Science, Chicago, IL, US.
- Page-Gould, E. (2011, June). *Why cross-group friendship improves intergroup relations*. Invited talk given at the Social Psychology Pre-conference of the annual scientific meeting of the Canadian Psychological Association, Toronto, ON, Canada.
- Page-Gould, E. (2011, May). *Multilevel Modeling*. Invited workshop presented at the annual meeting of the Association for Psychological Science, Washington, D.C., US.

#### **Non-refereed Contributions – Online Media**

\*Teper, R., Inzlicht, M., & Page-Gould, E. (2012). Why We Might Be More Moral Than We Think: The Importance of Emotion for Moral Action and Moral forecasting. *The Jury Expert*, 24, 13 - 19.

Page-Gould, E. (2010, October 11). Is racial prejudice bad for your health? *The Washington Post: Political Bookworm* (Guest Blogger). URL: [http://voices.washingtonpost.com/political-bookworm/2010/10/is\\_racial\\_prejudice\\_bad\\_for\\_yo.html](http://voices.washingtonpost.com/political-bookworm/2010/10/is_racial_prejudice_bad_for_yo.html).

#### **Forthcoming Contributions – In Press Refereed Journal Articles**

\*Gu, J., Zhong, C.-B., & Page-Gould, E. (In Press). Listen to your heart: When false somatic feedback shapes moral behavior. *Journal of Experimental Psychology - General*.

\*Page-Gould, E., Mendoza-Denton, R., & Mendes, W. B. (In Press). Stress and coping in interracial contexts: The influence of race-based rejection sensitivity and cross-group friendship in daily experiences of health. *Journal of Social Issues*.

#### **Forthcoming Contributions – In Press Refereed Chapters**

\*Mendoza-Denton, R., & Page-Gould, E. (In Press). Physiological and self-report measures of stress and coping in the study of stigma. In B. Derks, D. Scheepers, & N. Ellemers (Eds.), *The Nature of Prejudice: A Neuroscience Perspective*.

\*Tropp, L. R., & Page-Gould, E. (In Press). Intergroup contact. In J. Dovidio & J. Simpson (Eds.), *The APA Handbook of Personality and Social Psychology* (Vol. 2).

#### **Forthcoming Contributions – Upcoming Invited Conference Addresses**

\*Page-Gould, E. (2013, January). *Stress and Social Interaction*. Invited address to be presented at the Social Neuroendocrinology Pre-conference of the annual meeting of the Society for Personality and Social Psychology, New Orleans, LA, US.

Page-Gould, E. (2013, May). *Multilevel Modeling*. Invited workshop to be presented at the Annual Meeting of the Association for Psychological Science, Washington, D.C., US.

#### **Forthcoming Contributions – Upcoming Invited Colloquium**

\*Page-Gould, E. (2013, March). *Thriving in the Global Age: The role of positive intergroup relations*. Invited talk to be given at Michigan State University, Social Psychology Brownbag Series.

#### **Forthcoming Contributions – Upcoming Symposium Presentation**

\*Page-Gould, E., & Danyluck, C. (January, 2013). *Cross-group friendship and resilience to negative intergroup interactions*. In M. Henderson (Chair), The benefits and burdens of cross-group interactions. Symposium to be presented at the annual meeting of the Society for Personality and Social Psychology, New Orleans, LA, US.

## **2. Other Research Contributions**

#### **Chaired Professional Meeting**

Page-Gould, E., Cameron, J., & Bourgeois, D. (2012, Co-Chairs). Social/Personality Section Pre-Conference. Annual pre-conference for the Canadian Psychological Association, Halifax, NS, Canada.

#### **Executive and Editorial Boards**

*Chair*, Social/Personality Section, Canadian Psychological Association (August 2012 – July 2013)

*Incoming Consulting Editor*, Psychological Methods (January 2013)

*Editorial Board Member*, Social Psychological and Personality Science (January 2012 – present)

*Editorial Board Member*, Psychological Science (January 2011 – present)

## **3. Most Significant Career Research Contributions (Rank Order)**

1. Page-Gould, E., Mendoza-Denton, R., & Tropp, L. R. (2008). With a little help from my cross-group friend: Reducing anxiety in intergroup contexts through cross-group friendship. *Journal of Personality and Social Psychology*, 95, 1080 - 1094.

2. Page-Gould, E., Mendoza-Denton, R., Alegre, J. M., & Siy, J. O. (2010). Understanding the impact of cross-group friendship on interactions with novel outgroup members. *Journal of Personality and Social Psychology, 98*, 775 - 793.
3. Mendoza-Denton, R., & Page-Gould, E. (2008). Can cross-group friendships influence minority students' well being at historically White universities? *Psychological Science, 19*, 933 - 939.
4. Page-Gould, E., Mendes, W. B., & Major, B. (2010). Intergroup contact facilitates physiological recovery following stressful intergroup interactions. *Journal of Experimental Social Psychology, 46*, 854 - 858.
5. Page-Gould, E. (2010). The Unhealthy Racist. In J. H. Marsh, R. Mendoza-Denton, & J. Adam Smith (Eds.), *Are We Born Racist? New Insights from Neuroscience and Positive Psychology* (pp. 41 - 44). Boston, MA, US: Beacon Press.

The first three studies were among the first experimental tests of the effects of cross-group friendship on intergroup experiences and represented some of the first work to examine psychophysiological responses to intergroup interaction using dyadic paradigms (i.e., two real participants). According to Google Scholar, Page-Gould et al. (2008) has been cited 102 times, Mendoza-Denton and Page-Gould (2008) has been cited 28 times, and Page-Gould, Mendoza-Denton, et al. (2010) has been cited 22 times. Moreover, the Page-Gould, Mendoza-Denton, et al. (2010) received the Honourable Mention for the Gordon Allport Intergroup Relations Prize, indicating that it was judged by an international panel of senior researchers to be the second-best paper published in the field of intergroup relations in 2010. Page-Gould, Mendes, et al. (2010) provided the initial link between the literature on acute stress in interracial interactions and the literature on chronic stress and resilience by showing that racially-inexperienced people showed blunted recovery after a stressful interactions. Page-Gould (2010) took this idea one step further by proposing a somewhat provocative hypothesis: that prejudice may predict poor health through dysregulated stress systems. This chapter was published online by the publisher and received a reasonable degree of media attention, culminating in an invited guest blog for the Washington Post (see *Non-refereed Contributions*).

#### **4. Career Interruptions and Special Circumstances (N/A)**

#### **5. Contributions to Training**

I am beginning the fourth year of my academic appointment, and so I have only begun to mentor graduate students. In 2011, I recruited my first MA student, Chad Danyluck. Since his arrival at the University of Toronto (UofT) in September 2011, Chad's potential as a young researcher has been recognized by receiving the SSHRC Doctoral Fellowship (May 2012) and an Indspire Special Youth Award - Métis (August 2012). He successfully defended his Masters Thesis in September 2012. Chad has given a first-author symposium presentation at the Society for the Psychological Study of Social Issues (June 2012) and poster presentations at the Canadian Psychological Association (June 2012), the Association for Psychological Science (May 2012), and the Society for Personality and Social Psychology (SPSP; forthcoming, January 2013). In September 2012, I began mentoring my second MA student, Amanda Sharples. She has already collected complete data from 21 participants in a 10-day longitudinal diary paradigm for her Masters project. Amanda's undergraduate research was also accepted as a poster presentation at SPSP (January 2013). I have also been supervising the "outside projects" of two PhD students at the University of Toronto, Samantha Joel (a SSHRC Bombardier Doctoral Fellow, May 2011) and Bonnie Le (a SSHRC Vanier Doctoral Fellow, May 2012), since January 2012. Both Samantha's and Bonnie's projects take full advantage of the dyadic psychophysiological hardware configuration in my lab. All these students have strong potential for success in academia and plan to pursue research careers.